COON CREEK

A. Water Quality Data

1. Lincoln High School Water Quality Monitoring: Mark Fowler and Lee Beckman provided the following water quality data from the Lincoln High School sampling program, which was jointly funded by NID, Placer County, and the City of Lincoln. While the data are limited, two parameters are of concern from a stream ecology standpoint. First, the dissolved oxygen concentrations reported show supersaturated levels of approximately 150%, which is unusual for lower gradient streams; these data may be unreliable due to methodological problems. Second, the concentrations of nitrate reported are high for a fall reading and could indicate eutrophication of the stream, particularly during the summer months. Without data on orthophospate for comparison, it is impossible to determine if nitrates are limiting biostimulation of algal growth and potentially causing diurnal dissolved oxygen fluctuations during the nighttime hours. Excessive algal growth has been observed in Coon Creek during the summer at these locations. **Source: Lincoln High School Water Quality Monitoring, unpublished data.**

Table 1. Coon Creek water quality data 2002

Parameter	Tahti Property	Fleming Property
Date	10/6/2002	11/17/2002
Time	0955	1115
Air Temperature (^{O}F)	--	61
Water Temperature (^{O}F)	63	52
Weather	Clear	Clear
Stream Flow (cfs)	0.9	3.3
pH	7.35	7.3
Dissolved Oxygen (mg/l)	16.5	16.5
Electrical Conductivity (µs/cm)	97.4	166.5
Color (color units)	14	50
Nitrates (mg/l)	1.1	3.6
Chlorides (mg/l)	0.04	0.04
Total Coliform (MPN/100ml)	93	150
Fecal Coliform (MPN/100ml)	240	43

Source: Lincoln High School Water Quality Monitoring, unpublished data.

2. Auburn Ravine/Coon Creek Ecosystem Restoration Plan: This plan, published by the County of Placer, contains preliminary data on heavy metals and a number of other constituents. This data were collected on Auburn Ravine, Coon Creek, and in the Eastside Canal (the actual sampling location is actually just upstream of the Cross Canal, even though the data location is labeled Cross Canal). The County is already in possession of this data in electronic format and therefore it is not repeated here. However, the data for cadmium, copper, and zinc are presented in Appendix Coon Creek 1 because all of these metals at some times of the year exceed California Toxic Rule objectives for aquatic life. In Coon Creek, the only metal that exceeds the standards at 50 mg/l hardness is copper. The other metals are included because their standards

are exceeded in other streams in the western portion of the County. **Source: California Toxics Rule and Department of Water Resources unpublished data.**

3. FEIR Teichert Aggregate Facility: In the final EIR for this project, Table 13-2 displays surface water quality data for several sites that were sampled once in January 1994. The sites are labeled as W-4, W-5, W-7, and W-8 on Revised Figure 13-6 in the document and correspond to sites in the center of the project area, upstream of the project area but just downstream of Gladding Road, a site just upstream of Gladding Road on the south channel, and a site just upstream of Gladding Road on the north channel, respectively. In general, the water quality parameters measured fall within an expected and acceptable range for anadromous fish streams. However, some of the detection limits used in the analysis preclude an assessment of whether or not certain constituents meet the water quality standards established in the California Toxics Rule. Table 2 displays some pertinent constituents and the applicable standards. **Source: FEIR Teichert Aggregate Facility 2000, Placer County Planning Dept.**

Table 2. Selected water quality constituents from the Teichert Project Site and immediate upstream locations, based on a single sample in January 1994. California Toxic Rule standards are based on a hardness of 100 mg/l as $CaCO_3$. Hardness values less than 100 reduce the acceptable concentration of each applicable standard accordingly.

Constituent	Maximum Concentration (Acute) mg/l	Continuous Concentration (Chronic) mg/l	W-4 mg/l	W-5 mg/l	W-7 mg/l	W-8 mg/l
Hardness	--	--	88	88	85	100
pH			7.6	7.8	7.7	7.5
Silver	0.0034	--	<0.010	<0.010	<0.010	<0.010
Cadmium	0.0043	0.0022	<0.010	<0.010	<0.010	<0.010
Copper	0.0013	0.0090	<0.050	<0.050	<0.050	<0.050
Lead	0.065	0.0025	<0.010	<0.010	<0.010	<0.010

Source: FEIR Teichert Aggregate Facility; California Toxics Rule.

4. NPDES Monitoring Data from Placer County's Wastewater Treatment Plant (SMD #1): Placer County operates this treatment plant and discharges the effluent into Rock Creek immediately upstream of its confluence with Dry Creek. Dry Creek converges with Orr Creek a short distance downstream to become Coon Creek. Approximately 20 years of monitoring data are available. I have included some selected data, (collected in 2001) from the monitoring station designated as R-4, which is in the mixing zone downstream in Dry Creek, to illustrate several points. This source of flow has a definitive effect on the water quality of Coon Creek. While the NPDES monitoring requirements do not require measurement of nitrate levels, this discharge is a major contributor of nitrogen loading in the stream. Floating mats of algae and attached aquatic plants are evident many miles downstream from the discharge. Also, the pH data for the year 2001 (Figure 2) illustrates the rapid fluctuations in values that are being recorded in other streams in western Placer County. Finally, adult fish passage in Coon Creek is almost completely blocked by a barrier in the canyon area of the stream, upstream of Garden Bar Road and downstream of Bell Road. However, there is some anecdotal evidence from local residents, who have occasionally observed salmon and steelhead in Dry Creek. Review of the video taken of this section of the stream shows that the physical habitat conditions appear to be

suitable for salmon and steelhead spawning and rearing on at least an intermittent to annual basis if fish passage were provided over the waterfalls and cascades in the canyon area. Under high flow conditions, fish passage is probably suitable for some percentage of the population. The question is whether the water quality and water temperatures in this section are suitable to justify the investment in a passage program. Water temperature data is presented in the water temperature section of this report. **Source: NPDES Monitoring Data from Placer County's Wastewater Treatment Plant (SMD #1), unpublished data.**

Figure 1. Dissolved oxygen concentrations from NPDES monitoring station R-4, Dry Creek/Coon Creek, during 2001. These data show that dissolved oxygen levels are adequate to support anadromous fish spawning and rearing. The reference at 7 mg/l is considered a minimum optimum level, but salmonids will handle concentrations as low a 5 mg/l.

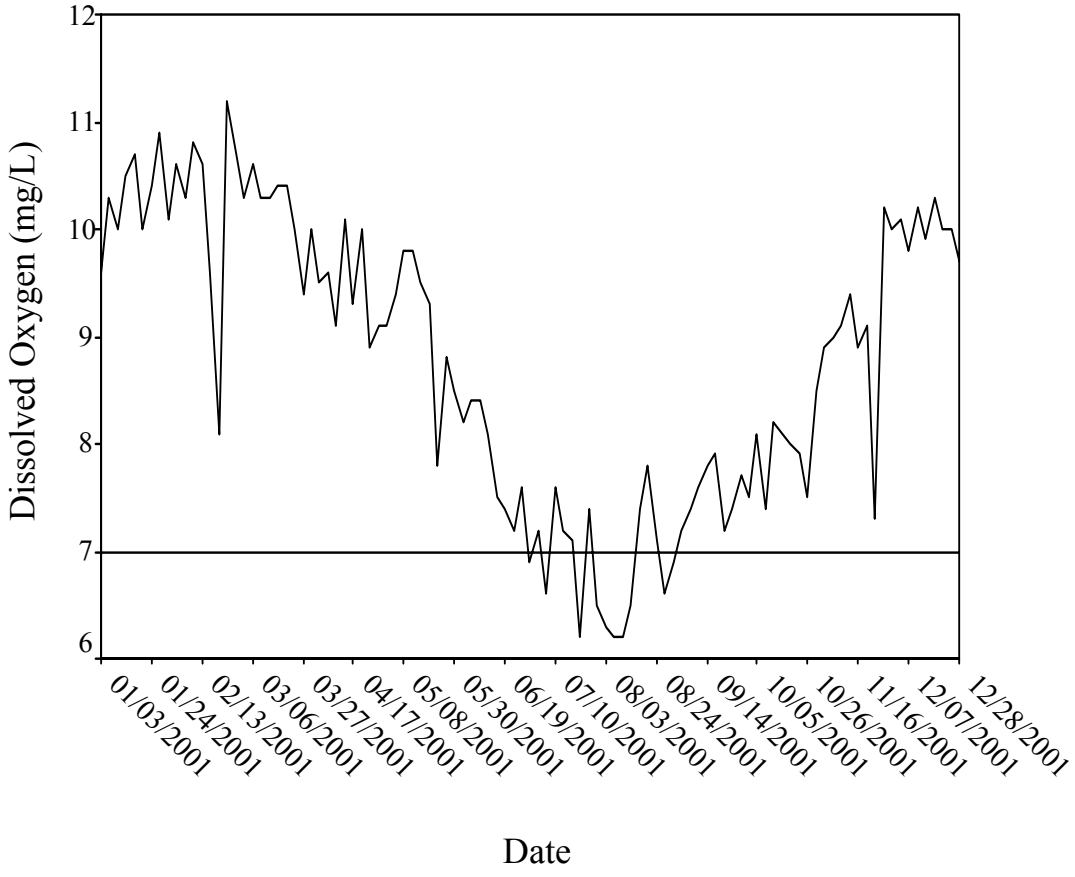
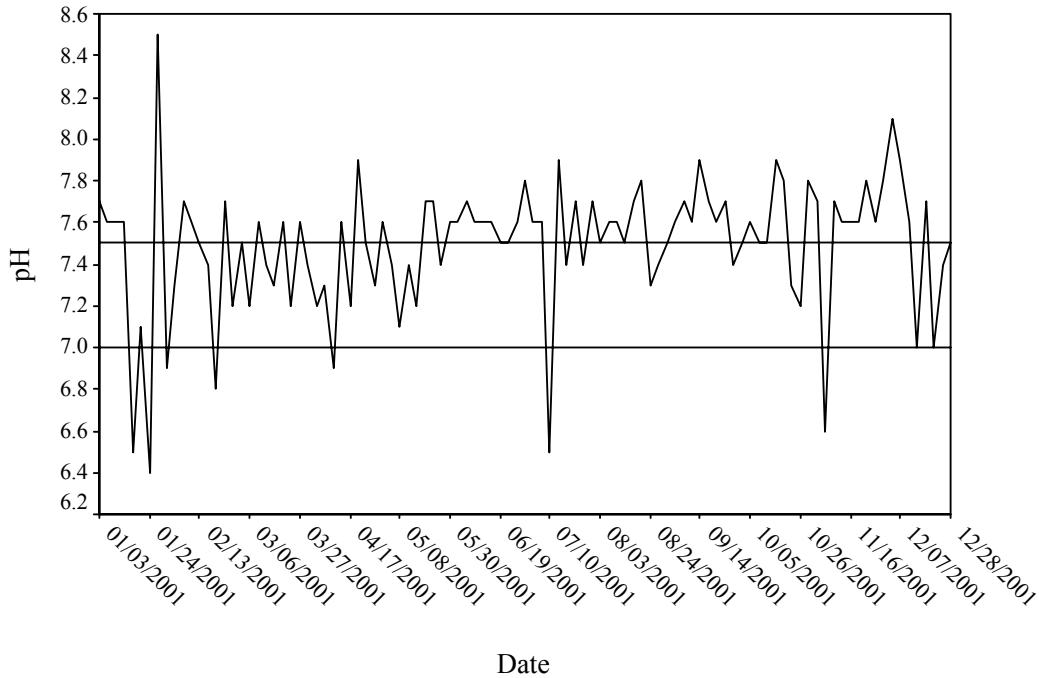


Figure 2. pH values from NPDES monitoring station R-4, Dry Creek/Coon Creek, during 2001. The rapid rate and magnitude of changes are unexplained at this time. Finding the cause the rate and magnitude of changes is essential before any decisions regarding fish passage over the canyon area obstacles are made.



B. Water Temperature Data

Water temperature data were extracted from various one-time fish sampling projects conducted by the CDFG and are presented below. Most of the available data comes from monitoring conducted by Bailey Environmental and includes hourly readings. Due to limitations in the statistical package, only 3,000 temperature data points can be displayed in a single time series plot. Since daily maximum, minimum, and/or mean temperatures individually are of little value, I have chosen to plot all data points. Therefore, I have split the year into time periods that roughly correspond to:

Fall-early winter: September though December; primary fall-run chinook spawning period is November-December.
Winter-spring: January though April; fall-run chinook incubation and rearing and steelhead spawning, incubation, and rearing.
Late spring-summer: May to September; summer rearing for steelhead juveniles.

Data plots for these time periods are presented below to allow the reader to assess the potential of Coon Creek to support chinook salmon and/or steelhead trout spawning and rearing. A variety of localized data and literature was reviewed, in order to get some generalized understanding of the temperature effects on various life history stages for both chinook salmon and steelhead trout. There is fairly substantial variation in temperature effects noted for most life history stages. However, both chinook salmon and steelhead are have a highly adaptable physiology and ability to seek thermal refuge during part of the day which allows them to tolerate and/or avoid

lethal temperatures. Some of the literature sources cite criteria reported by others and some of the data is based on fish captures with water temperature taken concurrently. Two tables with data and reference are included in Appendix A of this report. Based on this review, the following criteria have been used to indicate what life history stages a particular stream may support at any given time:

Chinook Salmon	**°C**	**Steelhead Trout**	**°C**
Egg and fry development	14.4 (58 °F)	Egg and fry development	14.4 (58 °F)
Juvenile rearing	21.1 (70 °F)	Juvenile rearing	22.2 (72 °F)
Adult migration	21.7 (71 °F)	Adult migration and holding	22.2 (72 °F)

Reference lines at 14.4 °C and 22.2 °C have been placed on Figures 3-17, as appropriate, to roughly represent the water temperatures suitable for salmonid spawning migration, egg and fry development, and juvenile rearing.

1. Spring 1965 Fall-run Chinook Salmon Juvenile Emigration Survey by Eric Gerstung: The following water temperature data were reported in this survey. **Source: Hand written draft of May 25, 1965 memorandum in CDFG, Region 2 files.**

Date	Time	Temp. (°F)	Location
3/8/65	1055	56	South channel, 100 yards upstream of Gladding Rd.
3/15/65	1315	59	South channel, 100 yards upstream of Gladding Rd.
3/8/65	1105	57	North channel, 100 yards upstream of Gladding Rd.
3/15/65	1330	58	North channel, 100 yards upstream of Gladding Rd.
3/17/65	1115	54	North channel, 100 yards upstream of Gladding Rd.

Source: Hand written draft of May25, 1965 memorandum in CDFG, Region 2 files.

2. 1984 Seining and Electrofishing for Native Brood Year 1983 Fall-run Chinook Salmon. Source: unsigned, unidentifiable author note in CDGFG, Region 2 files.

Date	Time	Water Temp. (°F)	Location
2/28/84	--	--	McCourtney Road
2/28/84	1030	46	Highway 65
3/27/84	1000	67	McCourtney Road
3/27/84	0900	67	Highway 65
5/2/84	1100	53	McCourtney Road
5/2/84	0900	60	Highway 65
5/24/84	--	70	Highway 65

Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.

3. Dowd Road Juvenile Trapping Survey May 9-17, 1992: This data is from a short-term juvenile chinook salmon trapping program on Coon Creek. The trapping location was located approximately 100 yards downstream of Dowd Road. **Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.**

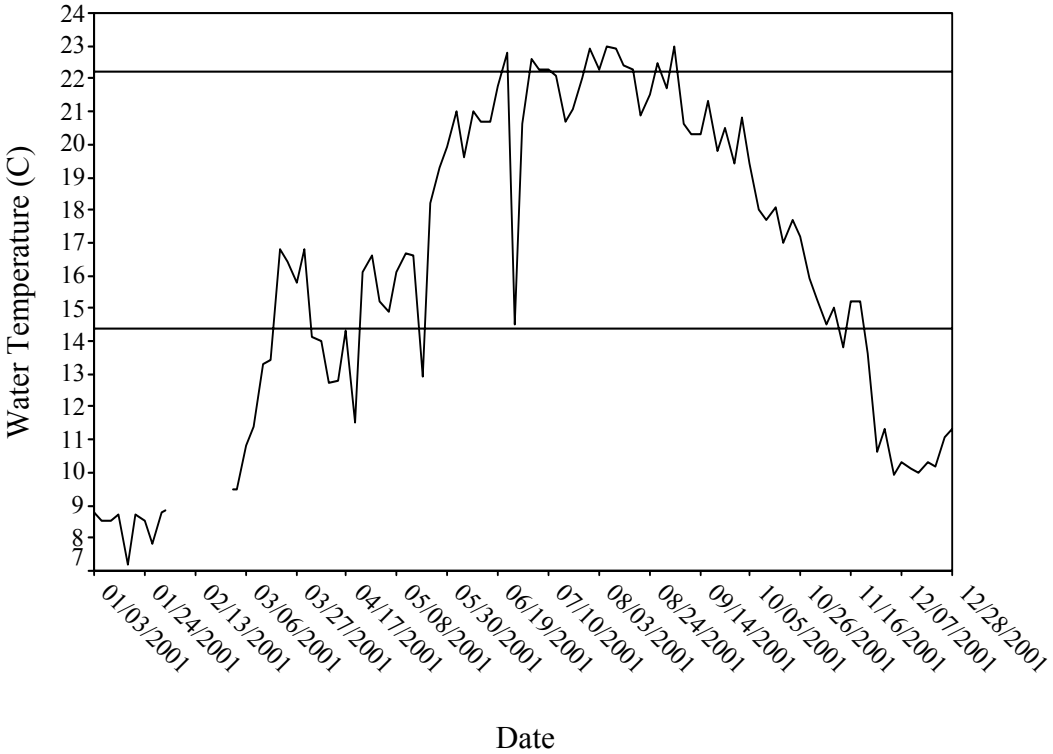
Date	Time	Water Temp. (^{o}F)	Location
5/10/92	0850	65	100 yards downstream of Dowd Rd.
5/11/92	0630	62	100 yards downstream of Dowd Rd.
5/12/92	0630	63	100 yards downstream of Dowd Rd.
5/13/92	0600	66	100 yards downstream of Dowd Rd.
5/14/92	0600	64	100 yards downstream of Dowd Rd.
5/15/92	0700	60	100 yards downstream of Dowd Rd.
5/16/92	0630	65	100 yards downstream of Dowd Rd.
5/17/92	0620	65	100 yards downstream of Dowd Rd.

Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.

4. Department of Fish and Game One-Time Seining Event: CDFG conducted a one-day fish sampling on Coon Creek just upstream of Highway 65 on April 5, 1983. Water temperature was recorded as 54 ^{o}F at 0845. **Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.**

5. NPDES Monitoring Data from Placer County's Wastewater Treatment Plant (SMD #1): Water temperatures are monitored routinely as a condition of the County's NPDES permit requirements. Figure 3 shows data from calendar year 2001. Approximately 20 years of data are available. I chose only station R-4 to highlight because it is the station at the downstream mixing zone of the discharge and represents the most likely water temperatures that would be present in Coon Creek at its beginning. **Source: NPDES Monitoring Data from Placer County's Wastewater Treatment Plant (SMD #1), unpublished data.**

Figure 3. Water temperatures from NPDES monitoring station R-4, Dry Creek/Coon Creek, during 2001. These data show that temperatures in this year were adequate to support anadromous fish spawning and rearing.



6. FEIR Teichert Aggregate Facility: Limited data on water temperatures from the site are presented in the FEIR. However, Warren Shaul of Jones and Stokes has stated that they now have 4 years of data. This data is already presumed to be in the County's possession and is not presented in this report. **Source: FEIR Teichert Aggregate Facility 2000, Placer County Planning Dept. and Warren Shaul, Jones and Stokes, pers. comm.**

7. Water Temperature Information from Bailey Environmental September 2001 to August 2003: Figures 4-8 display water temperatures recorded at the Foggy Ranch property, just upstream of Garden Bar Road. Monitoring at this station began in September 2001, but the temperature sensor has been stolen once and experienced a major malfunction, so there are gaps in the record. Temperature data has also been collected at the Tahti property, just upstream of Gladding Road during the same time period (Figures 9-14). New stations were established in late-May to early-June 2003 under the County's monitoring program. These stations are located on the Zobel property (Figure 15) in Dry Creek downstream from County wastewater treatment plant (SMD #1), at the Coon Creek Trap Club (Figure 16) near the Sutter County line, and at the Nicolaus Road crossing (Figure 17). All of the data are presented in the body of this report because of the short period of record for most stations. **Source: Bailey Environmental, unpublished data.**

Figure 4. Water temperature time series for Coon Creek at the Foggy Ranch, just upstream of Garden Bar Road, September through December 2001. Data indicate that successful fall-run chinook salmon spawning could have begun in late October/early November 2001 and that conditions were suitable for juvenile rearing.

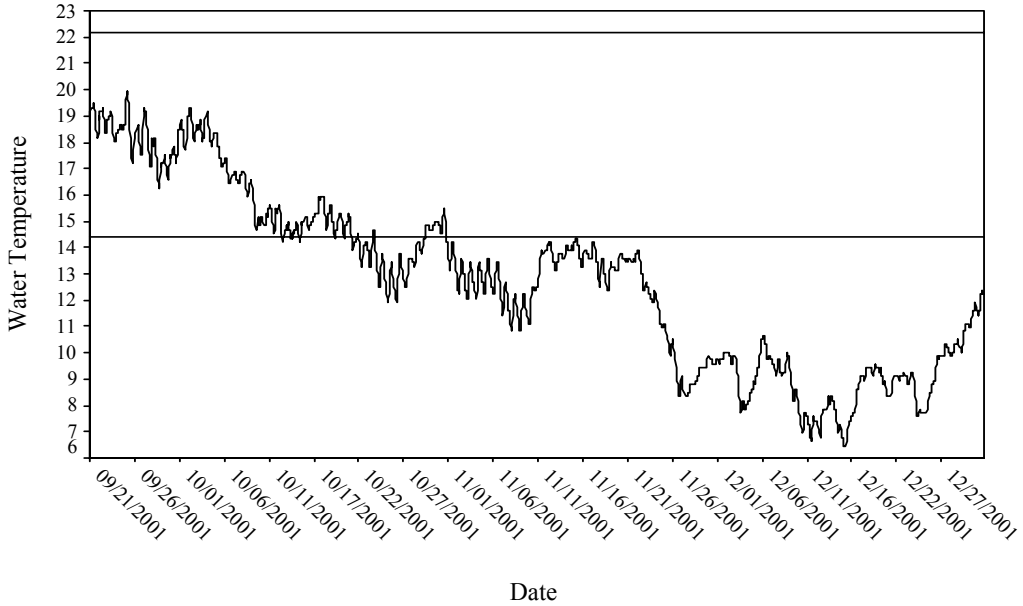


Figure 5. Water temperature time series for Coon Creek at the Foggy Ranch property, just upstream of Garden Bar Road, during the period January through April 2002. Some data are missing because of sensor failure or theft. Temperatures are suitable for egg incubation and juvenile rearing.

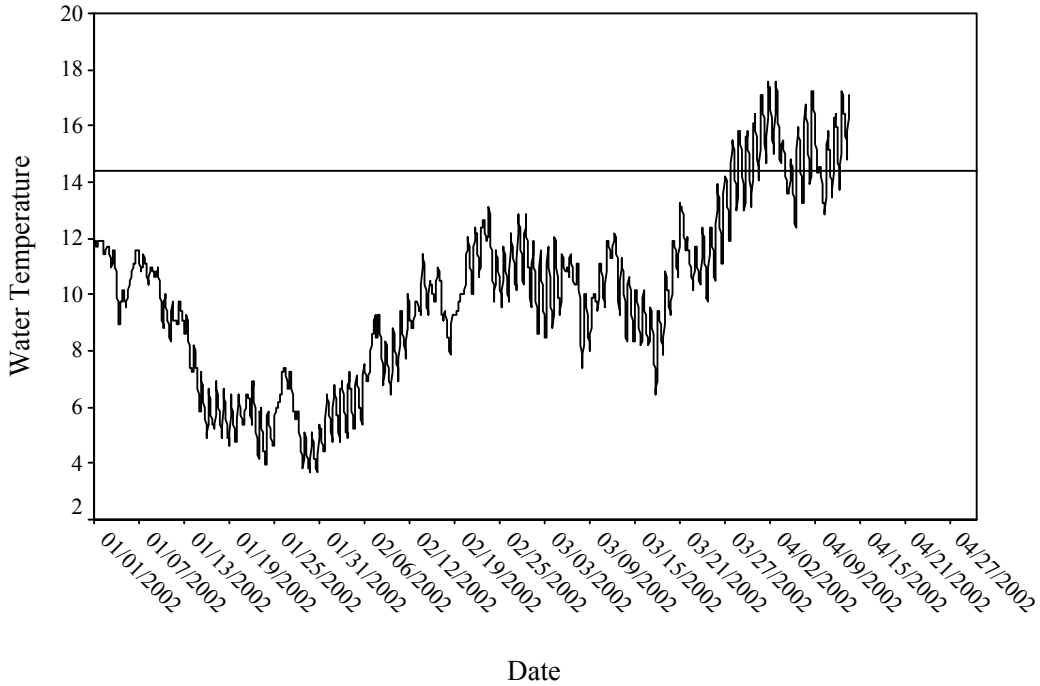


Figure 6. Water temperature time series for Coon Creek at the Foggy Ranch, just upstream of Garden Bar Road, October 22-24, 2002.

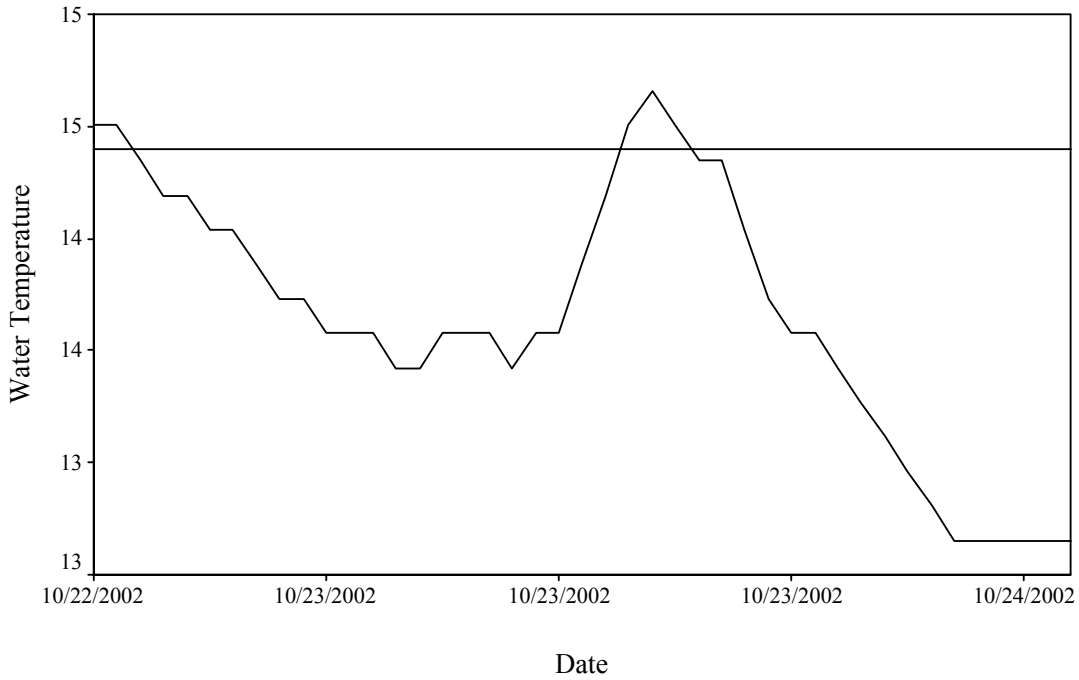


Figure 7. Water temperature time series for Coon Creek at the Foggy Ranch property, just upstream of Garden Bar Road, during the period January through April 2003. Temperatures are suitable for egg incubation and juvenile rearing.

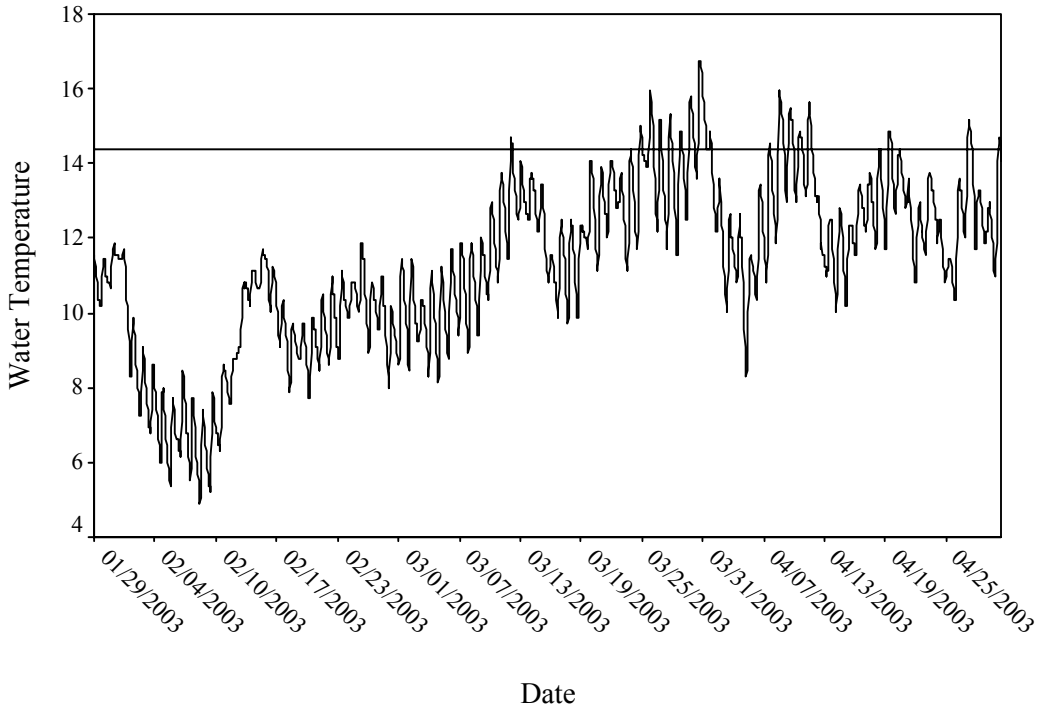


Figure 8. Water temperature time series for Coon Creek at the Foggy Ranch, just upstream of Garden Bar Road, during the period May through August 4, 2003. Temperatures are generally poor for juvenile rearing. This reach would be suitable only if movement to thermal refugia is feasible.

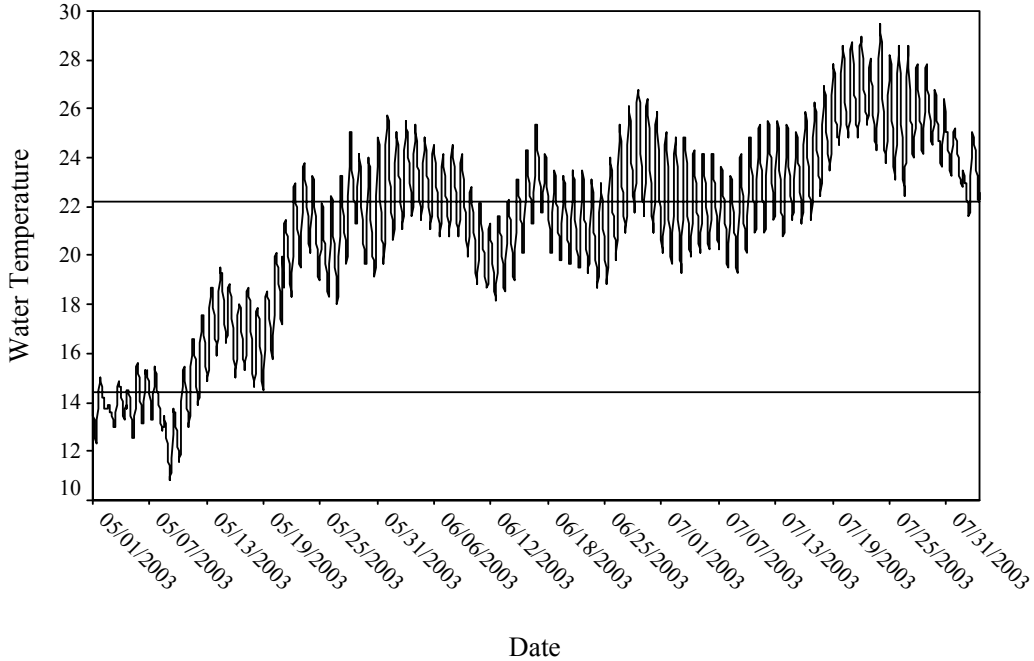


Figure 9. Water temperature time series for Coon Creek at the Tahti property, just upstream of Gladding Road, September through December 2001. These data indicate that successful fall-run chinook salmon spawning could have commenced in late October to early November in 2001 and that conditions were suitable for juvenile rearing.

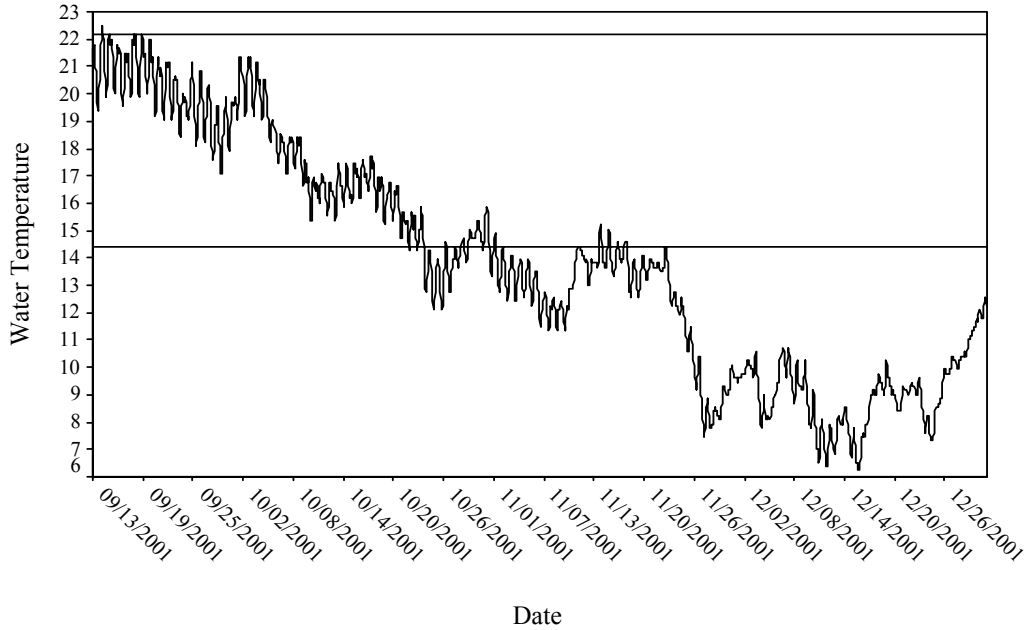


Figure 10. Water temperature time series for Coon Creek at the Tahti property, just upstream of Gladding Road, during the period January through April 2002. Temperatures are suitable for incubation and rearing.

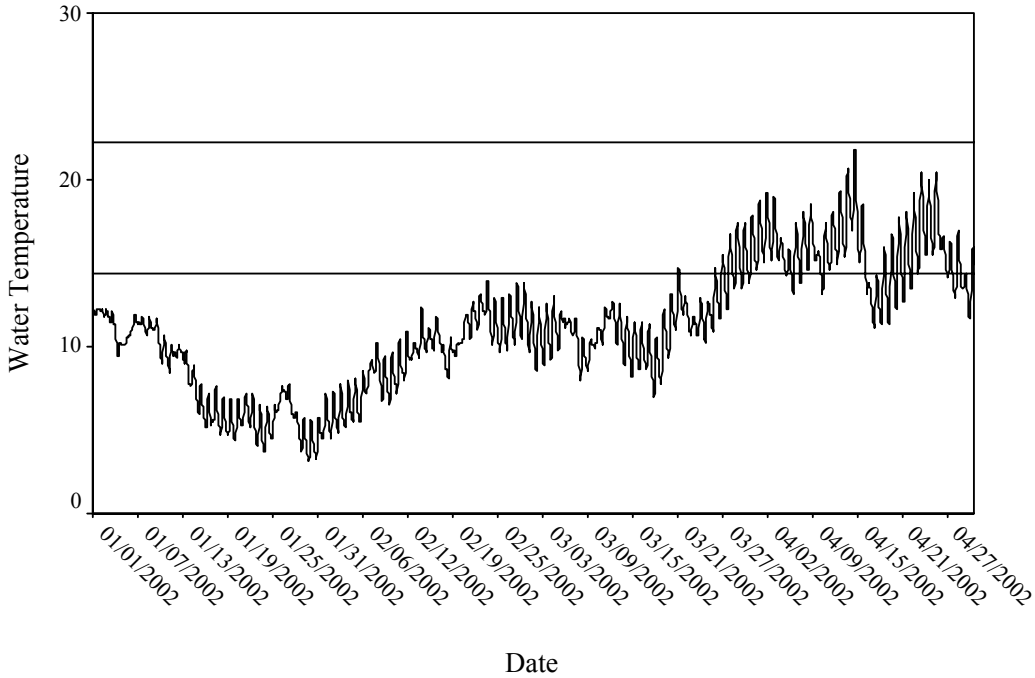


Figure 11. Water temperature time series for Coon Creek at the Tahti property, just upstream of Gladding Road, during the period May through August 2002. Temperatures are marginal to unsuitable for rearing, depending on the availability of thermal refugia.

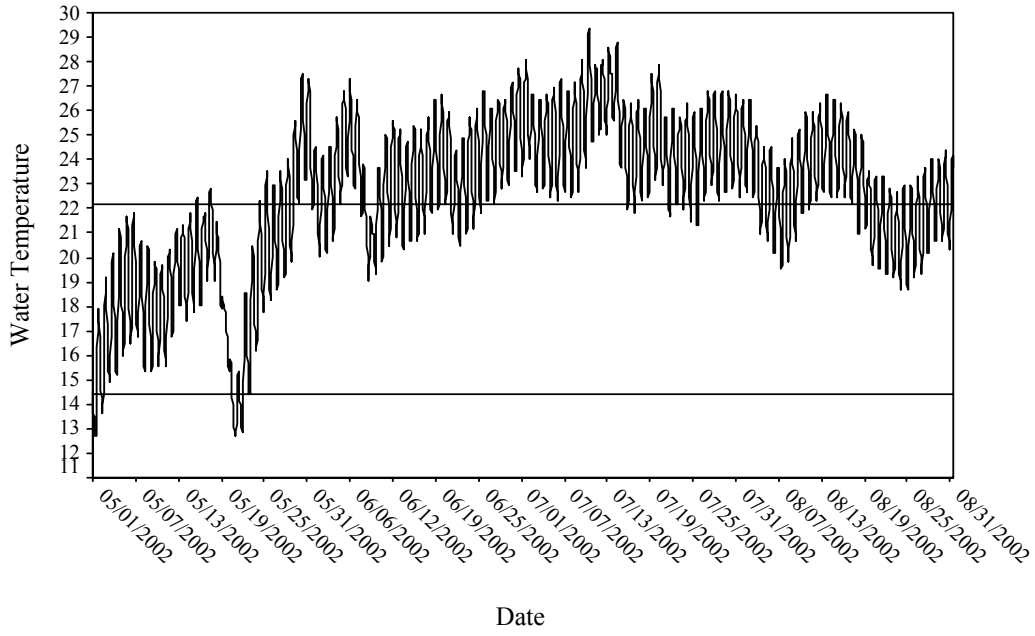


Figure 12. Water temperature time series for Coon Creek at the Tahti property, just upstream of Gladding Road, September through October 22, 2002 (data for October 23 to January 29, 2003 is missing). Successful fall-run chinook salmon spawning could have begun in late October and conditions were suitable for juvenile rearing.

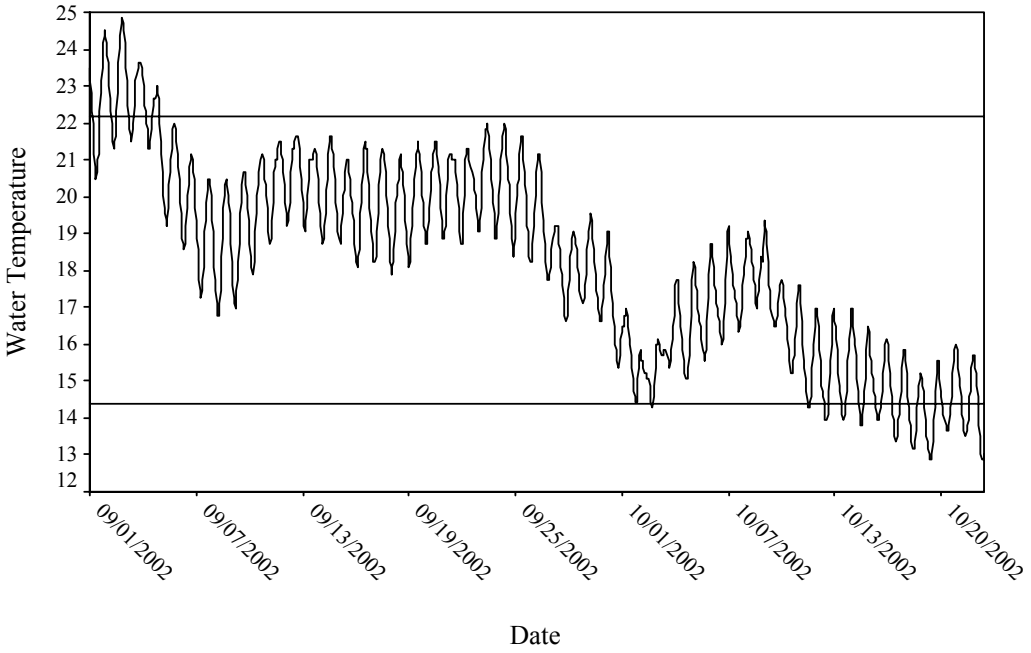


Figure 13. Water temperature time series for Coon Creek at the Tahti property, just upstream of Gladding Road, during the period January through April 2003. Temperatures are suitable for incubation and rearing.

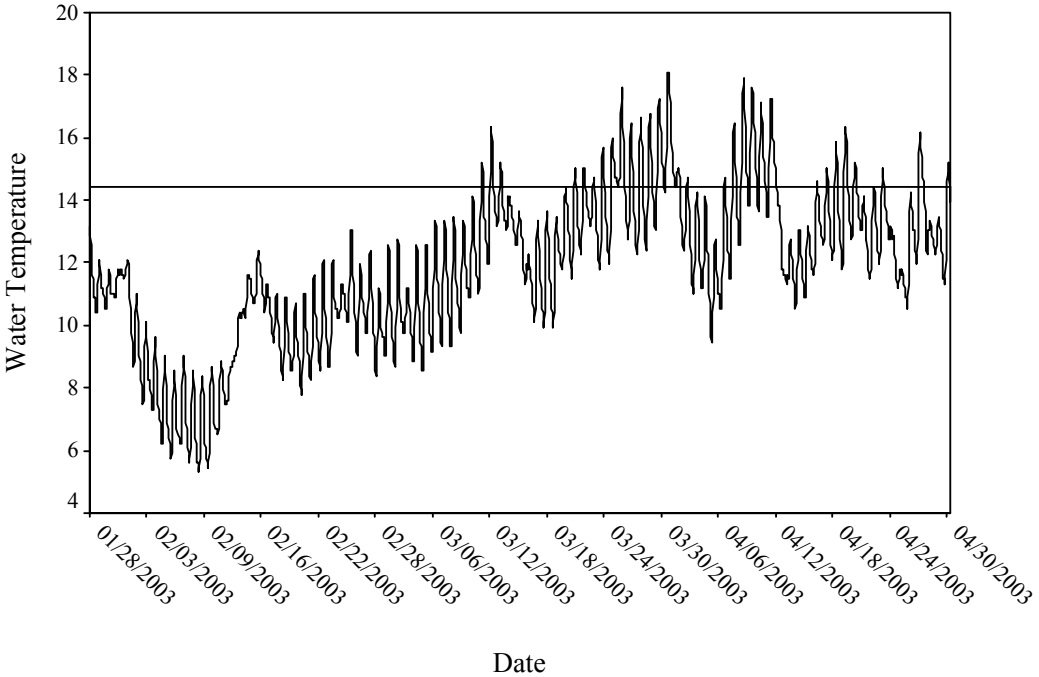


Figure 14. Water temperature time series for Coon Creek at the Tahti property, upstream of Gladding Road, May through August 4, 2003. Temperatures are marginal for juvenile rearing. This reach would be suitable only if movement to thermal refugia is feasible.

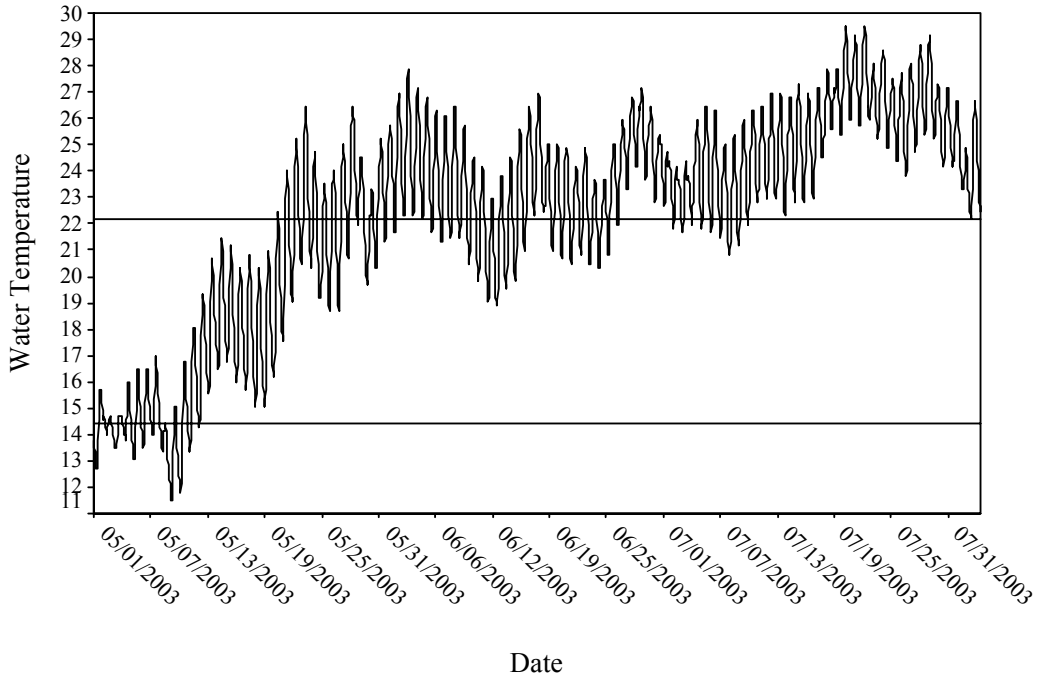


Figure 15. Water temperature time series for Dry Creek/Coon Creek at the Zobel property, June 8 through August 4, 2003. Temperatures are marginal for juvenile rearing. This reach would be suitable only if movement to thermal refugia is feasible.

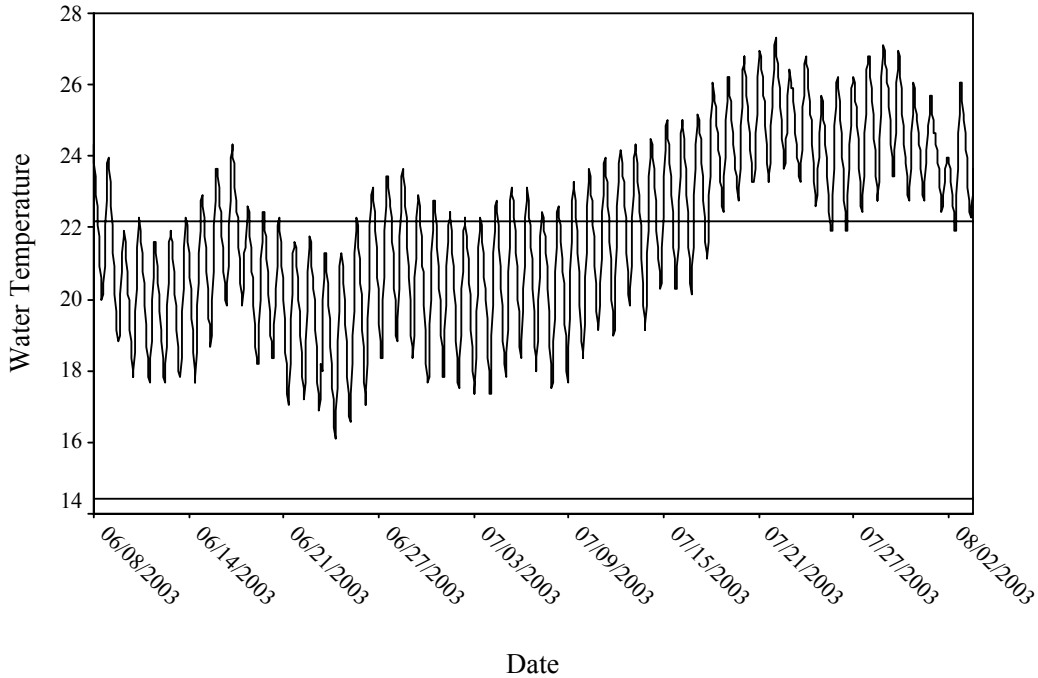


Figure 16. Water temperature time series for the Coon Creek Trap Club, during the period May 28 through August 4, 2003. Temperatures are marginal for juvenile rearing. This reach would be suitable only if movement to thermal refugia is feasible.

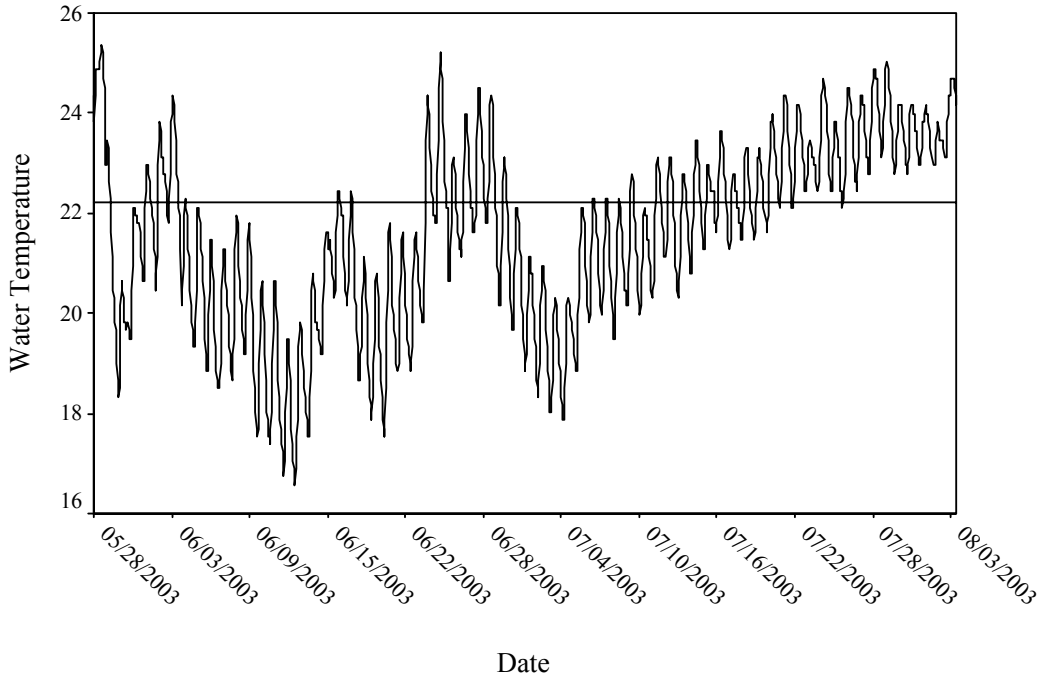
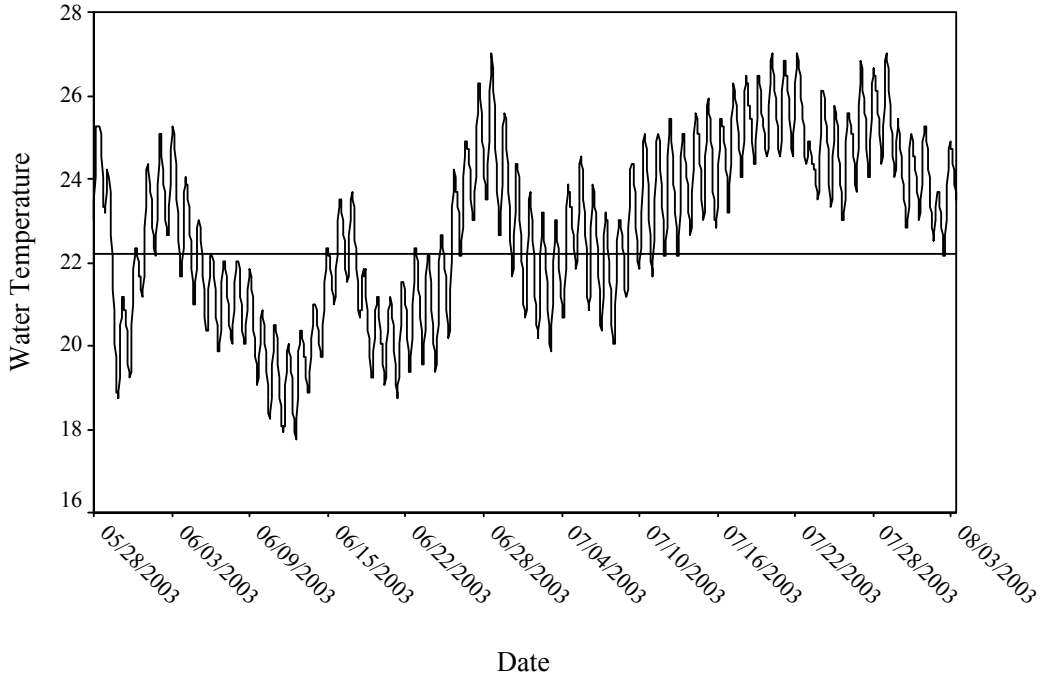


Figure 17. Water temperature time series for Coon Creek at the Nicolaus Road crossing, May 28 through August 4, 2003. Temperatures are marginal for juvenile rearing. This reach would be suitable only if movement to thermal refugia is feasible.



C. Benthic Invertebrate Data

Limited benthic macroinvertebrate data (see Appendix Coon Creek 2 for the complete data set) have been collected from Coon Creek at the Fleming property, downstream of Garden Bar Road. A single sample was collected in December 2000. The data are of limited value. First, samples are collected with equipment that does not readily collect all taxon present in the stream. Second, during the initial sorting, less than 100 individuals were selected for taxonomic identification. This limited sample size raises concerns regarding the representativeness of the data. However, the data do indicate that organisms that are moderately too highly tolerant of water quality impairment dominate the invertebrate community. It is probable that some combination of flow fluctuations, water quality, and the amount of sediment in the stream channel contributes to this general lack of diversity and tendency towards species that are pollution tolerant. **Source: Benthic Macroinvertebrates sampled from Placer County Streams. Prepared for the Auburn Ravine Group by BioAssessment Services, Folsom, CA. December 2002.**

D. Physical Habitat Data

1. April-May 2000 Physical Habitat Survey Conducted by Stacy Li, et. al, for CalSPA: This survey was conducted as part of a court settlement between County of Placer and the California Sportfishing Protection Alliance (CalSPA) regarding Clean Water Act violations at the SMD#1 treatment plant on Joeger Road. The survey area runs from Gladding Road upstream to a large waterfall/cascade on the Spear Ranch property upstream in the canyon above Garden Bar Road. The sampling protocol is based on USDA Forest Service Fish Habitat Relationships program. A list of parameters recorded in the survey is shown below (some variables recorded have not been decoded or interpreted from the field notes). Bailey Environmental is currently the custodian of this data for CalSPA, but data entry and analysis are not complete. Photos were taken of some areas, but they have not been identified to a specific habitat unit. **Source: California Sportfishing Protection Alliance, unpublished data.**

Parameters Recorded	Parameters Recorded	Parameters Recorded
Date Sampled	Water Turbulence Rating	Hydraulic Complexity
Unit Number	Maximum Pool Depth (ft)	Structural Complexity
Primary Habitat Type	Water Depth at Pool Tail Crest (ft)	Left Stream Bank Soil Composition
Secondary Habitat Type	Dominant Substrate Ranking	Right Stream Bank Soil Composition
Pool Type	Subdominant Substrate Ranking	Left Stream Bank Slope Ranking
Number of Channels in the Habitat Unit	Area of Spawning Gravel (sq. ft.)	Right Stream Bank Slope Ranking
Channel Surveyed	Quality of Spawning Gravel Ranking	Left Stream Bank Height (ft)
Flow Split for Multiple Channels (L,M,R)	Quality of Spawning Gravel Constraints Ranking	Right Stream Bank Height (ft)
Cumulative Length to	Rearing Habitat Quality	Left Stream Bank

Habitat Unit Downstream End (ft)	Ranking	Stability Ranking
Cumulative Length to End of Habitat Unit Upstream (ft)	Rearing Habitat Quality Constraints Ranking	Right Stream Bank Stability Ranking
Length of Habitat Unit (ft.)	Area of Aquatic Vegetation (sq. ft.)	Left Stream Bank unknown
Channel Width (ft)	Area of Woody Debris (sq. ft.)	Left Stream Bank Floodplain Connectivity Ranking
Channel Area	Benthos Quality Potential Ranking	Right Stream Bank Floodplain Connectivity Ranking
Water Velocity Rating	Terrestrial Drift Quality Potential Ranking	Left Stream Bank Floodplain Terrace Present
Right Stream Bank Floodplain Terrace Present	Left Stream Bank Vegetative Armor Ranking	Right Bank Vegetative Armoring
Left Stream Bank Riparian Complexity Rating	Right Stream Bank Vegetative Armor Ranking	Notes
Right Stream Bank Riparian Complexity Rating	Left Bank Vegetative Armoring	

Source: California Sportfishing Protection Alliance, unpublished data.

2. FEIR Teichert Aggregate Facility: Jones and Stokes Associates conducted a 1999 habitat survey in the Coon Creek channel from Highway 65 upstream to Gladding Road. The survey protocol is reported to be the same as used by Stacy Li and referenced immediately above. Reference is made to some partial habitat surveys made in 1994 and 1995 and a simple comparison between the percentages of pools, runs, and riffles is presented for the 1999 and 1994-95 surveys for comparable stream channel areas. The following table comes from a Technical Memorandum presented in Appendix J14 of the FEIR and describes the physical habitat conditions found during the 1999 survey. **Source: FEIR Teichert Aggregate Facility 2000, Placer County Planning Dept.**

Habitat Type	Total Length (ft.)	Percent of Total Habitat Surveyed
Mid-Channel Pool	11,114	48.0
Lateral Scour Pool	2,014	8.7
Dammed Pool	51	0.2
Channel Confluence Pool	136	0.6
Run	3,372	14.6
Glide	983	4.3

Low-Gradient Riffle	5,452	23.6

Source: FEIR Teichert Aggregate Facility 2000, Placer County Planning Dept.

3. 2003 Placer County Spawning Gravel Survey: During the summer of 2003, Placer County funded a survey to examine steelhead trout spawning gravels in this drainage (as well as others). No data are currently available from this effort.

4. 2003 Placer County Stream Videography Project: On March 12, 2003 Coon Creek was videotaped from the air, beginning at Highway 49 in Auburn, downstream into the Eastside Canal near its confluence with Auburn Ravine. Review of the video footage shows the riparian area of the stream varies from very poor quality (downstream areas) to very high quality (upstream of Gladding Road). Also, this footage revealed extensive bank erosion that is contributing to the sediment load in the stream. The proportion of the excessive sediment load attributable to bank erosion versus decomposition of underlying rock formations is unknown. Sediment contributions from land disturbing activities and roadways are also unknown. Based on the video footage, the downstream reach (below Gladding Road) should be considered as a migratory corridor only. This area is mostly sand bottomed, low gradient channel with little potential for accommodating good quality spawning or rearing habitats for anadromous fish. The area between Gladding Road and the waterfalls/cascade section in the canyon upstream of Garden Bar Road appears to be suitable spawning and rearing area for both chinook salmon and steelhead trout. The area upstream of the waterfalls/cascades physically appears to be excellent steelhead and potentially good chinook habitat, if fish passage were provided into this section of the stream. **Source: 2003 Placer County Stream Videography Project, unpublished data.**

E. <u>Fishery Resource Data</u>

1. Documented Fish Species Present in the Stream

California roach
Pacific lamprey (indirect evidence)
White catfish
Bullhead (no species given)
Bluegill
Carp
Rainbow trout/steelhead
Sacramento sucker
Brook lamprey
Green sunfish
Log perch
Golden shiner
Mosquitofish
Hitch
Hardhead
Brown trout
Fall-run chinook salmon (native)
Fall-run chinook salmon (introduced – Feather River Fish Hatchery)
Fall-run chinook salmon (introduced – Nimbus Fish Hatchery)
Spring chinook salmon (introduced – Feather River Fish Hatchery)
Sacramento pikeminnow (formerly known as Sacramento squawfish)
Source: California Department of Fish and Game, Region 2 files, Teichert Aggregate Facility FEIR

2. Fish Stocking Records

The following stocking records were found in CDFG's Region 2 files:

Species	Origin	Date	Size (No./lb)	Mean Length*	Number Stocked	Location
Brown trout	Mt. Shasta	6/25/30			30,000	Dry Creek tributary to Coon Creek
Brown trout	Mt. Shasta	7/1/32			10,000	Dry Creek tributary to Coon Creek
Rainbow trout	Mt. Shasta	8/8/45	12	150	1,308	USGS Quad Map coordinates indicate Dry Creek in Auburn
Spring chinook	Feather R. FH	2/21/85	616	45	104,720	Gladding Road
Fall-run chinook	Feather R. FH	2/3/86	480	48	24,000	McCourtney Road
Fall-run chinook	Feather R. FH	1/28/87	704	42	24,640	McCourtney Road
Fall-run chinook	--	1/11/89	1,072	37	100,700	McCourtney Road
Fall-run chinook	Nimbus FH	1/25/90	1,245	35	124,500	McCourtney Road
Fall-run chinook	Feather R. FH	2/26/92	764	41	114,600	Garden Bar Road
Fall-run chinook	Nimbus FH	2/19/93	1,165	36	50,095	Garden Bar Road
Fall-run chinook	Nimbus FH	2/22/93	1,165	36	50,095	Garden Bar Road
Fall-run chinook	Nimbus FH	2/3/94	1,100	37	107,800	Garden Bar Road
Fall-run chinook	Nimbus FH	2/6/95	1,040	37	99,840	Garden Bar Road
Fall-run chinook	Nimbus FH	1/9/96	1,200	36	102,000	Garden Bar Road
Fall-run chinook	Nimbus FH	2/26/97	720	42	102,000	Garden Bar Road

*Length estimates (mm) from Fish Hatchery Management, Fish and Wildlife Service, 1992.

3. Adult Spawning Timing, Distribution, and Population Estimates

- **1964 Fall-run Chinook Salmon Spawning Survey by Eric Gerstung:** Gerstung noted on November 23, 1964 that local ranchers indicated that no run came upstream to spawn

this fall. No survey was conducted on Coon Creek. **Source: May 25, 1965 memorandum in CDFG, Region 2 files.**

- **December 6, 1985 Spawning Survey:** Two locations on Coon Creek were surveyed for fall-run chinook salmon on 12/6/85. The first location was approximately one mile upstream and downstream of Garden Bar Road. The second location was a ¼ mile survey downstream of McCourtney Road. No fish or redds were observed. A 4ft. waterfall was noted one mile downstream of Garden Bar Road. This might be a barrier at certain flows. Flows were estimated at 20-40 cfs, with higher flows earlier. **Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.**

- **1991 Memorandum entitled "Recollection of Auburn Ravine Creek, Coon Creek and Dutch Ravine Creek by Ancle "Slim" Goodall":** This memo documents the memories of Mr. Goodall regarding his fishing and species caught starting in 1939 or 1940. Mr. Goodall fished Coon Creek and Otto recorded "Coon Creek held "spotted native trout" which lived primarily in the shade. Goodall said that the old timers said they'd seen them in the Gold Rush days. Goodall caught trout of this type up to 19 or 20". The fish had brown spotted backs with a rainbow's stripe and olden sides below, and looked to him like a cross between a brown and rainbow trout. In addition, he caught sunfish, catfish, perch, pike and steelhead in the upper stretches of Coon Creek. He saw salmon in the stream above the Garden Bar Bridge. They did not go as far upstream as the steelhead. Goodall said Orr Creek held plenty of trout, as well. **Source: May 26, 1991 Conversation Documented by Ron Otto.**

- **Miscellaneous Anecdotal References:** Three local residents have told me that they have seen adult chinook salmon and steelhead in the watershed. Wayne Vineyard remembers removing adult chinook salmon during the fall when he was "a kid" which would be approximately 50+ years ago. Al Fleming told me that he handled a 56-pound adult chinook in the fall of 1985 from the "upper ranch" property, which is just downstream of Garden Bar Road. Mike Wilson, manager of the Foggy Ranch at Garden Bar Road grew up in the watershed and reports seeing adult chinook salmon and steelhead in the vicinity of Garden Bar Road and upstream on a fairly routine basis over the last 30-40 years.

4. Juvenile Distribution and Sampling Data

- **Spring 1965 Fall-run Chinook Salmon Juvenile Emigration Survey by Eric Gerstung:** Gerstung began trapping downstream migrant fall-run chinook juveniles in both channels of Coon Creek just downstream of McCourtney Road on 3/4/1965 and continued through 3/15/1965 and 3/22/65 on the south and north channels, respectively. The stream was sampled using a "riffle" trap or perforated plate trap. The north-channel trap fished a total of 308.75 hours and captured no juvenile chinook salmon. The south channel trap fished a total of 266.25 hours and captured no juvenile chinook salmon. Water clarity was recorded as clear for each day [11-16 days] the traps were checked over this time period. Water temperatures were recorded at the time the traps were checked and are reported above, in the water temperature section of this report. No other fish species catch composition data is reported. **Source: May 25, 1965 memorandum**

in CDFG, Region 2 files, handwritten draft of May 25, 1965 memo, and other handwritten notes.

- **April 1983 One-time Seining Event:** The Department of Fish and Game conducted a one-time seining event on April 5, 1983 just upstream of Highway 65. Catch composition is reported as: one 92 mm chinook juvenile, 3–squawfish, 1-sucker fry, and 1-green sunfish. Water temperature was recorded as 54° F at 0845. **Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.**

- **1984 Seining and Electrofishing for Native Brood Year 1983 Fall-run Chinook Salmon:** Water temperatures for this sampling effort are reported above. The following sampling results are reported for this sampling effort: **Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.**

Date	Effort	No. Chinook	Length Mode (mm)	Length Range (mm)	Other Fish Species	Location
2/28/84	3 seine hauls	0	0	--		McCourtney Road
2/28/84	2 seine hauls	13	62	32-63	1-hardhead 2- squawfish*	Highway 65
3/27/84	Electrofish. No length	55	46	40-51		McCourtney Road
3/27/84	Electrofish. No length	1	63	63		Highway 65
4/10/84	2 seine hauls	0				Highway 65
5/2/84	2 seine hauls	4		71-83	2 – squawfish 2- carp	McCourtney Road
5/2/84	2 seine hauls	2		85-95	30-squawfish	Highway 65
5/24/84	2 seine hauls	0			1-squawfish; 1 – hitch; "lots" of sucker fry	Highway 65

* Sacramento squawfish are now known as Sacramento pikeminnow.
Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.

- **Dowd Road Juvenile Trapping Survey May 9-17, 1992:** This data is from a short-term juvenile chinook salmon trapping program on Coon Creek. The trapping location was located approximately 100 yards downstream of Dowd Road. Four perforated plate traps were installed on 5/9/92 with an additional three traps installed on 5/10/92. Flow during trapping was estimated at 10-20 cfs. **Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.**

Date	Time	Catch Composition
5/10/92	0850	No chinook, mosquitofish, log perch, white catfish, green sunfish, suckers and fry
5/11/92	0630	No chinook, hitch, brook lamprey, squawfish, bluegill, golden shiners

5/12/92	0630	2-chinook ≈ 90 mm, adult squawfish, 1-hitch, usual species
5/13/92	0600	No chinook, big suckers ≈ 3lbs.
5/14/92	0600	No chinook, usual fish
5/15/92	0700	No chinook, usual fish
5/16/92	0630	No chinook, usual fish
5/17/92	0620	3-chinook ≈ equal size, plus 1-93 mm; usual fish

Source: Unsigned, unidentifiable author note in CDFG, Region 2 files.

- **1994-1995 Fish Resource Surveys for the Proposed Teichert Aggregate Facility:** Jones and Stokes Associates conducted fish resource surveys on the Wilson and Hoffman ranches in the Coon Creek channel between Highway 65 and Gladding Road. No specifics of the sampling protocol are given. Juvenile chinook salmon are reported as being seen, but were not captured during the sampling. The following catch composition table is adapted from Table 15-1 in the FEIR. **Source: FEIR Teichert Aggregate Facility 2000, Placer County Planning Dept.**

Species Common Name	Length Range (mm)	Number Captured
Sacramento pikeminnow	53-191	49
Sacramento sucker	84-167	45
Hardhead	75-200	11
Hitch	100	1
California roach	83	1
Bullhead sp.	40-85	3
Channel catfish	---	2
Green sunfish	52-55	2

Source: FEIR Teichert Aggregate Facility

F. Fish Passage or Screening Data

1. Man-Made Structures or Pumping Stations

Three diversion structures in the watershed are of interest to this assessment:

- **Coppin Dam:** The dam, operated by South Sutter Water District, is located in the Eastside Canal just downstream of its confluence with Auburn Ravine. This is a flashboard diversion dam that operates during the irrigation season, nominally mid-April to October. Since the flashboards are out during the time period when chinook salmon and steelhead adults would be attempting to enter the watershed, this location is not a concern for adult passage. However, there are two anecdotal reports (Ron Otto and Riley Swift, pers. comm.) of half-pounder steelhead migrating upstream in Auburn Ravine during May. This diversion dam is operating during that time period and could provide a passage barrier to these fish. It is unknown if half-pounder steelhead attempt to migrate

upstream into the Coon Creek Watershed. If they do, there is a relatively inexpensive and simple fix to provide passage over this flashboard dam.

- **Concrete Diversion Structure on the Teichert Aggregate Property:** In the FEIR for the Teichert Aggregate Facility, there is discussion and mitigation regarding a concrete flashboard dam on the Wilson property, which is about midway between Gladding Road and Highway 65 (see Figure 15-3 in the FEIR). Review of the videotape from the County's Videography Project shows this concrete diversion dam has been breeched on the south bank by high flows and does not appear to be an adult fish passage problem at this time. However, what appears to be a new concrete weir/chute structure appears to have been placed in and across the entire stream channel upstream, immediately downstream from Gladding Road. From the videotape footage it is impossible to determine the height or water velocity through this structure. This structure is not mentioned in the Fish Resources Chapter of the FEIR, and no fish passage provisions associated with this structure were obvious during review of the videotape. Specific information and specifications regarding are necessary in order to determine if a fish passage impediment is present during certain flows.

- **Camp Far West Ditch Canal Diversion:** Review of the VHS tape for the upper portion of the watershed near Bell Road in North Auburn shows a diversion structure, which I believe is the Camp Far West Ditch Diversion. This structure and unscreened diversion is located upstream of any nominal anadromous fish distribution at this time. However, if anadromous fish passage were provided over the impediments in the canyon portion of the watershed, upstream of Garden Bar Road, then juvenile anadromous fish exclusion concerns would need to be addressed.

Several pumping stations are located along the stream channel. It is unknown if any of these pumping stations pose a major threat to emigrating anadromous fish juveniles. However, I suspect that the risk is minimal from these locations because they are generally not in operation until irrigation season and by the nominal start date of mid-April, water temperatures downstream in the Eastside Canal and Cross Canal are most likely lethal anyway. This situation deserves further evaluation, but it is probably a low priority.

2. Water Flows

Fall and winter water flows are particularly important in Coon Creek. Because water deliveries are curtailed, generally before fall-run chinook salmon attempt to migrate upstream to spawn, the depth of water in the channel can be insufficient to provide adult passage. Adult chinook salmon and steelhead need approximately 1± foot of water depth with some resting pools in order to migrate upstream. Transit time for adult fish from the Cross Canal confluence to upstream of Gladding Road could routinely be accomplished in two to three days. However, adequate water depth is critical and should be taken into consideration concurrently with any fish passage projects for this drainage. The County of Placer has been purchasing water to dilute its flows from SMD #1, but the quantity of water is inadequate to provide fish passage from Auburn downstream to the Eastside Canal.

3. Beaver Dams

Beaver dams and beaver activity are known to adversely affect adult anadromous fish passage in this watershed. During the stream videography project, six beaver dams capable of affecting passage were documented from the air between the confluence with Eastside Canal and the area upstream of the McCourtney Road crossing on March 12, 2003. During the fall/winter of 2002/2003, a major beaver dam was located approximately ¼ mile downstream of the McCourtney Road crossing on the South Channel. This dam remained in place and appeared to block adult fish passage for the entire spawning season for both fall-run chinook and steelhead, although anecdotal evidence from local ranchers indicate that at least one chinook salmon did migrate upstream to the Spear Ranch property upstream of Garden Bar Road. The North Channel appeared to be a barrier all winter long because of low flows.

APPENDIX COON CREEK 1

HEAVY METALS COMPARISON
BETWEEN COON CREEK AND EASTSIDE CANAL

	Assumes a Hardness	Maximum	Continuous			
	Of 50 mg/l as CaCO3	Concentration	Concentration			
		(Acute)	(Chronic)			
	METAL	(mg/l)	(mg/l)			
	Barium	No standard	No standard			
	Cadmium	0.002	0.0013			
	Copper	0.007	0.005			
	Zinc	0.067	0.066			

Stream	Location	Date	Cadmium mg/l	Copper mg/l*	Zinc mg/l	Notes
Coon Creek	Sutter County	01/25/01	0.000042	0.00446	0.00658	Hardness = 65 mg/l
Coon Creek	Sutter County	03/01/01	0.000056	**0.0106**	0.0101	Hardness = 76 mg/l
Coon Creek	Sutter County	04/05/01	0.000028	0.00395	0.00276	Hardness = 72 mg/l
Coon Creek	Sutter County	05/03/01	0.000045	**0.00548**	0.00376	Hardness = 72 mg/l
Coon Creek	Sutter County	06/06/01	0.000024	**0.0458**	0.00213	Hardness = 50 mg/l
Coon Creek	Sutter County	07/17/01	0.000019	0.00197	0.00153	Hardness = 173 mg/l
Coon Creek	Sutter County	08/02/01	0.000007	0.0008	0.00096	Hardness = 176 mg/l
Coon Creek	Sutter County	09/06/01	0.000011	0.00284	0.00146	Hardness = 47 mg/l
Coon Creek	Sutter County	10/11/01	0.000013	0.00387	0.00115	Hardness = 65 mg/l
Coon Creek	Sutter County	10/31/01	0.000007	0.00288	0.0014	Hardness = 64 mg/l
Coon Creek	Sutter County	12/21/01	0.000125	**0.0157**	0.0162	Hardness = 63 mg/l
Cross Canal	Sutter County	01/25/01	0.000039	0.00445	0.00555	Hardness = 65 mg/l
Cross Canal	Sutter County	03/01/01	0.000052	**0.011**	0.0102	Hardness = 72 mg/l
Cross Canal	Sutter County	04/05/01	0.000014	0.00299	0.00301	Hardness = 46 mg/l
Cross Canal	Sutter County	05/03/01	0.000015	0.00298	0.0019	Hardness = 46 mg/l
Cross Canal	Sutter County	06/06/01	0.000023	0.00214	0.00113	Hardness = 52 mg/l
Cross Canal	Sutter County	07/17/01	No Flow	No Flow	No Flow	No Flow
Cross Canal	Sutter County	08/02/01	0.000015	0.00278	0.00291	Hardness = 59 mg/l
Cross Canal	Sutter County	09/06/01	0.000014	0.00302	0.0026	Hardness = 70 mg/l
Cross Canal	Sutter County	10/11/01	0.000013	0.00343	0.00236	Hardness = 65 mg/l
Cross Canal	Sutter County	10/31/01	0.000015	0.00354	0.00228	Hardness = 63 mg/l
Cross Canal	Sutter County	12/21/01	0.000098	**0.0117**	0.0158	Hardness = 58 mg/l

***** Values in bold exceed California Toxics Rule objectives for aquatic life at a hardness of 50 mg/l.

Sources: California Toxics Rule (water quality objectives); Department of Water Resources unpublished data.

APPENDIX COON CREEK 2

BENTHIC MACROINVERTEBRATE DATA
COLLECTED BY THE AUBURN RAVINE CITIZENS GROUP

PHYLUM									
	Class						12/01/00		
		Order					Coon Creek @		
			Family				upper Fleming		
				Genus species	TV[1]	FFG[2]	CCF-A	CCF-B	CCF-C
ARTHROPODA									
	Hexapoda								
		Coleoptera (Larvae)							
			Elmidae		5	cg	6	11	6
			Psephenidae		4	sc		1	
		Diptera							
			Chironomidae		6	cg	20	13	4
			Empididae		6	p	2		
			Simuliidae		6	cf	7	17	70
			Tipulidae		3	sh		1	
		Ephemeroptera							
			Baetidae		4	cg	23	18	5
			Ephemerellidae		1	cg			
			Leptohyphidae		4	cg	8	7	2
		Plecoptera							
			Capniidae		1	sh			
			Chloroperlidae		1	p			
			Perlodidae		2	p			
		Trichoptera							
			Brachycentridae		1	ot	8	6	1
			Glossosomatidae		0	sc			
			Hydropsychidae		4	cf	4	8	2
			Hydroptilidae		4	ot			
			Leptoceridae		4	ot			
			Philopotamidae		3	cf		3	1
		Lepidostoma							
			Pyralidae		5	sc	2		
		Odonata							
			Coenagrionidae		9	p	4	2	
			Gomphidae		4	p			
			Libellulidae		9	p			
Subphylum Chelicerata									
	Arachnoidea								
		Hydracarina (=Acari)			5	p			
Subphylum Crustacea									
	Malacostraca								
		Amphipoda			4	cg	1		
MOLLUSCA									
	Gastropoda								

		Limnophila						
			Planorbidae	6	sc			
	Bivalvia							
		Pelecypoda						
			Corbiculacea	10	cf		1	
NEMATODA				5	p			
NEMERTEA						1		
PLATYHELMINTHES								
	Turbellaria							
		Tricladida						
			Planariidae	4	p	3	3	2
ANNELIDA								
	Oligochaeta			5	cg	6	1	1
					Total Macroinvertebrates:	95	92	94
[1] TV: Tolerance Values								
[2] FFG: Fuctional Feeding Groups								
				Taxonomic Richness		14	14	10
				EPT Taxa		4	5	5
				Ephemeroptera Taxa		2	2	2
				Plecoptera Taxa		0	0	0
				Trichoptera Taxa		2	3	3
				EPT Index		45	46	12
				Sensitive EPT Index		8	10	2
				Tolerance Value		4.7	4.7	5.6
				Percent Intolerant Organisms		8	11	2
				Percent Tolerant Organisms		4.2	3.3	0.0
				Percent Dominant Taxon		24	20	74
				Percent Collectors		67	54	19
				Percent Filterers		12	32	78
				Percent Grazers		2	1	0
				Percent Predators		9	5	2
				Percent Shredders		0	1	0
				Other		8	7	1
					Dec-00			
					Coon Creek @			
					upper Fleming			

	Mean	SE	CST
Taxonomic Richness	13	1.3	18
EPT Taxa	5	0.3	5
Ephemeroptera Taxa	2	0.0	2
Plecoptera Taxa	0	0.0	0
Trichoptera Taxa	3	0.3	3
EPT Index (%)	34	11	34
Sensitive EPT Index (%)	7	2.4	7
Dominant Taxon (%)	39	18	33
Tolerance Value	5.0	0.3	5.0
Intolerant Organisms (%)	7	2.6	7
Tolerant Organisms (%)	2.5	1.3	2.5
Collectors (%)	47	14	47
Filterers (%)	40	20	40
Grazers (%)	1	0.6	1
Predators (%)	6	2.1	6
Shredders (%)	0	0.4	0
Other (%)	5	2.2	5

* Site statistics based on small and variable sample sizes