DEPOSITION OF FINE SEDIMENT IN THE SALMON RIVER WATERSHED, PAYETTE AND BOISE NATIONAL FORESTS, IDAHO

STATISTICAL SUMMARY OF INTERSTITIAL AND SURFACE SEDIMENT MONITORING, 1983-2007

Goat Creek at the South Fork Salmon River Road and the Cascade Complex Fire, 11 September 2007

Rodger L. Nelson, Fisheries Biologist, Payette National Forest
Gina T. Bonaminio, Fisheries Biologist, Payette National Forest

November 2008

Abstract

This report updates analyses of interstitial sediment monitoring on the Payette National Forest and incorporates up to 24 years of monitoring. It is mainly a statistical summary with minimal interpretation, though we have discussed obvious inferences that appeared, and we have provided classification of most sites according to sediment-related WCIs as modified for the SFSR and reference sites in the Chamberlain Basin, and we have identified approximate sediment-related WCIs for the non-granitic portions of the SFSR and Big Creek watersheds. In general, reference sites were characterized by more interstitial space than sites in developed watersheds and reference sites were most often classified as "functioning appropriately" (FA); however, there were many exceptions. The sites in non-granitic watersheds were also typically higher in interstitial space than those in granitic watersheds, which reflects mainly inherent differences due to bedrock characteristics.

A unique feature of this report is that it attempts to provide a framework for adjusting our monitoring program. There are practical and legal requirements to continue sediment monitoring as we have been doing it, but there seems to be some room for reducing the scope of the effort without sacrificing needed information.

As always, this report supersedes previous reports where results overlap. We are continually upgrading and correcting errors in production data, analytic routines, and previous reports. This report represents the epitome of this process at the time it was released.

Table of Contents

List of Tables

List of Figures

Introduction

The genesis and development of sediment monitoring on the Payette National Forest (PNF) is thoroughly described in previous reports (Burns 1984 *et seq.*; Nelson *et al.* 1996 *et seq.*; Ries and Burns 1989; Ries *et al.* 1991). The purpose of this report is to summarize the interstitial and surface sediment monitoring data collected on the Payette National Forest since 1983, exclusive of monitoring specific to grazing allotment management, which is reported elsewhere (Nelson 2008). These data can be used to evaluate conditions relative to so-called "Watershed Condition Indicators" (WCIs) promulgated by our revised Land and Resource Management Plan (LRMP; USFS 2003), and as revised by Nelson and Burns (2005) for the South Fork Salmon River (SFSR) pursuant to Endangered Species Act consultation with NOAA Fisheries Service (NMFS 2003); analyses and graphics are displayed to facilitate comparison to the appropriate WCIs.

We also need a method to help determine which cobble embeddedness data from certain years that we have identified as probably containing invalid measurements are most likely to be incorrect, and which are likely to be correct. We explored this question in a very preliminary sense in last year's report (Nelson and Burns 2007) using analysis of influence statistics in the regression analysis, and believe that it has potential for wider application to our production data to produce more robust comparisons and trend analyses in the future; however, time constraints have precluded using that approach on either a second test or on the database as a whole at this time.

We are beginning with this report to take a hard look at streamlining our sediment monitoring program. Our need to continue the monitoring program has been affirmed in several planning and consultation documents, including the Biological Opinion (BO) on the revised PNF LRMP (NMFS 2003). Reduced staffing and funding levels for the Forest impact our ability to fully and accurately sample and thoroughly analyze data at the scope to which we are accustomed. There does, however, appear to be some room for adjusting the scope of the effort without sacrificing needed information, and a framework for developing a streamlined sampling program is initiated in this report.

This report is also the third[1] in the series for 2008 and completes the final part of the reporting needs for the updated South Fork Salmon River Interactive Report available on CD-ROM[2]. It is also a report that summarizes data from the 12 years since we instituted a rigorous annual pre-season training program that includes classroom instruction in sediment and fish issues and data collection methods as well as field practice; the Microsoft® PowerPoint® training package is also included on the CD-ROM and development of a web-based training module is in development.

[1] The annual Fisheries — Range Monitoring Report has been added to this series this year; it includes temperature monitoring information as well as sediment analyses at some of the same sites included in this report.

[2] Contact Rodger L. Nelson for the interactive report on CD-ROM.

Methods

Study Areas

Study areas are organized here much as they were in Nelson *et al*. (2004a *et seq.*), with monitoring sites described as "Primary," "Supplemental" (Appendix 1, Table 3) or "Miscellaneous" (Appendix 2, Table 4) depending upon the extent of their records and whether they receive regular monitoring, except:

- The third Cabin Creek site (B127) was upgraded to a primary site because it should be used for a three-way site comparison on Cabin Creek for SFSR Road Reconstruction monitoring.

- The Lower site on Porphyry Creek (E054) was dropped in favor of the Lower site on Sheep Creek (E039) because the latter is more representative of the Idaho Batholith geology typical of the SFSR and makes a better control site for this reason[3].

This site organization excludes sites that were specifically created to monitor effects of grazing management on salmonid habitat, but the primary sites and some supplemental sites in the Secesh River watershed are used for that monitoring as well; fuller analysis of grazing management monitoring can be found in Nelson (2008).

The monitoring sites in the East Fork SFSR (EFSFSR) and Monumental Creek were established primarily to monitor the effects of large mines (at Stibnite and Thunder Mountain, respectively), but mining operations in those areas have been discontinued; consequently, except for the reference site on Tamarack Creek in the Frank Church River Of No Return Wilderness (FCRONRW) monitoring at these sites was discontinued. Unfortunately, however, the Tamarack creek site was inadvertently not sampled in 2007.

Statistical Analyses

Information about sampling methods, statistical procedures, and database quality control/quality assurance is presented in Nelson *et al.* (1997 *et seq.*) and are not fully reiterated here. Information from discontinued sites that had data collected after production of Nelson *et al*. (1997) was updated in Nelson *et al.* (2004a) and is not included in this report unless additional data have been collected. Thorough discussion of statistical methods was presented in a previous interstitial monitoring report (Nelson *et al*. [2006]) and is not reiterated fully here; however, we have decided to use the SAS® general linear models procedure (PROC GLM) for all means comparisons, which facilitates standardizing analytical outputs and creating summaries that can be pasted into tables in this report. The results from PROC GLM with only two classes are equivalent to results provided by PROC TTEST (the t-test procedure; SAS® Institute 1989), except that we cannot adjust for unequal variances, an adjustment that has not seemed to be very helpful in any case.

No residual analysis was used on the 2007 data set because the regression of free matrix counts on cobble embeddedness was satisfactory. Because of the apparent success of the approach reported in Nelson and Burns (2007), future analytical effort should be directed at performing the residual analysis on earlier data to allow removal of apparently poor observations from each year's data set to eliminate the need for excluding all cobble embeddedness data from those years.

[3] However, E054 was retained in the double sampling analysis this year; E039 will be used in future analyses.

In the multiple and two-way comparisons, all cobble embeddedness data were used (*i.e.*, data from apparent problem years was not excluded). In most cases, this meant that one value (the data point from 2006) was included in the comparison, but the residual analysis in Nelson and Burns (2007) suggests that inappropriate comparisons would likely be infrequent and the comparisons should be reasonable in most cases. For time series analysis, however, only the data from non-suspect years were used to maintain consistency with the time series graphs and to ensure appropriate modeling of trends. More comprehensive residual analysis with influence diagnostics should be used on the production data to allow the elimination of this apparent inconsistency between analyses.

Surface fines statistics are presented in the statistical summary tables (Appendix 4), time trends for primary sites in Appendix 3 and for supplemental sites in Appendix 5, and time series graphs are presented in Appendix 6, but surface fines are not specifically discussed in the report. We have argued elsewhere that surface fines represent poor salmonid habitat condition indicators (Nelson *et al.* 2004b), and display them here for completeness; however, we continue to caution that visually determining the frequency of fine particles is problematic.

Changes and Clarifications for this Report

The categorization of two Lower SFSR sites have been changed. Previous reports (Nelson *et al*. 1997 *et seq*.) have suggested that the Porphyry Creek sites were inherently different than most SFSR sites; this was also discussed in Nelson and Burns (2005). In 2007, data were not collected at site E054 because of the wildfires that occurred in the SFSR, making multiple comparison of Lower SFSR sites using 2007 for all sites impossible. Because site E056 may not be a suitable control site for the other Lower SFSR sites, data were missing for 2007, and because access is difficult and has always been a problem for field crews, we decided to substitute the Lower Sheep Creek site (E039), also an undeveloped watershed near Pony Creek, for E054 in this and all future analyses. There are no current cobble embeddedness data for site E039, but they will be routinely collected in the future. The Lower Sheep Creek site was included in the analysis that led to revision of the interstitial sediment WCIs in the SFSR (Nelson and Burns 2005) and makes an appropriate control for the lower SFSR.Thus, E039 has been elevated to a primary site (Appendix 1, Table 4), whereas E056 has been reclassified to a miscellaneous site (Appendix 2, Table 5).

The realignment of data from two Threemile Creek sites, E077 and E142 led to the classification of E077 as a supplemental site; with this report, E142 has been reclassified as a miscellaneous site, though some data are displayed because they were collected in 2007 (this was briefly mentioned in Nelson *et al.* [2006] and is reiterated more clearly here).

We have also changed the SFSR Road Reconstruction Project monitoring site analytical scheme for this and subsequent analyses. The two Cabin Creek sites typically monitored (B126 and B125) were upstream and downstream, respectively, of the removed road section and downstream of the paved road section. We have decided to add the true control site (B127) that is upstream of the paved road section for a improved evaluation of the project's effects. The multiple comparison was then performed as usual, except that data were inadvertently not collected at site E068 on Fourmile Creek in 2007[4].

[4] This changed the defined "recent" period for this site only.

Display Issues

In Nelson *et al*. (2006) we added visual cues to highlight important information in the statistical summary tables, and we have continued that in this report. The statistical tables display a five-year mean for 30-hoop free matrix and cobble embeddedness, where possible, from the most recent five annual means with colored shading; these means are referred to as "recent," though for some sites with discontinuous records, the data may not have been collected very recently. The color-coding used was: light green for "Functioning Appropriately" (*e.g.*, FA), light blue for "Functioning at Risk" (*e.g.*, FR), and light pink for "Functioning at Unacceptable Risk" (*e.g.*, FUR)[5]; means were rounded to the nearest full percentage for determining the rating. With cobble embeddedness, the data record is somewhat more erratic because we now favor 30-hoop free matrix monitoring over embeddedness, except for maintaining enough embeddedness samples each year for determining the linear relationship between the two indices (*i.e.*, for double sampling). Data used for determining five-year means for comparisons among or between sites and in summary tables for determination of WCI category are highlighted in the tables by dark shading with light text. Treatment sites are separated from control sites in tables by double lines (═══), and an additional separation is identified in the SFSR Road Reconstruction monitoring site tables between 1994 and 1995 with a solid line (——) to identify the periods before and after major reconstruction work, respectively.

The overall and recent means shown in the summary tables may not be the same as the means shown in the comparisons tables. This may occur if the period of record differs (*i.e.*, SFSR Road sites are compared for a different period than in the context of the SFSR watershed overall) but will mainly occur because of a decision to display means in the summary tables based on averaging the data column in the table as opposed to displaying the means from the comparison test in the comparison tables. The comparison test means are based on raw data rather than being computed from annual means.

We have also added visual cues to the time series analysis tables: parameters for statistically significant trends that suggest improving conditions (*i.e.*, toward increased interstitial space) are highlighted in light green (*e.g.*, r^2, whereas significant deteriorating trends are highlighted with light pink (*e.g.*, r^2; non-significant trends have not been highlighted. Furthermore, in the time series graphics, the WCI limits are shown as horizontal reference lines. These lines correspond to the revised free matrix and cobble embeddedness WCI five-year mean values in the upper SFSR, Secesh River, lower SFSR, and Chamberlain Creek. Nelson and Burns (2005) did not propose revised sediment WCIs for the predominantly non-granitic EFSFSR watershed, but they did investigate reference conditions. Using the same mechanism that was used to determine the revised WCIs for the granitic portions of the SFSR, estimated values for WCIs, corresponding to the median and 25th percentile free matrix means from non-granitic reference sites presented in Nelson and Burns (2005) could be derived (Table 1, next page). For the EFSFSR[6]. The horizontal reference lines in the free matrix and surface fines graphics for the EFSFSR reflect these estimated WCI values (*i.e.*, the breaks between the functional groups); however, we have represented the default WCI limits from the LRMP for embeddedness in the EFSFSR. For surface fines, which we have not measured with respect to the LRMP definition as being smaller than 0.85mm, the median and 75th percentiles were plotted as reference lines and approximate functional ratings in Table 1

[5] In Nelson *et al.* (2006), some of these were inadvertently shaded in light orange.
[6] These limits have not been proposed as WCIs, but represent the equivalent limits from the non-granitic reference component of the data analyzed by Nelson and Burns (2005) to define revised WCIs for the granitic portions of the SFSR watershed.

were indicated in the statistical summary tables. We generally discourage use of surface fines as an indicator of salmonid habitat condition (Nelson *et al.* 2004b), but have included the information here using this approach for consistency with the LRMP but using the WCI derivation method used in Nelson and Burns (2005).

Table 1.—Functional ratings for cobble embeddedness and free matrix WCIs defined in Nelson and Burns 2005) for the granitic portion of the SFSR and approximate ratings for surface fines with approximate ratings for all indicators for non-granitic watersheds (based on five-year means).

Watershed Type	Watershed Condition Indicator	Functional Category		
		FA	FR	FUR
Granitic	Free Matrix	≥17%	11-17%	<11%
	Cobble Embeddedness	≤32%	32-42%	>42%
	Surface Fines	≤12%	12-18%	>18%
Other	Free Matrix	≥43%	33-43%	<33%
	Cobble Embeddedness	≤19%	19-25%	>25%
	Surface Fines	≤3%	3-6%	<6%

Data Quality Assurance and Quality Control

Previous reports (Nelson *et al*. [1997 *et seq*.]) contain detailed information on database development and data quality control; these documents, and particularly Nelson *et al*. (2006) should be consulted for this information. We continue to examine data in our database and make corrections as needed, though no significant issues were uncovered this cycle. We also continue to inspect statistical analysis command programs and make corrections as needed; any discrepancies between summary results displayed in this report and that in previous reports should be regarded as corrections. Note that calculated embeddedness values shown should be different because the regression of free matrix counts on cobble embeddedness has changed.

Nelson and Burns (2007) investigated the cobble embeddedness data collected from 1996 to 2006, inclusive, for instances wherein the embedded diameter exceeded the rock diameter. This situation can only occur if data were incorrectly recorded in the field or incorrectly entered into the database. We encountered 14 instances of this error in 48,462 records (0.03%). While not a comprehensive estimate of the error rate in the database, it does suggest that quality control efforts during data entry are succeeding. These errors have not been corrected at this time, but are unlikely to have any substantive effect on the reported results; they will be corrected as time permits. This analysis was not repeated here, but other, similar analyses should be an ongoing part of this process.

Results and Discussion

Relationships Between Free Matrix and Cobble Embeddedness

Basic Double-Sampling Analysis

We have consistently shown that, when properly collected, there is a significant linear relationship between cobble embeddedness and free matrix; we have interpreted a failure to achieve such a relationship as likely indicative of improperly collected embeddedness data Nelson *et al*. (1997, *et seq.*) This rationale supports use of free matrix in those years where the relationship does not exist (Table 2), highlighted in orange) to estimate (predict) the corresponding cobble embeddedness from the 30-hoop free matrix counts, and for estimating cobble embeddedness at those sites where annual embeddedness sampling has been discontinued. There were 404 paired samples available for this regression analysis, which resulted in the following linear relationship:

Table 2.—Regressions of cobble embeddedness on relative frequency of free particles from 30-hoop free matrix samples, 1988-2007 (linear equations of the form y = bx + a).

Year	Sample Size (n)	Linear Regression Model			
		Parameters		Statistics	
		a	b	r^2	Prob>|t|[a]
1988	21	45.83	-0.49**	0.64	<0.0001
1989	73	44.35	-0.45**	0.35	<0.0001
1990	80	46.40	-0.51**	0.37	<0.0001
1991	23	38.03	-0.26†	0.08	0.0990
1992	22	29.96	-0.23	0.06	0.1503
1993	28	32.87	-0.19*	0.12	0.0419
1994	96	27.53	-0.09	0.02	0.1179
1995	27	20.49	0.01	-0.04	0.9655
1996	29	49.58	-0.55**	0.28	0.0017
1997	28	41.55	-0.45**	0.39	0.0002
1998	22	41.98	-0.44**	0.34	0.0028
1999	22	39.48	-0.40*	0.21	0.0189
2000	21	30.27	-0.17	0.02	0.2542
2001	22	41.25	-0.37**	0.28	0.0064
2002	8	37.80	-0.41**	0.66	0.0091
2003	25	39.59	-0.46**	0.39	0.0005
2004	33	46.71	-0.66**	0.41	<0.0001
2005	26	40.85	-0.45**	0.26	0.0049
2006	18	39.81	-0.25†	0.13	0.0806
2007	14	44.03	-0.34*	0.29	0.0478
Accepted[b]	404	43.82	-0.46**	0.40	<0.0001
Overall	639	39.64	-0.37**	0.27	<0.0001

[a] H_o: b=0.
[b] Accepted = Data from years not shown in colored shading.

$$CE = 43.81680 - 0.45964 \bullet FMX \quad (1)$$

where "CE" was predicted cobble embeddedness and "FMX" was percent free matrix particles. This relationship had a coefficient of determination (r^2) of 0.40 and a P-value (probability of a greater absolute value of t based on H_o: b = 0) of less than 0.0001.

Upper South Fork Salmon River

30-Hoop Free Matrix

There were few significant differences among sites after the 2007 sampling (Table 5), except that the undeveloped Blackmare Creek site (E006) had significantly more free particles over the recent five-year average period than the Buckhorn Creek site (E016). Despite this lack of significance in differences among sites, only site E006 rose to the FA level for the Interstitial Sediment Deposition WCI. Overall means from the entire sampling period showed more differences among the sites. Only one site (E068 on Fourmile Creek) had a statistically detectable trend in free particles (Table 15), and it was downward; however, this assessment includes only data through 2006 because the site was inadvertently not sampled in 2007. Overall, however, free particles seem to be increasing at sites E006 and E016; the Fitsum Creek site (E023) has remained relatively high in free particles, but they seem to be gradually declining there. Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figures 1 to 4.

Cobble Embeddedness

Cobble embeddedness measurements have been relatively stable at these sites over the monitoring record, though the Fourmile Creek and Fitsum Creek sites have a very irregular record with few measurements (Table 6). All of the sites except E016 would be classified as FR for the revised embeddedness WCIs because the five-year means exceed 32% but are less than 42% (E016 is slightly higher than 42%). While this disagrees somewhat with the free matrix analyses, it seems likely that the cause is that the classification categories don't align exactly because the sites are just slightly into the FR or FUR categories using this index. On average, the mean embeddedness derived from either measurements or calculated from 30-hoop free matrix counts were similar. The revised WCIs made no provision for using calculated embeddedness for determining functional category, though these results suggest such use may be appropriate. The overall and recent means were similar in all cases and no time trends were overtly suggested and no sites showed statistically significant trends in embeddedness (Table 16); however, all modeled coefficients were upward, which is consistent with the free matrix analysis. Illustrations of the variation in cobble embeddedness and apparent trends are provided in Appendix 6, Figures 5 to 8).

Surface Fines

Surface fines are not discussed here; time series analyses are shown in Appendix 2, Table 17, time series graphics are provided in Appendix 6, Figures 9-12, and statistical summaries are located in Appendix 4.

SFSR Road Sites

30-Hoop Free Matrix

The comparisons as made in Nelson and Burns (2007) were not performed in quite the same way this time (Table 7). We still performed a multiple comparison among the sites, but added a site on Cabin Creek that has not previously been included; in addition, data were not completed at the control site on Fourmile Creek. The two sites on Fourmile Creek were not significantly different, but, of the two, only the site downstream of the road (E067) was in the FA range; however, this comparison suffers from using different time periods for the five-year mean because data were not collected at E068 in 2007. There were no significant differences in free matrix counts among the sites on Cabin Creek, and all were in the FA range. The two sites on Camp Creek had the lowest free matrix counts, on average, and the test site (E130) was in the FUR range.

Time series analysis (Table 18) of the proportion of free particles over time supports the inference that most of the sites are generally losing interstitial space. The most notable exception was the downstream test site on Cabin Creek, which showed a moderately significant upward trend in free particles. This is somewhat at odds with what was reported in last year's report (Nelson and Burns 2007), and suggests that the mitigations associated with reconstructing and paving the SFSR Road may be leading to some improvement on Cabin Creek. In addition, the test sites on Camp Creek and Fourmile Creek that appeared to have slightly declining trends were no longer significant. It is unfortunate in light of these potential trend changes that no data were collected at the control site (E068) on Fourmile Creek. Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figures 13 to 17, and most suggest a potential inflection point (*i.e.*, change in trend) around 1994, but we have not investigated this possibility.

Cobble Embeddedness

The SFSR Road sites have incomplete embeddedness records, and only the two sites on Fourmile Creek have sufficient measurements to evaluate functional condition based on embeddedness (Table 8). Using the revised WCIs, the control site on Fourmile Creek would be classified FR based on cobble embeddedness, as it was using free matrix measurements, and the test site (E067) would be classified FUR even though it was classified FA using free matrix counts. While this appears contradictory, it probably supports our conclusion that free matrix is a preferable index to cobble embeddedness. In general, the average calculated embeddedness values at all sites except the aforementioned E067 were similar to the measured means, though there were really too few measured values for the Camp Creek and Cabin Creek sites to make meaningful comparisons. Although no statistical comparisons between site pairs were made other than those on Fourmile Creek, where embeddedness values were significantly different, the treatment and control sites did not appear to have different levels of embeddedness.

No sites had a sufficient data collection record to evaluate embeddedness trends during the comparison period (1990 to 2007), but the Roadside site (E068) on Fourmile Creek had a sufficient record overall, even without 2007 data, and is discussed with the primary sites above. Illustrations of the variation in cobble embeddedness and apparent trends are provided in Appendix 6, Figures 18 to 22.

Surface Fines

Surface fines are not discussed here; time series analyses are shown in Appendix 2, Table 19, time series graphics are provided in Appendix 6, Figures 23-27, and statistical summaries are located in Appendix 4.

Secesh River

30-Hoop Free Matrix

Both of the Secesh River area primary sites could be categorized as FA based on recent mean free matrix counts (Table 9). There was little apparent difference between the overall and recent means at the Lick Creek site (E057), but free particles appeared to be more abundant at the Grouse Creek site (E062) recently. The Grouse Creek watershed burned extensively in the Burgdorf Junction Fire of 2000, and the highest free matrix counts have occurred since that fire; this is consistent with our belief that wildfire can result in coarsening of the streambed. Time series analysis (Table 20) confirmed that free particles have been increasing at the Grouse Creek site, and the trend of the autoregressive model was highly statistically significant ($P<0.01$); the Lick Creek site (E057) displayed a statistically detectable downward trend. Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figures 82 to 83.

Cobble Embeddedness

Measured cobble embeddedness at both sites (Lick Creek [E057] and Grouse Creek [E062]) both had recent five-year means that were clearly consistent with an FA assessment (Table 10). Nelson *et al.* (2006) reported that E062 was significantly less embedded than E057, but that situation changed in 2006 and no longer holds; there was no significant difference now in embeddedness between the two sites and Nelson and Burns (2007) also reported none. This suggests a decline in embeddedness at the Grouse Creek site, which was confirmed by time series analysis (Table 21); the analysis

revealed an upward trend at the Lick Creek site. These results are consistent with the free matrix analysis for E062 but ambiguous for E057, where no trend in free particles was indicated. The declining trend in embeddedness at E062, together with the positive free matrix trend, support our contention that streambeds may coarsen after wildfire. Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figures 84 to 85.

Surface Fines

Surface fines are not discussed here; time series analyses are shown in Appendix 2, Table 23, time series graphics are provided in Appendix 6, Figures 86-87, and statistical summaries are located in Appendix 4.

East Fork South Fork Salmon River

30-Hoop Free Matrix

Only the Tamarack Creek site was monitored in 2007, so no comparisons among sites were made. The EFSFSR, which inherently has higher free matrix counts than most of the rest of the SFSR watershed, was included in the evaluation of sediment conditions for WCI revision, and the median and third quartile limits are reflected in Table 1 for "other" watersheds. Using those approximate indicator values, we would classify the Tamarack Creek site as FA; previously, FR classifications applied to E050 and the two Sugar Creeks sites and FUR classifications for the two mainstem EFSFSR sites (Nelson *et al.* 2006). We anticipate reinstating monitoring at site E050 to maintain a site pair for comparisons.

No trend in free matrix particles was detected (Table 23). Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figure 100. Because mining at Stibnite has been discontinued and much of the mined area has been rehabilitated, these sites will no longer be monitored[7].

Cobble Embeddedness

We are no longer collecting sufficient data at these sites for comparisons to be meaningful. Cobble embeddedness measurements should be collected at the Tamarack Creek site (E076) because it is an undeveloped reference site and is used in the double sampling procedure, but this was inadvertently not done in 2007. The embeddedness result is provided in Appendix 4, and the time series analysis is shown in Table 24, which revealed no statistically detectable trend (Appendix 6, Figure 101).

Surface Fines

Surface fines are not discussed here; time series analyses are shown in Appendix 2, Table 26, time series graphics are provided in Appendix 6, Figure 102, and statistical summaries are located in Appendix 4.

[7] This may change, as discussed under "Conclusions."

Lower South Fork Salmon River

30-Hoop Free Matrix

While there were apparent differences in free matrix counts among the three primary sites in the Lower SFSR (Table 11), there were no statistically significant differences over the recent time period; however, the control site (E039) and the Elk Creek site (E030) would both be classified as FA using the revised sediment WCIs (Nelson and Burns 2005; Nelson *et al.* 1997 *et seq.*), whereas the site on Pony Creek (E056) would receive an FR rating. This result supports our decision to use E039 as the control site; E054 was always significantly different than the other sites because of inherently different geologic setting (Nelson and Burns 2005). The interesting thing about this is that, over the entire sampling period, the Pony Creek site had the highest proportion of free matrix particles, with the other two sites being significantly lower, but a statistically significant declining trend was evident at the Pony Creek site (Table 26) whereas no trends were detected at the other two sites. There were no statistically detectable trends in free matrix counts at either site E039 (control) or site E030. Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figures 103-105.

Cobble Embeddedness

The comparisons were not performed because data for the previous control site on Porphyry Creek (E054) were not collected in 2007 and there are insufficient data from the newly designated control site (E039) for meaningful comparison or time series analysis, though Figure 105 shows the data scatter; refer to Nelson and Burns (2007) for the most recent statistical comparison. Illustrations of the variation in free particles and apparent trends are provided in Appendix 6, Figures 106-108.

Surface Fines

Surface fines are not discussed here; time series analyses are shown in Appendix 2, Table 27, time series graphics are provided in Appendix 6, Figures 109-111, and statistical summaries are located in Appendix 4.

Chamberlain Creek

30-Hoop Free Matrix

While there were significant differences in free matrix counts between the two primary sites in the Chamberlain Basin (Table 13), they would both be classified as FA using the revised sediment WCIs (Nelson and Burns 2005), which are appropriate here because Chamberlain Basin is geologically similar to the SFSR and several of the Chamberlain Basin sites were used as reference sites in revising the WCIs. Nelson *et al.* (2006) reported a mild declining trend in free particles at the Chamberlain Creek site (E032), but this was not true at either primary site in either 2007 (Nelson and Burns 2007) or now (Table 28). Illustrations of the variation in free particles, which appears to be greater at the West Fork Chamberlain Creek site (E136), and apparent trends are provided in Appendix 6, Figures 127 and 128.

Cobble Embeddedness

Cobble embeddedness measurements differed between the two primary Chamberlain Basin sites in a fashion consistent with the free matrix counts, with the West Fork Chamberlain Creek (E136) site having the lower embeddedness (Table 14); however, many fewer samples were obtained from E032, so the free matrix comparison should be considered more reliable. Time series analysis modeled a highly significant downward trend in embeddedness at E136 (Table 29); although free matrix counts statistically detected no trend, the declining embeddedness trend comports somewhat with the non-significant upward free matrix trend. Illustrations of the variation in cobble embeddedness and apparent trends are provided in Appendix 6, Figures 129 and 130.

Surface Fines

Surface fines are not discussed here; time series analyses are shown in Appendix 2, Table 30, time series graphics are provided in Appendix 6, Figure 131 and 132, and statistical summaries are located in Appendix 4.

Conclusions

Analytical Summary

Interstitial sediment conditions and trends for up to 24 years of monitoring are reviewed in this report. We concentrated on the so-called "primary" sites, which typically had the longest and most complete records, though many of the "supplemental" sites (*i.e.*, sites that are also typically monitored annually) may have equally complete records that were not discussed; however, all data for sites with recent data collection at least in summary tables and time series graphics.

This analysis shows that conditions at most sites are about what could be expected given management history (*i.e.*, undeveloped sites tended to be higher in interstitial space than developed sites), and that application of the revised interstitial WCIs for the SFSR produced reasonable outcomes: undeveloped sites were typically FA or at the upper end of FR, whereas sites in more developed areas or areas with exceptional disturbances were more often FR to FUR. In addition, these results were typically consistent regardless of whether the free matrix or cobble embeddedness indicator was used. Thus, our decision to increasingly rely on the simpler free matrix procedure for routine monitoring and assessment seems justified.

In the SFSR, most primary sites were "at risk" with respect to free particles and cobble embeddedness. The undeveloped primary site on Blackmare Creek was classified FA for free particles, while the other undeveloped site on Fourmile Creek and the sites in developed watersheds were not. The SFSR watershed is subject to fine sediment deposition, hence the need to limit disturbance and rehabilitate the problems caused by over development in the past, and there is no scientific reason to assume that all systems naturally have optimum sediment conditions for all species at all times.

Further illustration of this can be seen in the analysis of the SFSR Road Reconstruction Project monitoring, where the sites on Cabin Creek, which is near Warm Lake and has had some development, were the sites that have most consistently been classified as FA (free matrix), while the Fourmile Creek sites were both FR (free matrix and cobble embeddedness) in 2006 (Nelson and Burns 2007) while being FA and FR this year. The Camp Creek sites, in a watershed that was among the first in the SFSR to be logged and roaded, were FR and FUR, one site having very low free matrix counts. Beneficial effects of paving the SFSR road were not detectable, except possibly in Cabin Creek, which has also seen more watershed stabilization work.

Parts of the SFSR burned in 2006, but there was no particular effort in this analysis to estimate whether fire effects were apparent. The Blackmare and Buckhorn Creek watersheds were probably the most affected in the upper SFSR, and they remained similar to previous years with potentially some increase in interstitial space at the Blackmare Creek site. The upper SFSR burned again, much more extensively, in 2007 with the Cascade Complex (Nelson 2007a) and East Zone Complex (Nelson 2007b) fires, and it will be interesting to analyze sediment data collected in 2007 to see if any fire-related effects to sediment are evident, particularly in Fitsum Creek, Buckhorn Creek, and Camp Creek.

Generally, sites in the Secesh River watershed were "cleaner" than those in the upper SFSR despite considerable historical development; in fact, between the two primary sites, the more developed one had higher free matrix and correspondingly lower embeddedness with trends toward increasing interstitial space. This watershed, Grouse

Creek, was historically heavily mined, mainly by dredging, but one major dredging operation was reclaimed in the early 1990s (Lund and Burns 1993); in addition, the watershed burned extensively in 2000, and increased water yield after the fire may be helping to coarsen the streambed. Parts of the watershed burned again in 2007, but potential sediment effects from that must await next year's analysis.

There is not much to conclude from the EFSFSR sites because they were mostly dropped from the sampling regimen. The Tamarack Creek site continues to be very low in fines and high in interstitial space. There was some fire in the Tamarack Creek watershed in 2006, which may account for free matrix counts being below their five-year mean, but that is highly speculative and should be revisited in next year's analysis.

Among the Lower SFSR primary sites, the newly-designated reference site on Sheep Creek probably had more interstitial space than the Pony Creek site but was similar to the Elk Creek site. There was some fire in Sheep Creek in 2006, and free matrix counts in 2006 and 2007 exceeded their five-year average of recent data. The East Zone Complex fire burned in all three watersheds with primary sites, probably most intensively in the upper reaches of Pony Creek and the middle reaches of Sheep Creek, which should be investigated in next year's report.

The Chamberlain Creek sites are all reference sites and were used in Nelson and Burns (2005) to develop sediment-related WCIs for the SFSR; consequently, it is unsurprising that they received FA classifications.

Overall, there were more trends in interstitial space suggestive of improving conditions. The phenomenon first noted by Ries *et al.* (1991) for the SFSR of decreasing interstitial space in reference streams was less evident this year. In addition, many developed sites showed improving trends in one or both indicators, suggesting that rehabilitation efforts have been effective in ameliorating sediment deposition. Observed trends in cobble embeddedness and free matrix and functional classifications were typically complementary, but, though no rigorous analysis was made, surface fines did not seem to track the other indicators particularly well; we remain convinced that surface fines is not a robust indicator of habitat conditions.

Consultation Compliance

It is important that whoever assigns field work for sediment monitoring collect data according to the study plan implied by this report. Certain sites must have the correct data collected each year in order to ensure that the relationship between free matrix counts and cobble embeddedness can be calculated and proper comparisons between sites with specific monitoring objectives can be performed (note that the sample size shown in Table 2 for 2007 is one of the lowest ever, very close to being unacceptably small, and likely responsible for the fairly high P-value). In 2007, cobble embeddedness data were not collected at site E068 (Fourmile Creek) and E076 (Tamarack Creek). Both of these are important for the double sampling required to model the relationship between free matrix counts and cobble embeddedness. In addition, site E068 is an important monitoring site for the South Fork salmon River Road Reconstruction project, forming one part of a treatment–control pair.

In addition, sediment monitoring in the SFSR is required pursuant to the NMFS's Biological Opinion (BO) resulting from consultation on the revised LRMP. To whit, the BO states that, in the SFSR, the PNF and BNF shall:

> Continue its current sampling, analysis, and annual reporting of sediment levels (core, free matrix/pebble counts, and cobble embeddedness) in the mainstem and tributaries for the duration of the revised LRMPs. (§IIF3[3][B][2], p91)

Clearly, this requirement cannot be met if care is not made to ensure that the normal suite of study sites is not sampled annually. Certainly, emergency situations like the fires of 2007 may impact our ability to fulfill this requirement to the letter, but doing as much as we can in safety should satisfy the intent of the requirement. It may also be reasonable to reduce the annual sampling burden if sufficient funding is not available, but a clearly stated rationale (*i.e.*, study plan) should be developed to support such reduction; said rationale should also clearly explain how such reduction would not substantially decrease the information we are expected to gain from the monitoring program and how it would comply with the intent of this requirement. However, even with a well constructed rationale for reducing sediment monitoring in the SFSR, agreement with NMFS and FWS should be obtained. This is especially important because the new consultation for ongoing actions, which includes travel management, road management, and trail maintenance, contains "May Affect, Likely to Adversely Affect" determinations for the aforementioned activities. The analyses in these for travel management, at least, were related to sediment effects of the action. Another condition of the NMFS BO is:

> For projects where sediment delivery is a contributing factor to the "Likely to Adversely Affect" determination, monitor and evaluate the effectiveness of mitigating measures used to avoid sediment delivery. (§IIF3[3][B][3][c], p92)

Our current sediment monitoring regimen is an important tool for evaluating the effectiveness of the design features and mitigations that are part of these actions.

Recommendations

The following items summarize what we think are needed aspects of the sediment monitoring program in future years.

- In order to further the effort to standardize and increase the efficiency of our monitoring effort, we are anticipating making some changes. These changes will involve discontinuing efforts at some sites that seem to not be particularly informative or provide little useful information in light of their inaccessibility. We are in the process of developing a monitoring plan that will guide future sampling and will fully explain the rational for our choices. Two such changes was already made in the analyses for this report: the substitution of site E039 for E056 and the addition of site B127 to the SFSR Road Reconstruction Project monitoring analysis. This will be expanded in 2008, with the following modifications planned for immediate implementation:
    - Adding cobble embeddedness measurements to site E039 to increase the sample size for double sampling.
    - Substituting site E024 for site E023 (both on Fitsum Creek). There is some concern that E023 is not configured properly for meeting the cobble embeddedness criteria; E024 will then be used for double sampling as well.
    - Site E124 on Fitsum Creek will probably be discontinued because of a large logjam that leads to inconsistent sampling from year to year as crews

attempt to either squeeze samples in downstream of the jam or extend the reach upstream of the jam.

- Clarification of our monitoring needs below Stibnite Mine. Nelson *et al.* (2006) stated that the EFSFSR sites would no longer be monitored because mining has ceased at Stibnite; however, rising gold prices have led to renewed interest in mining there.

- Additional changes are anticipated, pending thorough analysis of which sites are most useful in meeting the sampling requirements under the LRMP BO and information gained this field season. Criteria that will guide this process include, but are not necessarily limited to:

  - Redundancy (*i.e.*, are multiple sites in a watershed providing essentially the same information).

  - Incompatibility with the sampling methods (*i.e.*, inappropriate reach configuration for the sampling criteria).

  - Inaccessibility (*i.e.*, some sites yield too little unique information for the difficulty getting to them).

- There has always been some level of disconnect between the analysis/reporting and data collection phases of our monitoring that we will be able to rectify with this process. Doing this may yield a net decrease in the number of sites sampled, we hope to make the monitoring program more efficient and supportive of more consistently meaningful comparisons. However, we will also add some sites:

  - Site E050 on Profile Creek will be put back into the monitoring schedule.

  - We also expect to put either site E132 or E133 on the EFSFSR back into the schedule because mining is expected to restart at Stibnite.

- There was a very large amount of wildfire in the SFSR in 2007. We have touched on this a little in this report, but data collected in 2008 will be important for determining whether the fires had direct, immediate effects on fish habitat; fire should be considered in the analysis.

- It would be interesting to look at time trends at the SFSR Road sites to see whether there was any change in trends around the time the reconstruction work (mid-1990s) was done in addition to the normal comparison tests.

- Analysis of residuals and influence statistics should be applied more broadly to the production database and analysis should be based on excluding site data suggested as incorrect on this basis rather than simply not including any data from years identified as having had problematic data.

References

BURNS, D. C. 1984. An Inventory of embeddedness of salmonid habitat in the South Fork Salmon River drainage, Idaho. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 30p.

CD:
PNF_Interstitial_Sampling_Report_1984.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_1984.pdf

BURNS, D.C.; Edwards, R.E. 1985. Embeddedness of salmonid habitat of selected streams on the Payette National Forest. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest.

CD:
PNF_Interstitial_Sampling_Report_1985.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_1985.pdf

LUND, J.A.; Burns, D.C. 1993. Biological assessment for the potential effects for managing the payette national forest in the South Fork Salmon River on Snake River spring/summer & fall Chinook salmon. Volume 1: Mining Projects and Associated Activities. Unpublished biological assessement. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 42p. (plus appendices).

FSWEB: http://fsweb.payette.r4.fs.fed.us/units/fish.web/documents/SFSR_BA1.pdf

NELSON, R.L. 2008. Payette National Forest fisheries — range monitoring report. Sediment, riparian, and temperature monitoring, 1993-2007. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 39p.

CD:
PNF_Range_Report_2008.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/range_reports/EF.15.0038.pdf

NELSON, R.L.; 2007a. Fisheries Technical Report. Cascade Fire Complex, Payette National Forest Portion. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 46p.

FSWEB: http://fsweb.payette.r4.fs.fed.us/units/fish.web/baer_reports/Cascade_Fisheries Technical Report.pdf

NELSON, R.L.; 2007b. Fisheries Technical Report. East Zone Fire Complex, Payette National Forest Portion. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 41p.

FSWEB: http://fsweb.payette.r4.fs.fed.us/units/fish.web/baer_reports/EZ_Fisheries Technical Report.pdf

NELSON, R.L.; Burns, D.C. 2007. Deposition of fine sediment in the Salmon River watershed. Payette and Boise National Forests, Idaho. Statistical summary of

interstitial and surface sediment monitoring, 1983-2007. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 160p.

CD:
PNF_Interstitial_Sampling_Report_2007.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_2007.pdf

NELSON, R.L.; Burns, D.C. 2005. Developing appropriate sediment–related watershed condition indicators for national environmental policy act analyses and biological assessments in the South Fork Salmon River basin. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 101p.

CD:
sediment_wci_final.pdf

FSWEB: http://fsweb.payette.r4.fs.fed.us/units/fish.web/white_papers/sediment_wci_final.pdf

NELSON, R.L.; Burns, D.C.; Newberry, D.D.;Ketchu, K.L. 2004a. Deposition of fine sediment in the Salmon River watershed. Payette and Boise National Forests, Idaho. Statistical summary of intragravel monitoring, 1975-2003, and photographic summary of South Fork Salmon River changes since 1966. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 174p.

CD:
PNF_Core_Sampling_Report_2004.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Core_Sampling_Report_2004.pdf

NELSON, R.L.; Burns, D.C.; Zurstadt, C. 2006. Deposition of fine sediment in the Salmon River watershed. Payette and Boise National Forests, Idaho. Statistical summary of interstitial and surface sediment monitoring, 1983-2005. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 208p.

CD:
PNF_Interstitial_Sampling_Report_2006.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_2006.pdf

NELSON, R.L.; McGee, M.N.; Zurstadt, C.F.; Burns, D.C. 2004b. Evaluation of surface fines as an index of salmonid habitat conditions on the Payette National Forest. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 17p.

CD:
surface_fines_report.pdf

FSWEB: http://fsweb.payette.r4.fs.fed.us/units/fish.web/white_papers/surface_fines_report.pdf

NELSON, R.L.; Burns, D.C.; Newberry, D.D. 2002. Deposition of fine sediment in the Salmon River watershed. Payette and Boise National Forests, Idaho. Interstitial conditions in Salmon River tributaries. Report of sediment trends from core sampling,

1981-2001. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 179p.

CD:
PNF_Interstitial_Sampling_Report_2002.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_2002.pdf

NELSON, R.L.; Wagoner, L.J.; Burns, D.C.; Newberry, D.D.; Lund, J. 1997. Deposition of fine sediment in tributaries of the Salmon River, on the Payette and Boise National Forests, Idaho. Report of sediment trends and monitoring efforts, 1977-1996. Trends in cobble embeddedness, free matrix particles, surface fines, and intragravel conditions in the Chamberlain Basin and the South Fork Salmon River and selected tributaries. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 206p.

CD:
PNF_Sediment_Monitoring_Report_1997.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Sediment_Monitoring_Report_1997.pdf

NELSON, R.L.; Wagoner, L.; Burns, D.C.; Lund, J.; Faurot, M. 1996. Deposition of fine sediment in tributaries of the Salmon River, on the Payette and Boise National Forests, Idaho. Report of sediment trends and monitoring efforts, 1977-1995. Trends in cobble embeddedness, free matrix particles, and surface fines in relation to mining areas in the east fork South Fork Salmon River and Big Creek watersheds. Unpublished report. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 145p.

CD:
PNF_Sediment_Monitoring_Report_1996.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_1996.pdf

NMFS. 2003. Endangered Species Act Section 7 consultation biological opinion and Magnuson-Stevens Fishery Conservation and Management Act essential fish Habitat consultation. Boise, Payette, and Sawtooth National Forest land and resource management plan revisions, Southwest Idaho Ecogroup. Portland, OR: NOAA Fisheries, Northwest Regional Office. 102p (plus attachments).

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/biological_opinions/BO_NOAA_060903.pdf

RIES, R.D.; Burns, D.; Lund, J. 1991. Fine sediment deposition in selected tributaries to the Salmon River in the Payette National Forest: report of monitoring results 1989-1990.

CD:
PNF_Sediment_Monitoring_Report_1991.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Sediment_Monitoring_Report_1991.pdf

RIES, R.D.; Burns, D.C. 1989. Embeddedness of salmonid habitat of selected streams on the Payette National Forest, 1987-1988. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 36p.

CD:
PNF_Interstitial_Sampling_Report_1989.pdf

FSWEB:
http://fsweb.payette.r4.fs.fed.us/units/fish.web/sediment_reports/PNF_Interstitial_Sampling_Report_1989.pdf

SAS. 1990. SAS/STAT® user's guide. Volume 2, GLM – VARCOMP. Cary, NC: SAS Institute, Inc. 796p. (plus appendices).

SAS. 1989. SAS/STAT® user's guide. Volume 1, ACECLUS – FREQ. Cary, NC: SAS Institute, Inc. 890p. (plus appendices).

USFS. 2003. Payette National Forest land and resource management plan. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. 363p (plus appendices).

WWW:
http://www.fs.fed.us/r4/sawtooth/arevision/revision.htm

USFS. 1988. Land and Resource Management Plan. McCall, ID: U.S. Department of Agriculture, Forest Service, Payette National Forest. Pages variously numbered.

Appendix 1. Sediment Monitoring Site Descriptions

Table 3.—Interstitial sediment monitoring sites on the Payette National Forest (excluding dedicated fisheries-range monitoring sites) showing location, subwatershed, management status, and relationship to the current sampling schedule.

Category	Site Code	Target	Status	Land Use[a]	Stream	Area	GPS Coordinates		
							E	N	Datum
Primary	E006	LRMP[b]	Current	U	Blackmare Creek	Upper SFSR	602381	4964048	NAD83
	E068	LRMP/Road[c]	Current	U	Fourmile Creek	Upper SFSR	603456	4968626	NAD83
	E067	SFSR Road	Current	P	Fourmile Creek	Upper SFSR	603286	4968503	NAD83
	E016	LRMP	Current	D	Buckhorn Creek	Upper SFSR	599643	4975082	NAD83
	E023	LRMP	Current	D	Fitsum Creek	Upper SFSR	600692	4983626	NAD83
	B125	SFSR Road	Current	D	Cabin Creek	Upper SFSR	603130	4946737	NAD83
	B126	SFSR Road	Current	D	Cabin Creek	Upper SFSR	603184	4946787	NAD83
	E129	SFSR Road	Current	D	Camp Creek	Upper SFSR	602037	4971524	NAD83
	E130	SFSR Road	Current	D	Camp Creek	Upper SFSR	602028	4971534	NAD83
	E057	LRMP	Current	P	Lick Creek	Secesh	597070	4990895	NAD83
	E062	LRMP	Current	D	Grouse Creek	Secesh	591300	5013666	NAD83
	E076	LRMP/Minerals	Current	U	Tamarack Creek	EFSFSR	627068	4979782	NAD83
	E050	Minerals	Current	D	Profile Creek	EFSFSR	624027	4979587	NAD83
	E080	Minerals	Current	D	Sugar Creek	EFSFSR	632428	4977501	NAD83
	E079	Minerals	Current	D	Sugar Creek	EFSFSR	631430	4977120	NAD83
	E132	Minerals	Current	D	EFSFSR	EFSFSR	631227	4977118	NAD83
	E133	Minerals	Current	D	EFSFSR	EFSFSR	630927	4977332	NAD83
	E039	LRMP	Current	U	Sheep Creek	Lower SFSR	607314	4989325	NAD83
	E030	LRMP	Current	D	Elk Creek	Lower SFSR	611260	5000998	NAD83
	E056	LRMP	Current	D	Pony Creek	Lower SFSR	612184	5004798	NAD83
	E088	Minerals	Current	U	WF Monumental Creek	Big Creek	646492	4985164	NAD83
	E086	Minerals	Current	D	Monumental Creek	Big Creek	644186	4981490	NAD83
	E087	Minerals	Current	P	Monumental Creek	Big Creek	644148	4981460	NAD83
	E032	Control	Current	U	Chamberlain Creek	Chamberlain	640501	5025768	NAD83
	E136	Control	Current	U	WF Chamberlain Creek	Chamberlain	643426	5027268	NAD83
Supplemental	E005	LRMP	Current	U	Blackmare Creek	Upper SFSR	599026	4962493	NAD83
	E139	LRMP/Road	Current	U	Fourmile Creek	Upper SFSR	605031	4967594	NAD83
	E128	SFSR Road	Current	P	Fourmile Creek	Upper SFSR	603306	4968589	NAD83
	E015	LRMP	Current	D	Buckhorn Creek	Upper SFSR	591979	4971070	NAD83
	E019	LRMP	Current	D	Buckhorn Creek	Upper SFSR	596143	4972826	NAD83
	E007	LRMP	Current	D	WF Buckhorn Creek	Upper SFSR	593954	4974216	NAD83
	E014	LRMP	Current	D	WF Buckhorn Creek	Upper SFSR	599199	4974486	NAD83
	E017	LRMP	Current	D	Little Buckhorn Creek	Upper SFSR	598172	4972662	NAD83
	E008	LRMP	Current	D	NF Buckhorn Creek	Upper SFSR	596648	4975765	NAD83
	E098	LRMP	Current	D	NF Buckhorn Creek	Upper SFSR	596768	4979338	NAD83
	E024	LRMP	Current	D	Fitsum Creek	Upper SFSR	599271	4983320	NAD83
	E099	LRMP	Current	D	Fitsum Creek	Upper SFSR	593996	4982338	NAD83
	E124	LRMP	Current	D	Fitsum Creek	Upper SFSR	597641	4983661	NAD83
	E021	LRMP	Current	D	NF Fitsum Creek	Upper SFSR	---	---	---
	E022	LRMP	Current	D	NF Fitsum Creek	Upper SFSR	599048	4985703	NAD83
	E138	LRMP	Current	D	NF Fitsum Creek	Upper SFSR	596810	4985622	NAD83
	B127	LRMP	Current	D	Cabin Creek	Upper SFSR	604298	4946783	NAD83
	E034	LRMP/Range	Current	D	Lake Creek	Secesh	582907	5021523	NAD83
	E035	LRMP/Range	Current	D	Lake Creek	Secesh	586125	5012345	NAD83
	E077	LRMP/Range	Current	D	Threemile Creek	Secesh	583940	5017595	NAD83
	E028	LRMP	Current	P	Elk Creek	Lower SFSR	617536	5000919	NAD83
	E031	LRMP	Current	P	Elk Creek	Lower SFSR	613489	5000704	NAD83
	E143	LRMP	Current	P	Elk Creek	Lower SFSR	612026	5001232	NAD83
	E029	LRMP	Current	P	WF Elk Creek	Lower SFSR	617242	5000060	NAD83
	E055	LRMP	Current	P	Pony Creek	Lower SFSR	611847	5004888	NAD83
	E134	Control	Current	U	Chamberlain Creek	Chamberlain	643570	5027078	NAD83
	E135	Control	Current	U	WF Chamberlain Creek	Chamberlain	.	.	.

[a] Land Use Codes: U — Undeveloped; P — Partially Developed; D — Developed (from Ries and Burns 1989).
[b] LRMP indicates that the stream was identified for monitoring in the LRMP (USFS 1988); however, as used here, tributaries to identified streams may be included.
[c] Sites used for LRMP and SFSR Road Reconstruction Project monitoring.

Table 4.—Payette National Forest interstitial sediment monitoring sites on the Payette National Forest (excluding dedicated fisheries-range monitoring sites) classified as "miscellaneous" showing location, watershed association, management status, and sampling history; only sites sampled in 2007 (bold) are updated (Appendix 2) in this report.

Site Code	Target	Status	Land Use[a]	Stream	Area	GPS Coordinates			Last Sampled
						E	N	Datum	
E001	LRMP[b]	Discontinued	U	Blackmare Creek	Upper SFSR	.	.	.	1997
E002	LRMP	Current	U	SF Blackmare Creek	Upper SFSR	598807	4962270	NAD83	**2007**
E003	LRMP	Discontinued	U	Blackmare Creek	Upper SFSR	.	.	.	1989
E004	LRMP	Discontinued	U	SF Blackmare Creek	Upper SFSR	.	.	.	1999
E027	LRMP	Discontinued	U	SF Blackmare Creek	Upper SFSR	.	.	.	1990
E065	LRMP	Discontinued	U	Fourmile Creek	Upper SFSR	.	.	.	1989
E066	LRMP	Discontinued	U	Fourmile Creek	Upper SFSR	.	.	.	1989
E018	LRMP	Discontinued	D	SF Buckhorn Creek	Upper SFSR	.	.	.	1989
E069	LRMP	Discontinued	D	Fitsum Creek	Upper SFSR	.	.	.	1996
E020	LRMP	Discontinued	D	NF Fitsum Creek	Upper SFSR	.	.	.	1989
B081	LRMP	Discontinued	D	SFSR - Stolle Mdws	Upper SFSR	.	.	.	1996
B082	LRMP	Discontinued	D	SFSR - Dollar	Upper SFSR	603486	4952650	NAD27	1996
E083	LRMP	Discontinued	D	SFSR - Oxbow	Upper SFSR	601288	4971562	NAD27	1996
E084	LRMP	Discontinued	D	SFSR - Poverty Flat	Upper SFSR	602467	4964162	NAD27	1996
E085	LRMP	Discontinued	D	SFSR - Glory	Upper SFSR	615600	4978865	NAD27	1996
E131	SFSR Road	Discontinued	D	Goat Creek	Upper SFSR	604129	4956957	NAD83	1997
E060	LRMP	Discontinued	U	Split Creek	Secesh	.	.	.	1997
E058	LRMP	Discontinued	P	Lick Creek	Secesh	.	.	.	1997
E059	LRMP	Discontinued	U	NF Lick Creek	Secesh	.	.	.	1997
E011	LRMP	Discontinued	D	Cow Creek	Secesh	.	.	.	2004
E012	LRMP	Discontinued	D	Cow Creek	Secesh	.	.	.	1997
E013	LRMP	Discontinued	D	Cow Creek	Secesh	597609	4990292	NAD27	2004
E010	LRMP	Discontinued	D	Maverick Creek	Secesh	.	.	.	1989
E141	LRMP	Discontinued	D	Maverick Creek	Secesh	.	.	.	1997
E064	LRMP	Discontinued	D	Grouse Creek	Secesh	.	.	.	1997
E140	LRMP	Discontinued	D	Grouse Creek	Secesh	.	.	.	1997
E072	LRMP	Discontinued	D	Zena Creek	Secesh	.	.	.	1997
E074	LRMP	Discontinued	D	Zena Creek	Secesh	.	.	.	1997
E075	LRMP	Discontinued	D	WF Zena Creek	Secesh	.	.	.	1997
E073	LRMP	Discontinued	D	EF Zena Creek	Secesh	---	---	---	1989
E033	LRMP	Discontinued	D	Lake Creek	Secesh	583577	5016783	NAD27	1996
E046	LRMP	Discontinued	D	Lake Creek	Secesh	593638	5007590	NAD27	1996
E048	LRMP	Discontinued	D	Lake Creek	Secesh	585331	5013400	NAD27	1996
E096	LRMP	Discontinued	D	Secesh River	Secesh	593387	5009270	NAD27	1996
E078	LRMP	Discontinued	D	Threemile Creek	Secesh	.	.	.	1997
E142	LRMP	Current	D	Threemile Creek	Secesh	.	.	.	**2007**
E095	LRMP/Minerals	Discontinued	U	Parks Creek	EFSFSR	615570	4979152	NAD83	2005
E049	LRMP/Minerals	Discontinued	P	Quartz Creek	EFSFSR	.	.	.	1997
E025	LRMP/Minerals	Discontinued	D	EFSFSR	EFSFSR	.	.	.	1997
E056	LRMP	Discontinued	U	Porphyry Creek	Lower SFSR	619936	5013188	NAD83	2006
E054	LRMP	Discontinued	U	Porphyry Creek	Lower SFSR	612184	5004798	NAD83	2006
E144	LRMP	Discontinued	U	Porphyry Creek	Lower SFSR	.	.	.	1996
E145	LRMP	Discontinued	U	Porphyry Creek	Lower SFSR	.	.	.	1997
E045	LRMP	Discontinued	U	Sheep Creek	Lower SFSR	.	.	.	1997
E040	LRMP	Discontinued	U	Sheep Creek	Lower SFSR	.	.	.	1997
E041	LRMP	Discontinued	U	Sheep Creek	Lower SFSR	.	.	.	1997
E042	LRMP	Discontinued	U	SF Sheep Creek	Lower SFSR	.	.	.	1997
E146	LRMP	Discontinued	P	MF Elk Creek	Lower SFSR	.	.	.	1990
E150	LRMP	Discontinued	D	SFSR	Lower SFSR	.	.	.	1997
E137	Minerals	Discontinued	D	Monumental Creek	Big Creek	.	.	.	1997
E147	Minerals	Discontinued	D	Monumental Creek	Big Creek	.	.	.	1997
E148	Minerals	Discontinued	D	Monumental Creek	Big Creek	.	.	.	1997
E149	Minerals	Discontinued	D	Monumental Creek	Big Creek	.	.	.	1997
E090	Minerals	Discontinued	D	Jacob's Ladder Creek	Big Creek	630958	4992694	NAD27	2004
E089	Minerals	Discontinued	D	Government Creek	Big Creek	631277	4997459	NAD27	
E091	Minerals	Discontinued	D	Smith Creek	Big Creek	633325	5001502	NAD27	2004
E092	Minerals	Discontinued	D	Smith Creek	Big Creek	.	.	.	1997
E093	Minerals	Discontinued	D	Logan Creek	Big Creek	626959	4996898	NAD27	2004
E094	Minerals	Discontinued	D	Logan Creek	Big Creek	625127	4996210	NAD27	2004
E244	Local Project	Temporary	D	Big Creek	Big Creek	632691	4999479	NAD27	2004
E036	Control	Discontinued	U	Chamberlain Creek	Chamberlain	.	.	.	1997
E037	Control	Discontinued	U	Chamberlain Creek	Chamberlain	.	.	.	1997
E038	Control	Discontinued	U	McCalla Creek	Chamberlain	.	.	.	1997

[a] Land Use Codes: U — Undeveloped; P — Partially Developed; D — Developed (from Ries and Burns 1989).
[b] LRMP indicates that the stream was identified for monitoring in the LRMP (USFS 1988); however, as used here, tributaries to identified streams may be included.

Appendix 2. Primary Statistical Comparisons Tables

Upper South Fork Salmon River

Table 5.—Annual average percent free matrix at sediment monitoring sites in the upper SFSR watershed and comparisons[a] among them, 1988-2007.

Year	Blackmare Creek	Fourmile Creek	Buckhorn Creek	Fitsum Creek
	E006	E068	E016	E023
	Control		Test	
1988	9.5	21.5	7.5	12.6
1989	6.1	33.1	12.6	16.1
1990	9.1	15.7	5.8	12.9
1991	29.4	17.8	16.3	35.6
1992	16.9	18.1	12.3	26.2
1993	17.2	12.0	9.7	24.3
1994	1.3	7.3	7.8	16.0
1995	20.8	28.3	12.5	25.1
1996	14.5	12.4	14.2	16.9
1997	13.8	17.4	7.4	16.3
1998	3.9	6.3	4.9	9.3
1999	11.4	9.7	5.5	15.6
2000	8.9	12.0	2.8	11.5
2001	23.9	12.9	14.0	24.9
2002	8.8	.	25.5	26.0
2003	35.5	22.5	17.9	9.5
2004	6.5	8.8	6.2	19.5
2005	10.0	19.6	8.1	14.1
2006	16.7	16.7	15.8	22.7
2007	21.5	.	15.1	13.7
Means[b]				
Recent[b]	18.1A	16.1BA	12.6B	16.0BA
Overall	14.3B	16.3B	11.1C	18.5A

[a]Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that means are based on total respective sample, not from the data displayed in the table.
[b]Recent = 5-year mean calculated from most recent data (shaded).

Table 6.—Annual measured and calculated[a] percent cobble embeddedness means at sediment monitoring sites in the upper SFSR watershed and comparisons[b] among them, 1983-2006.

Year	Blackmare Creek		Fourmile Creek		Buckhorn Creek		Fitsum Creek	
	E006		E068		E016		E023	
	Control				Test			
	Meas.	Calc.	Meas.	Calc.	Meas.	Calc.	Meas.	Calc.
1983	21.3	.	18.8	.	41.3	.	45.2	.
1984	20.5	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.
1986	32.0	.	16.7	.	34.0	.	24.7	.
1987	.	.	.	.	.	.	.	.
1988	49.8	39.6	35.5	33.8	44.8	40.6	40.1	38.1
1989	49.1	41.3	55.3	28.2	57.8	38.2	19.1	36.4
1990	44.2	39.8	34.7	36.6	42.2	41.4	43.5	38.0
1991	54.0	30.0	.	35.6	.	36.3	.	27.0
1992	46.6	36.0	.	35.5	.	38.3	.	31.5
1993	39.2	35.9	.	38.4	.	39.5	.	32.4
1994	21.9	43.6	15.2	40.7	35.7	40.4	29.6	36.5
1995	10.8	34.1	.	30.5	.	38.2	.	32.1
1996	49.6	37.2	.	38.2	42.4	37.4	.	36.1
1997	42.2	37.6	46.7	35.8	43.4	40.7	.	36.3
1998	52.2	42.4	.	41.2	43.8	41.9	.	39.7
1999	26.2	38.7	.	39.5	42.0	41.6	.	36.7
2000	30.8	39.9	.	38.4	39.8	42.9	.	38.7
2001	41.7	32.6	.	38.0	42.7	37.5	.	32.1
2002	35.6	40.0	23.5	.	30.4	31.9	.	31.6
2003	13.0	27.0	31.5	33.4	40.6	35.6	32.0	39.6
2004	50.8	41.1	52.5	40.0	42.4	41.2	44.0	34.8
2005	39.1	39.4	31.1	34.7	49.1	40.3	34.9	37.4
2006	49.1	36.1	41.2	36.1	41.1	36.6	25.3	33.2
2007	35.3	33.9	.	.	46.1	36.9	.	37.5
Means[c]								
Recent[c]	37.8B	35.5	35.7CB	36.4	43.9A	38.1	33.1C	36.5
Overall	37.2B	37.3	33.6C	36.4	42.2A	38.9	33.8C	35.3

[a]Calculated as CE = 43.81680 - 0.45964 • FMX.
[b]Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that means are based on total respective sample, not from the data displayed in the table.
[c]Recent = 5-year mean calculated from most recent data. (shaded).

SFSR Road Sites

Table 7.—Annual average percent free matrix at sediment monitoring sites for the SFSR Road and comparisons[a] among them, 1988-2007.

Year	Fourmile Creek		Camp Creek		Cabin Creek		
	E068	E067	E129	E130	B127	B126	B125
	Control	Test	Control	Test	Control	Control	Test
1990	15.7	16.2	27.9	12.4	25.1	31.5	13.2
1991	17.8	34.4	14.9	18.8	17.5	33.0	23.7
1992	18.1	19.5	9.4	18.5	23.4	35.0	17.5
1993	12.0	15.2	2.4	11.7	12.0	23.2	13.6
1994	7.3	22.0	1.7	7.2	24.4	40.9	29.0
1995	28.3	24.2	8.2	23.3	27.3	66.9	53.5
1996	12.4	9.7	12.0	10.4	18.1	20.4	.
1997	17.4	7.7	12.6	6.4	24.5	17.8	24.9
1998	6.3	4.0	2.9	4.4	12.4	8.9	7.8
1999	9.7	15.7	5.5	5.5	18.8	6.1	18.2
2000	12.0	4.9	4.4	3.9	24.1	16.1	18.0
2001	12.9	16.5	18.3	16.4	43.3	22.7	27.5
2002	.	.	.	.	.	.	.
2003	22.5	21.0	5.0	3.5	20.9	13.4	13.6
2004	8.8	13.3	9.9	5.2	18.0	18.6	27.7
2005	19.6	17.6	12.2	14.5	21.6	25.8	18.0
2006	16.7	18.4	18.1	13.7	16.9	11.7	15.2
2007	.	17.3	12.8	16.7	46.0	47.4	39.4
Means[b]							
Recent[b]	16.1CB	17.5B	11.6CD	10.7D	24.7A	23.4A	22.8A
Overall	14.8C	16.3C	10.4D	11.3D	23.2BA	25.8A	22.6B

[a]Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that means are based on total respective sample, not from the data displayed in the table.
[c]Recent = 5-year mean calculated from most recent data (shaded).

Table 8.—Annual measured and calculated[a] percent cobble embeddedness means at SFSR Road sediment monitoring sites and comparisons[b] among them, 1990-2007.

Year	Fourmile Creek[c]				Camp Creek		Cabin Creek		
	E068		E067		E129	E130	B127	B126	B125
	Control		Test		Test	Control	Control	Control	Test
	Meas.	Calc.	Meas.	Calc.	Calc.	Calc.	Calc.	Calc.	Calc.
1990	34.7	36.6	.	36.4	30.7	38.2	32.3	29.0	37.8
1991	.	35.6	.	27.6	37.0	35.1	35.8	28.2	32.8
1992	.	35.5	.	34.8	39.7	35.3	33.1	27.2	35.7
1993	.	38.4	.	36.9	43.1	38.6	38.3	33.0	37.6
1994	15.2	40.7	16.9	33.6	43.4	40.7	32.6	24.4	30.2
1995	.	30.5	.	32.5	40.3	32.9	31.2	11.8	18.3
1996	.	38.2	.	39.6	38.4	39.2	35.5	34.3	.
1997	46.7	35.8	.	40.5	38.2	41.1	32.5	35.6	32.1
1998	.	41.2	.	42.3	42.8	42.1	38.1	39.9	40.5
1999	.	39.5	.	36.6	41.6	41.6	35.2	41.3	35.4
2000	.	38.4	.	41.8	42.1	42.4	32.7	36.5	35.5
2001	.	38.0	.	36.2	35.4	36.3	23.9	33.2	30.9
2002	23.5	.	52.0	.	.	.	.	.	.
2003	31.5	33.4	36.6	34.1	41.8	42.6	34.2	37.7	37.6
2004	52.5	40.0	43.9	37.8	39.4	41.7	35.5	35.2	30.8
2005	31.1	34.7	32.5	35.7	38.3	37.2	33.9	31.7	35.5
2006	41.2	36.1	48.9	35.3	35.5	37.6	36.0	38.6	36.8
2007	.	.	47.0	35.9	37.9	36.1	22.7	22.0	25.7
Means[c]									
Recent[d]	38.0B	36.4	41.3A	35.8	37.2	38.1	32.0	30.8	33.3
Overall	33.6B	37.0	39.5A	36.3	39.0	38.6	33.1	31.9	33.5

[a]Calculated as CE = 43.81680 - 0.45964 • FMX.
[b]Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that measured means are based on total respective sample, not from the data displayed in the table.
[c]This comparison was not updated because no 2007 data were collected at site E068.
[d]Recent = 5-year mean calculated from most recent data (shaded).

Secesh River

Table 9.—Annual average percent free matrix at sediment monitoring sites for the Secesh River watershed and comparisons[a] between them, 1988-2007.

Year	Lick Creek E057 Control	Grouse Creek E062 Test
1988	25.1	14.5
1989	18.4	10.2
1990	20.6	45.3
1991	42.9	23.8
1992	26.3	43.1
1993	19.2	24.6
1994	27.1	29.3
1995	32.7	27.1
1996	17.6	19.9
1997	15.3	12.3
1998	14.8	24.8
1999	19.9	13.4
2000	22.0	36.5
2001	44.1	66.1
2002	.	.
2003	16.6	39.7
2004	24.5	9.8
2005	15.3	42.5
2006	41.5	34.3
2007	21.5	44.7
Means[b]		
Recent[b]	**23.9A**	**38.2B**
Overall	**24.6B**	**30.5A**

[a] Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that means are based on total respective sample, not from the data displayed in the table.
[b] Recent = 5-year mean calculated from most recent data.

Table 10.—Annual measured and calculated[a] percent cobble embeddedness means at the Secesh River watershed sediment monitoring sites and comparisons[b] among them, 1983-2006.

Year	Lick Creek E057 Control		Grouse Creek E062 Test	
	Meas.	Calc.	Meas.	Calc.
1983	19.3	.	.	.
1984	19.4	.	.	.
1985	.	.	.	.
1986	19.0	.	.	.
1987	.	.	.	.
1988	28.3	32.3	41.5	37.2
1989	42.4	35.4	37.8	39.1
1990	34.1	34.4	35.2	23.0
1991	13.1	24.1	23.9	32.9
1992	32.9	31.7	28.3	24.0
1993	26.6	35.0	25.0	32.5
1994	20.7	33.6	26.3	30.4
1995	17.8	28.3	6.7	31.4
1996	32.9	35.7	35.4	34.6
1997	24.2	36.8	27.6	38.2
1998	39.3	37.0	23.6	32.4
1999	27.8	34.7	38.7	37.7
2000	22.5	33.7	9.2	27.0
2001	39.8	23.6	1.2	13.4
2002	31.6		21.5	
2003	20.5	36.2	37.4	25.6
2004	34.3	32.5	36.4	39.3
2005	30.3	36.8	21.5	24.3
2006	33.5	24.8	29.5	18.8
2007	36.1	33.9	15.3	23.3
Means[b]				
Recent	**30.9A**	**32.8**	**28.0A**	**26.3**
Overall	**28.1A**	**32.7**	**26.1B**	**29.7**

[a] Calculated as CE = 43.81680 - 0.45964 • FMX.
[b] Means with different letters are significantly different (α = 0.10) by Student's t-test. Note that measured means are based on total respective sample, not from the data displayed in the table.
[c] Recent = 5-year mean calculated from most recent data.

East Fork South Fork Salmon River

These analyses have been discontinued.

Lower South Fork Salmon River

Table 11.—Annual average percent free matrix at sediment monitoring sites in the lower SFSR watershed and comparisons[a] among them, 1988-2007.

Year	Sheep Creek E039 Control	Pony Creek E056 Test	Elk Creek E030 Test
1989	22.1	9.0	9.0
1990	10.1	17.8	.
1991	9.0	24.7	35.2
1992	14.2	27.6	2.7
1993	8.3	25.6	10.3
1994	.	17.9	11.9
1995	41.6	40.6	16.2
1996	13.2	10.6	12.9
1997	7.3	13.9	.
1998	2.0	13.4	11.4
1999	12.8	21.9	10.0
2000	6.5	6.6	3.9
2001	9.8	21.6	17.5
2002	5.8	12.5	10.4
2003	10.8	19.1	35.9
2004	12.5	10.9	12.4
2005	10.7	5.0	8.0
2006	30.8	21.9	27.7
2007	22.4	16.9	9.4
Means[b]			
Recent	**17.4A**	**14.7A**	**18.7A**
Overall	**13.9B**	**17.8A**	**14.4B**

[a]Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that means are based on total respective sample, not from the data displayed in the table.
[b]Recent = 5-year mean calculated from most recent data.

Table 12.—Annual measured and calculated[a] percent cobble embeddedness means at the Lower South Fork Salmon River watershed sediment monitoring sites and comparisons[b] among them, 1983-2006.

Year	Sheep Creek E039 Control		Pony Creek E056 Test		Elk Creek E030 Test	
	Meas.	Calc.	Meas.	Calc.	Meas.	Calc.
1983	.	.	29.1	.	18.8	.
1984	.	.	.	.	.	.
1985	.	.	33.8	.	12.8	.
1986	.	.	27.8	.	20.5	.
1987	.	.	.	.	.	.
1988	.	.	.	.	.	.
1989	29.4	33.7	33.5	39.9	40.2	39.9
1990	56.8	39.2	32.2	35.6	.	.
1991	.	39.7	.	32.3	.	27.2
1992	.	37.3	.	30.9	.	43.0
1993	.	40.0	.	31.8	.	39.3
1994	.	.	11.8	35.6	27.3	38.5
1995	.	24.7	.	24.6	.	36.4
1996	.	37.8	.	39.1	.	38.0
1997	.	40.5	.	37.5	.	.
1998	.	42.9	.	37.7	.	38.7
1999	.	37.9	.	33.6	.	39.4
2000	.	40.8	.	41.1	.	42.4
2001	.	39.3	.	33.8	.	35.7
2002	.	41.2	.	38.2	.	39.2
2003	.	38.8	.	35.0	.	26.8
2004	.	38.1	.	39.0	.	38.2
2005	.	38.9	.	41.8	.	40.4
2006	.	29.7	.	33.6	.	30.8
2007	.	33.5	.	36.1	.	39.5
Means[b]						
Recent	**.**	**35.8**	**27.8A**	**37.1**	**23.9B**	**35.1**
Overall	**43.1**	**37.4**	**28.0A**	**35.6**	**23.9B**	**37.3**

[a]Calculated as CE = 43.81680 - 0.45964 • FMX.
[b]Means with different letters are significantly different (α = 0.10) by Student's t-test. Note that measured means are based on total respective sample, not from the data displayed in the table.
[c]Recent = 5-year mean calculated from most recent data.

Chamberlain Creek

Table 13.—Annual average percent free matrix particles at sediment monitoring sites in the Chamberlain Creek watershed and comparisons[a] among them, 1988-2006.

Year	Chamberlain Creek	WF Chamberlain Creek
	E032	E136
	Control	
1989	22.5	34.4
1990	10.8	49.8
1991	24.5	40.3
1992	.	35.6
1993	39.4	24.5
1994	19.3	.
1995	19.3	21.5
1996	15.7	16.3
1997	20.6	27.2
1998	12.7	8.5
1999	9.8	21.3
2000	16.8	38.0
2001	18.1	53.2
2002	.	.
2003	30.6	48.3
2004	5.9	9.8
2005	18.0	28.7
2006	19.1	28.4
2007	40.5	68.8
Means[b]		
Recent	22.8B	36.8A
Overall	20.2B	32.7A

[a]Means with different letters are significantly different (α = 0.10) by Tukey's Honestly Significant Difference (HSD) test. Note that means are based on total respective sample, not from the data displayed in the table.
[b]Recent = 5-year mean calculated from most recent data.

Table 14.—Annual measured and calculated[a] percent cobble embeddedness means at the Chamberlain Creek watershed sediment monitoring sites and comparisons[b] among them, 1983-2006.

Year	Chamberlain Creek		WF Chamberlain Creek	
	E032		E136	
	Control			
	Meas.	Calc.	Meas.	Calc.
1983	.	.	.	.
1984	.	.	.	.
1985	15.5	.	.	.
1986	.	.	.	.
1987	.	.	.	.
1988	.	.	.	.
1989	29.1	33.5	25.3	28.0
1990	59.1	38.8	40.0	20.9
1991	.	32.6	28.7	25.3
1992	.	.	31.6	27.4
1993	.	25.7	.	32.6
1994	29.8	35.0	21.8	.
1995	.	34.9	36.0	33.9
1996	.	36.6	24.6	36.3
1997	.	34.4	25.2	31.3
1998	.	38.0	31.0	39.9
1999	.	39.3	23.9	34.0
2000	.	36.1	21.4	26.3
2001	.	35.5	25.1	19.4
2002	.	.	12.1	.
2003	.	29.8	13.8	21.6
2004	.	41.1	19.7	39.3
2005	.	35.6	29.7	30.6
2006	.	35.0	30.2	30.8
2007	.	25.2	21.0	12.2
Means[b]				
Recent	.	33.3	22.9	26.9
Overall	33.4	34.5	25.6	28.8

[a]Calculated as CE = 43.81680 - 0.45964 • FMX.
[b]Means were not compared because only five years of measured data were available for E032. Note that measured means are based on total respective sample, not from the data displayed in the table.
[c]Recent = 5-year mean calculated from most recent data.

Appendix 3. Primary Time Series Tables

Upper South Fork Salmon River

Table 15.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for long-term sediment monitoring sites in the Upper SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Blackmare Creek	E006	Control	-481.56	0.25*	0.01	1.22**	-471.57	0.24	0.19
Fourmile Creek	E068		789.89	-0.39**	0.02	1.45**	777.06	-0.38*	0.11
Buckhorn Creek	E016	Test	-392.61	0.20*	0.01	1.52**	-402.89	0.21	0.07
Fitsum Creek	E023		403.09	-0.19	0.00	1.69**	399.99	-0.19	0.03

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 16.—Time series least-squares regression statistics and OLS and autoregressive models, percent cobble embeddedness over time, for long-term sediment monitoring sites in the Upper SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Blackmare Creek	E006	Control	-392.66	0.22*	0.00	1.08**	-359.81	0.20	0.25
Fourmile Creek	E068		57.61	-0.01	0.00	1.27**	50.92	0.00	0.17
Buckhorn Creek	E016	Test	-3318.00	1.67*	0.01	1.46**	-3024.00	1.53	0.11

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 17.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for long-term sediment monitoring sites in the Upper SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Blackmare Creek	E006	Control	595.95	-0.29*	0.01	1.48**	604.89	-0.29	0.07
Fourmile Creek	E068		715.31	-0.35+	0.01	1.67**	717.86	-0.35	0.03
Buckhorn Creek	E016	Test	-308.98	0.16	0.00	1.87+	-309.04	0.16	0.03
Fitsum Creek	E023		-308.98	0.16	0.00	1.87+	-309.04	0.16	0.03

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

SFSR Road Sites

Table 18.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for the SFSR Road sites (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Fourmile Creek	E068	Control	52.76	-0.02	0.00	1.53**	53.47	-0.02	0.07
	E067	Test	639.92	-0.31*	0.01	1.38**	613.01	-0.30	0.13
Camp Creek	E129	Control	47.74	-0.02	0.00	1.63**	11.46	0.00	0.07
	E130	Test	482.33	-0.24†	0.01	1.74**	474.70	-0.23	0.04
Cabin Creek	B127	Control	-263.02	0.14	0.00	0.91**	-400.84	0.21	0.31
	B126	Mixed	1619.00	-0.80**	0.03	0.88**	1596.00	-0.79†	0.38
	B125	Test	-951.26	0.49**	0.02	1.14**	-967.36	0.50†	0.25

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 19.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for the SFSR Road sites (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Fourmile Creek	E068	Control	715.31	-0.35†	0.01	1.67**	714.94	-0.35	0.04
	E067	Test	345.17	-0.17	0.00	1.41**	352.77	-0.17	0.10
Camp Creek	E129	Control	-1106.00	0.56**	0.03	1.60**	-1100.00	0.56**	0.09
	E130	Test	-1134.00	0.58**	0.03	1.85*	-1140.00	0.58**	0.04
Cabin Creek	B127	Control	2784.00	-1.38**	0.09	1.28**	2815.00	-1.40**	0.22
	B126	Mixed	2543.00	-1.26**	0.05	0.91**	2728.00	-1.35**	0.35
	B125	Test	1209.00	-0.60**	0.02	1.09**	1242.00	-0.61†	0.24

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Secesh River

Table 20.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix over time, for long-term sediment monitoring sites in the Secesh River watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Lick Creek	E057	Control	-2207.00	1.12**	0.10	0.75**	-2249.00	1.14**	0.46
Grouse Creek	E062	Test	-8.56	0.02	0.00	1.36**	-10.13	0.02	0.11

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 21.—Time series least-squares regression statistics and OLS and autoregressive models, percent cobble embeddedness over time, for long-term sediment monitoring sites in the Secesh River watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Lick Creek	E057	Control	2072.00	-1.02**	0.05	1.01**	2058.00	-1.02**	0.32
Grouse Creek	E062	Test	-787.02	0.41**	0.01	1.02**	-727.45	0.38*	0.27

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 22.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for long-term sediment monitoring sites in the Secesh River watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Lick Creek	E057	Control	1454.00	-0.72**	0.03	1.32**	1425.00	-0.71**	0.15
Grouse Creek	E062	Test	718.37	-0.36**	0.02	1.46**	720.62	-0.36*	0.10

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

East Fork South Fork Salmon River

Table 23.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for long-term sediment monitoring sites in the EFSFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Tamarack Creek	E076	Control	-302.16	0.17	0.00	1.04**	-297.05	0.17	0.25

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 24.—Time series least-squares regression statistics and OLS and autoregressive models, percent cobble embeddedness over time, for long-term sediment monitoring sites in the EFSFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Tamarack Creek	E076	Control	116.52	-0.06	0.00	1.78**	116.78	-0.06	0.02

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 25.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for long-term sediment monitoring sites in the EFSFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Tamarack Creek	E076	Control	-483.98	0.25**	0.00	0.89**	-424.25	0.22	0.35

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Lower South Fork Salmon River

Table 26.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for long-term sediment monitoring sites in the lower SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Sheep Creek	E039	Control	-147.10	0.08	0.00	1.21**	-125.79	0.07	0.18
Pony Creek	E056	Test	902.36	-0.44**	0.02	1.48**	889.25	-0.44*	0.11
Elk Creek	E030		-313.00	0.16	0.00	1.45**	-283.79	0.15	0.14

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

NOTE: There are insufficient cobble embeddedness data for time series analysis.

Table 27.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for long-term sediment monitoring sites in the lower SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Sheep Creek	E039	Control	51.66	-0.02	0.00	1.71**	72.72	-0.03	0.02
Pony Creek	E056	Test	100.56	-0.04	0.00	1.56**	91.85	-0.04	0.05
Elk Creek	E030		-452.45	0.23	0.01	1.37**	-446.42	0.23	0.13

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Chamberlain Creek

Table 28.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for long-term sediment monitoring sites in the Chamberlain Creek watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Chamberlain Creek	E032	Control	-146.94	0.08	0.00	1.21**	-110.81	0.07	0.19
WF Chamberlain Creek	E136		-522.28	0.28†	0.01	0.69**	-710.12	0.37	0.47

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 29.—Time series least-squares regression statistics and OLS and autoregressive models, percent cobble embeddedness over time, for long-term sediment monitoring sites in the Secesh River watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
WF Chamberlain Creek	E136	Control	1280.00	-0.63**	0.02	1.30**	1278.00	-0.63**	0.15

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Table 30.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for long-term sediment monitoring sites in the Chamberlain Creek watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Chamberlain Creek	E032	Control	-351.10	0.18+	0.01	1.31**	-373.78	0.19	0.18
WF Chamberlain Creek	E136		1738.00	-0.86**	0.06	1.51**	1739.00	-0.86**	0.13

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Appendix 4. Statistical Summary Tables

Upper South Fork Salmon River

Primary Sites

30-Hoop Free Matrix

Table 31.—Blackmare Creek, Lower site (E006), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	9.5	6.9	1.9	106.8	40.9	0.0	28	1.733	0.808	0.0001
1989	6.1	4.2	1.4	126.9	33.3	0.0	30	1.780	0.786	0.0000
1990	9.1	6.8	2.0	120.3	43.8	0.0	30	1.538	0.809	0.0001
1991	29.4	28.4	2.9	53.2	69.4	0.0	30	0.361	0.972	0.6039
1992	16.9	12.1	3.3	108.5	61.9	0.0	30	0.967	0.852	0.0007
1993	17.2	17.1	2.1	68.0	45.0	0.0	30	0.402	0.960	0.3044
1994	1.3	0.0	0.8	334.4	20.0	0.0	30	3.721	0.344	0.0000
1995	20.8	18.8	3.7	96.1	69.2	0.0	30	0.815	0.894	0.0061
1996	14.5	11.4	2.8	106.4	55.6	0.0	30	1.155	0.856	0.0008
1997	13.8	12.9	2.1	84.0	46.2	0.0	30	0.818	0.921	0.0285
1998	3.9	0.0	1.2	165.2	23.1	0.0	30	1.726	0.678	0.0000
1999	11.4	8.8	2.0	97.1	33.3	0.0	30	0.744	0.875	0.0022
2000	8.9	5.9	1.8	108.2	31.8	0.0	30	0.964	0.839	0.0004
2001	23.9	22.0	2.7	61.1	65.0	0.0	30	0.769	0.949	0.1583
2002	8.8	5.9	1.9	115.8	33.3	0.0	30	0.949	0.830	0.0002
2003	35.5	37.6	2.8	43.5	61.3	0.0	30	-0.392	0.973	0.6258
2004	6.5	1.9	2.3	194.4	64.4	0.0	30	3.616	0.547	0.0000
2005	10.0	9.1	1.9	106.3	31.3	0.0	30	0.441	0.825	0.0002
2006	16.7	14.5	2.8	90.1	66.7	0.0	30	1.315	0.889	0.0046
2007	21.5	16.0	3.3	83.7	67.7	0.0	30	1.057	0.893	0.0058
Means[a]										
Recent	18.0									
Overall	14.3									

[a]Recent = 5-year mean (2003-2007).

Abbreviations: Std Err = Standard Error of the Mean.
CV = Coefficient of Variation (in percent).
Max = Maximum Number of Free Particles in Hoops.
Min = Minimum Number of Free Particles in Hoops.
N = Sample Size (Number of Hoops).
Skew = Skewness of the Sampling Distribution.
W = The Shapiro-Wilk Statistic (Test for Normality).
P < W = Probability of Obtaining a Smaller W by Chance (H_0: Sample Came from Normal Distribution; Rejected for P < 0.10).

Table 32.—Fourmile Creek, Roadside site (E068), percent free particles univariate statistical summary, 1988-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	21.5	16.9	2.7	68.2	67.0	0.0	30	1.297	0.894	0.0060
1989	33.1	33.3	2.8	47.1	55.3	5.9	31	-0.144	0.936	0.0652
1990	15.7	14.6	2.3	79.4	47.8	0.0	30	0.945	0.921	0.0292
1991	17.8	17.5	2.5	75.6	51.4	0.0	30	0.440	0.950	0.1666
1992	18.1	17.1	2.4	73.6	52.4	0.0	30	0.748	0.932	0.0538
1993	12.0	10.3	1.8	83.5	36.4	0.0	30	0.605	0.927	0.0406
1994	7.3	0.0	2.2	163.7	33.3	0.0	30	1.305	0.641	0.0000
1995	28.3	27.0	3.1	59.6	70.0	7.7	30	0.959	0.912	0.0172
1996	12.4	6.1	2.7	117.3	45.9	0.0	30	0.838	0.819	0.0002
1997	17.4	6.5	4.5	143.2	100.0	0.0	30	1.864	0.740	0.0000
1998	6.3	0.0	2.0	173.1	40.0	0.0	30	1.744	0.654	0.0000
1999	9.7	7.7	1.9	108.1	40.0	0.0	30	1.130	0.858	0.0009
2000	12.0	10.6	1.8	83.8	37.5	0.0	30	0.778	0.917	0.0218
2001	12.9	10.1	2.9	125.6	52.0	0.0	30	1.399	0.774	0.0000
2002	.	.	.	.	.	.	.	.	.	.
2003	22.5	19.6	3.2	77.5	62.5	0.0	30	0.995	0.897	0.0073
2004	8.8	6.9	1.5	91.6	30.0	0.0	30	0.774	0.906	0.0119
2005	19.6	18.6	2.8	78.5	55.0	0.0	30	0.500	0.944	0.1150
2006	16.7	17.6	2.3	76.1	36.4	0.0	30	0.175	0.884	0.0035
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	16.1									
Overall	16.2									

[a]Recent = 5-year mean (2002-2006; data were inadvertently not collected in 2007).

Table 33.—Buckhorn Creek, Lower site (E016), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	7.5	5.3	1.6	118.3	33.3	0.0	30	1.265	0.827	0.0002
1989	12.6	8.3	2.6	113.2	56.7	0.0	31	1.391	0.836	0.0003
1990	5.8	5.0	1.2	115.6	22.2	0.0	29	0.984	0.826	0.0003
1991	16.3	14.4	2.9	96.0	63.6	0.0	30	1.256	0.869	0.0016
1992	12.3	12.8	1.9	83.3	41.2	0.0	30	1.031	0.899	0.0081
1993	9.7	4.9	2.2	123.8	46.5	0.0	30	1.336	0.805	0.0001
1994	7.8	4.4	2.1	143.2	50.0	0.0	30	2.327	0.717	0.0000
1995	12.5	10.0	2.5	110.2	53.8	0.0	30	1.514	0.833	0.0003
1996	14.2	12.7	2.4	92.2	42.9	0.0	30	0.786	0.898	0.0075
1997	7.4	3.6	2.4	176.5	64.3	0.0	30	3.339	0.586	0.0000
1998	4.9	1.9	1.2	131.5	25.0	0.0	30	1.577	0.770	0.0000
1999	5.5	3.9	1.2	117.0	26.7	0.0	30	1.436	0.821	0.0002
2000	2.8	0.0	0.8	159.1	16.7	0.0	30	1.707	0.692	0.0000
2001	14.0	12.9	2.2	87.2	45.5	0.0	30	0.975	0.902	0.0095
2002	25.5	17.7	4.6	99.5	80.0	0.0	30	0.791	0.874	0.0020
2003	17.9	16.2	2.3	70.3	52.4	0.0	30	0.696	0.949	0.1625
2004	6.2	3.6	1.5	131.6	28.6	0.0	30	1.279	0.778	0.0000
2005	8.1	5.4	1.5	98.4	33.3	0.0	30	1.331	0.865	0.0013
2006	15.8	15.5	2.2	74.9	37.8	0.0	30	0.294	0.930	0.0488
2007	15.1	13.4	2.2	78.9	37.0	0.0	30	0.141	0.911	0.0158

Means[a]	
Recent	12.6
Overall	11.1

[a]Recent = 5-year mean (2003-2007).

Table 34.—Fitsum Creek, Original site (E023), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	12.6	9.1	2.1	93.1	40.9	0.0	30	0.596	0.898	0.0075
1989	16.1	14.3	1.8	62.7	37.5	0.0	30	0.397	0.951	0.1823
1990	12.9	11.1	2.6	101.3	45.5	0.0	25	1.033	0.866	0.0036
1991	35.6	35.0	4.0	61.0	80.4	0.0	30	0.033	0.968	0.4972
1992	26.2	26.1	3.1	64.5	71.4	0.0	30	0.507	0.966	0.4298
1993	24.3	21.1	3.2	71.0	75.9	0.0	30	0.871	0.947	0.1441
1994	16.0	14.2	3.0	103.6	61.5	0.0	30	0.893	0.873	0.0019
1995	25.1	19.1	5.1	111.0	100.0	0.0	30	1.352	0.830	0.0002
1996	16.9	10.1	3.6	117.8	70.4	0.0	30	1.117	0.828	0.0002
1997	16.3	13.8	2.6	87.6	60.0	0.0	30	0.991	0.906	0.0116
1998	9.3	3.7	2.7	160.6	66.7	0.0	30	2.495	0.673	0.0000
1999	15.6	13.3	3.0	104.3	50.0	0.0	30	0.749	0.861	0.0010
2000	11.5	7.5	2.5	121.4	60.0	0.0	30	1.800	0.798	0.0001
2001	24.9	27.6	2.9	62.8	73.7	0.0	30	0.738	0.931	0.0509
2002	26.0	20.7	3.2	67.0	73.7	0.0	30	0.939	0.926	0.0374
2003	9.5	6.3	2.0	113.6	33.3	0.0	29	0.975	0.821	0.0002
2004	19.5	14.0	3.1	86.4	66.7	0.0	30	1.392	0.855	0.0008
2005	14.1	13.2	2.7	105.1	56.3	0.0	30	1.051	0.865	0.0013
2006	22.7	22.0	2.5	61.4	57.1	0.0	30	0.700	0.954	0.2124
2007	13.7	11.1	2.2	86.9	50.0	0.0	30	0.938	0.910	0.0148

Means[a]	
Recent	15.9
Overall	18.4

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Table 35.—Blackmare Creek, Lower site (E006), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	21.3	9.5	2.6	123.7	93.7	0.0	102	1.150	0.797	0.0000
1984	20.5	13.4	2.3	115.5	81.8	0.0	111	0.807	0.820	0.0000
1985	.	.	.	.	.	.	.	.	.	.
1986	32.0	30.8	2.5	82.3	91.7	0.0	115	0.429	0.929	0.0000
1987	.	.	.	.	.	.	.	.	.	.
1988	49.8	53.3	2.3	47.0	91.7	0.0	105	-0.502	0.956	0.0017
1989	49.1	53.5	2.1	43.5	88.9	0.0	101	-0.754	0.935	0.0001
1990	44.2	44.4	2.1	50.3	89.2	0.0	112	-0.322	0.966	0.0059
1991	54.0	58.3	2.6	49.5	95.7	0.0	105	-0.793	0.907	0.0000
1992	46.6	54.4	2.8	59.4	85.7	0.0	100	-0.735	0.848	0.0000
1993	39.2	47.4	3.2	83.9	93.0	0.0	105	-0.088	0.845	0.0000
1994	21.9	0.0	2.6	126.5	89.1	0.0	113	0.780	0.760	0.0000
1995	10.8	0.0	2.3	215.7	87.1	0.0	105	1.993	0.523	0.0000
1996	49.6	53.7	2.3	50.7	91.5	0.0	123	-0.299	0.951	0.0002
1997	42.2	39.8	2.0	49.3	95.0	0.0	106	0.231	0.983	0.2033
1998	52.2	51.6	1.8	34.7	95.2	0.0	100	-0.674	0.961	0.0044
1999	26.2	27.3	2.1	85.9	83.3	0.0	112	0.393	0.902	0.0000
2000	30.8	22.2	3.1	100.2	92.9	0.0	102	0.325	0.832	0.0000
2001	41.7	50.0	2.8	72.9	95.2	0.0	117	-0.108	0.909	0.0000
2002	35.6	39.1	2.2	63.6	87.7	0.0	105	-0.167	0.946	0.0003
2003	13.0	0.0	2.5	191.3	91.7	0.0	99	1.604	0.573	0.0000
2004	50.8	52.1	2.1	43.4	90.9	0.0	109	-0.547	0.963	0.0040
2005	39.1	43.6	2.6	67.4	85.3	0.0	104	-0.274	0.909	0.0000
2006	49.1	55.6	2.7	55.8	91.2	0.0	103	-0.446	0.932	0.0000
2007	35.3	44.2	2.8	82.0	88.6	0.0	104	-0.103	0.856	0.0000

Means[a]	
Recent	37.5
Overall	37.2

[a]Recent = 5-year mean (2003-2007).

Table 36.—Fourmile Creek, Roadside site (E068), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	18.8	14.2	1.9	103.8	70.1	0.0	103	1.074	0.860	0.0000
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	16.7	0.0	2.6	163.5	91.2	0.0	107	1.506	0.663	0.0000
1987	.	.	.	.	.	.	.	.	.	.
1988	35.5	36.9	2.3	68.5	91.7	0.0	112	0.051	0.952	0.0005
1989	55.3	63.8	3.0	55.4	97.5	0.0	102	-0.821	0.859	0.0000
1990	34.7	40.1	2.5	71.1	81.9	0.0	100	-0.336	0.874	0.0000
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	.	.	.	.	.	.	.	.	.	.
1994	15.2	0.0	2.2	145.6	88.5	0.0	104	1.297	0.727	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.	.
1997	46.7	46.4	2.1	46.5	91.8	0.0	104	-0.417	0.967	0.0098
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.
2002	23.5	0.0	2.8	120.8	90.9	0.0	100	0.748	0.783	0.0000
2003	31.5	34.6	2.8	91.9	88.3	0.0	107	0.184	0.855	0.0000
2004	52.5	54.1	2.8	54.0	200.0	0.0	101	0.976	0.899	0.0000
2005	31.1	30.1	2.5	87.6	87.5	0.0	117	0.338	0.900	0.0000
2006	41.2	40.8	2.9	70.9	188.6	0.0	104	1.130	0.908	0.0000
2007	35.9	39.3	2.5	69.6	90.0	0.0	101	-0.018	0.936	0.0001

Means[a]	
Recent	38.2
Overall	33.7

[a]Recent = 5-year mean (2003-2007).

Table 37.—Buckhorn Creek, Lower site (E016), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	41.3	41.5	1.6	39.7	83.6	4.5	112	0.162	0.990	0.5917
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	34.0	31.0	2.7	80.7	87.6	0.0	107	0.281	0.917	0.0000
1987	.	.	.	.	.	.	.	.	.	.
1988	44.8	46.9	2.2	49.8	88.2	0.0	103	-0.172	0.977	0.0736
1989	57.8	63.6	2.7	46.8	92.9	0.0	103	-1.098	0.853	0.0000
1990	42.2	44.2	1.9	48.2	79.2	0.0	114	-0.521	0.940	0.0001
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	.	.	.	.	.	.	.	.	.	.
1994	35.7	46.0	3.3	95.4	92.3	0.0	104	0.044	0.789	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	42.4	44.0	2.3	59.0	95.4	0.0	123	-0.165	0.960	0.0010
1997	43.4	39.6	2.3	61.3	97.9	0.0	130	0.306	0.966	0.0026
1998	43.8	42.9	2.5	59.9	96.2	0.0	108	-0.010	0.967	0.0085
1999	42.0	42.3	2.6	60.8	90.9	0.0	100	-0.163	0.955	0.0018
2000	39.8	36.4	2.3	58.0	88.9	0.0	103	0.372	0.959	0.0030
2001	42.7	56.8	3.2	78.1	90.8	0.0	109	-0.339	0.802	0.0000
2002	30.4	34.7	2.3	80.7	78.3	0.0	109	0.007	0.890	0.0000
2003	40.6	50.0	3.1	76.3	88.5	0.0	103	-0.257	0.849	0.0000
2004	42.4	48.2	2.8	67.1	90.9	0.0	102	-0.247	0.915	0.0000
2005	49.1	58.2	3.0	62.6	94.6	0.0	102	-0.579	0.871	0.0000
2006	41.1	40.9	2.4	62.3	90.0	0.0	111	0.005	0.957	0.0014
2007	46.1	52.6	2.8	63.2	94.6	0.0	112	-0.404	0.906	0.0000
Means[a]										
Recent	43.9									
Overall	42.2									

[a]Recent = 5-year mean (2003-2007).

Table 38.—Fitsum Creek, Original site (E023), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	45.2	42.1	3.5	79.4	298.0	0.0	108	3.218	0.764	0.0000
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	24.7	14.7	2.6	109.6	89.9	0.0	105	0.750	0.837	0.0000
1987	.	.	.	.	.	.	.	.	.	.
1988	40.1	43.4	2.1	51.6	77.8	0.0	100	-0.380	0.960	0.0042
1989	19.1	15.7	2.0	107.0	91.5	0.0	105	1.123	0.854	0.0000
1990	43.5	49.0	2.2	51.5	89.1	0.0	100	-0.573	0.933	0.0001
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	.	.	.	.	.	.	.	.	.	.
1994	29.6	36.7	2.8	96.8	91.3	0.0	105	0.269	0.884	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.
2002	.	.	.	.	.	.	.	.	.	.
2003	32.0	38.2	2.8	88.4	80.0	0.0	102	0.063	0.850	0.0000
2004	44.0	47.1	2.4	53.9	85.5	0.0	101	0.474	0.934	0.0001
2005	34.9	36.0	2.8	81.5	92.6	0.0	102	0.216	0.909	0.0000
2006	25.3	20.7	2.5	102.9	100.0	0.0	104	0.762	0.868	0.0000
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	33.2									
Overall	33.8									

[a]Recent = 5-year mean (2003-2007).

Surface Fines

Table 39.—Blackmare Creek, Lower site (E006), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	15.7	13.3	2.4	84.6	51.7	0.0	30	1.056	0.896	0.0066
1992	25.5	18.3	3.9	84.0	83.3	0.0	30	1.304	0.865	0.0013
1993	9.8	8.3	1.8	98.9	43.3	0.0	30	1.780	0.812	0.0001
1994	25.1	13.3	5.4	117.1	100.0	0.0	30	1.259	0.817	0.0001
1995	21.9	11.7	4.9	121.4	96.7	0.0	30	1.878	0.722	0.0000
1996	10.4	4.2	2.9	154.0	63.3	0.0	30	2.181	0.691	0.0000
1997	8.3	5.0	2.2	146.6	65.0	0.0	30	3.697	0.590	0.0000
1998	9.9	4.2	2.9	158.5	60.0	0.0	30	2.345	0.634	0.0000
1999	17.6	13.3	2.4	75.2	55.0	0.0	30	1.107	0.901	0.0089
2000	10.4	5.0	2.9	151.9	83.3	0.0	30	3.672	0.587	0.0000
2001	9.7	9.2	1.3	72.2	26.7	0.0	30	0.769	0.933	0.0604
2002	22.4	17.5	3.1	76.0	73.3	0.0	30	0.984	0.924	0.0340
2003	9.7	7.5	1.6	89.8	30.0	0.0	30	0.912	0.896	0.0067
2004	34.6	28.3	4.7	74.5	93.3	3.3	30	0.654	0.918	0.0244
2005	11.8	5.8	2.5	114.4	55.0	0.0	30	1.472	0.827	0.0002
2006	11.8	7.5	2.9	135.3	85.0	0.0	30	3.500	0.625	0.0000
2007	19.9	15.0	3.8	105.3	90.0	1.7	30	2.038	0.764	0.0000
Means[a]										
Recent	17.6									
Overall	16.1									

[a]Recent = 5-year mean (2003-2007).

Table 40.—Fourmile Creek, Roadside site (E068), percent surface fines univariate statistical summary, 1990-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	26.0	18.3	5.0	106.3	96.7	0.0	30	1.582	0.787	0.0000
1992	21.2	16.7	3.4	87.7	86.7	0.0	30	2.356	0.744	0.0000
1993	10.6	5.0	3.5	184.0	100.0	0.0	30	3.734	0.546	0.0000
1994	11.7	2.5	3.9	181.4	100.0	0.0	30	2.933	0.610	0.0000
1995	8.6	6.7	1.6	100.1	33.3	0.0	30	1.310	0.860	0.0010
1996	9.6	4.2	2.6	147.2	48.3	0.0	30	2.167	0.653	0.0000
1997	18.0	13.3	3.8	115.0	93.3	0.0	30	2.285	0.748	0.0000
1998	9.9	5.8	3.2	174.7	80.0	0.0	30	3.081	0.570	0.0000
1999	6.9	3.3	1.5	116.6	38.3	0.0	30	2.373	0.752	0.0000
2000	17.0	19.2	2.5	81.3	53.3	0.0	30	0.721	0.912	0.0169
2001	33.3	23.3	4.6	74.8	100.0	0.0	30	0.870	0.921	0.0288
2002	.	.	.	.	.	.	.	.	.	.
2003	8.5	5.0	2.1	135.3	51.7	0.0	30	2.643	0.677	0.0000
2004	9.7	5.0	2.1	116.4	46.7	0.0	30	1.888	0.780	0.0000
2005	16.9	10.8	3.2	104.6	63.3	0.0	30	1.573	0.791	0.0000
2006	6.7	5.0	1.1	89.2	23.3	0.0	30	1.206	0.882	0.0032
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	15.0									
Overall	14.3									

[a]Recent = 5-year mean (2002-2006).

Table 41.—Buckhorn Creek, Lower site (E016), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	20.8	13.3	3.1	81.6	66.7	0.0	30	1.101	0.873	0.0019
1992	19.8	15.0	3.6	98.9	91.7	0.0	30	2.057	0.803	0.0001
1993	17.3	10.0	3.1	96.9	60.0	0.0	30	1.070	0.860	0.0010
1994	15.7	5.0	5.0	175.0	100.0	0.0	30	2.453	0.587	0.0000
1995	14.7	6.7	3.6	134.0	95.0	0.0	30	2.838	0.643	0.0000
1996	5.9	4.2	1.1	100.2	21.7	0.0	30	1.149	0.867	0.0014
1997	12.9	11.7	1.8	75.2	41.7	1.7	30	1.453	0.859	0.0010
1998	14.1	5.0	4.5	175.3	100.0	0.0	30	3.078	0.539	0.0000
1999	16.2	10.0	3.1	105.2	71.7	0.0	30	2.104	0.743	0.0000
2000	10.9	6.7	1.9	95.5	41.7	0.0	30	1.337	0.865	0.0013
2001	5.8	3.3	1.3	125.0	28.3	0.0	30	1.579	0.794	0.0001
2002	23.6	18.3	3.4	78.5	83.3	0.0	30	1.371	0.890	0.0049
2003	11.1	6.7	2.2	107.7	53.3	0.0	30	1.808	0.814	0.0001
2004	16.4	15.0	2.4	78.9	53.3	0.0	30	1.544	0.844	0.0005
2005	10.4	7.5	2.1	111.7	58.3	0.0	30	2.535	0.749	0.0000
2006	12.7	8.3	2.4	101.7	56.7	0.0	30	2.149	0.743	0.0000
2007	14.3	11.7	1.9	74.0	40.0	0.0	30	1.095	0.898	0.0076

Means[a]	
Recent	13.0
Overall	14.3

[a]Recent = 5-year mean (2003-2007).

Table 42.—Fitsum Creek, Original site (E023), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	9.0	5.0	2.0	121.9	51.7	0.0	30	2.320	0.757	0.0000
1992	8.4	8.3	1.3	84.0	26.7	0.0	30	0.534	0.900	0.0084
1993	14.6	10.0	2.8	105.8	58.3	0.0	30	1.885	0.744	0.0000
1994	4.1	3.3	0.7	99.3	13.3	0.0	30	0.959	0.865	0.0013
1995	7.1	3.3	1.8	142.9	38.3	0.0	30	2.088	0.710	0.0000
1996	11.7	3.3	3.5	165.3	83.3	0.0	30	2.429	0.647	0.0000
1997	8.5	6.7	1.5	94.6	28.3	0.0	30	1.094	0.878	0.0025
1998	5.8	3.3	1.5	139.1	38.3	0.0	30	2.883	0.626	0.0000
1999	5.4	1.7	1.7	174.3	36.7	0.0	30	2.363	0.629	0.0000
2000	6.6	2.5	2.0	169.2	45.0	0.0	30	2.716	0.600	0.0000
2001	18.5	16.7	2.3	68.5	53.3	1.7	30	0.782	0.934	0.0629
2002	13.1	10.0	2.3	94.7	68.3	0.0	30	3.189	0.685	0.0000
2003	7.5	8.3	1.0	74.5	21.7	0.0	29	0.427	0.930	0.0556
2004	16.1	13.3	2.2	75.4	48.3	0.0	30	0.670	0.939	0.0835
2005	13.5	9.2	2.2	90.6	41.7	0.0	30	0.961	0.880	0.0028
2006	9.9	7.5	1.7	92.2	45.0	0.0	30	2.061	0.812	0.0001
2007	5.7	3.3	1.1	108.0	20.0	0.0	30	1.214	0.823	0.0002

Means[a]	
Recent	10.5
Overall	9.7

[a]Recent = 5-year mean (2003-2007).

SFSR Road Sites

30-Hoop Free Matrix

Table 43.—Fourmile Creek, Campground site (E067), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	16.2	16.2	2.7	89.6	50.0	0.0	30	0.534	0.908	0.0135
1991	34.4	33.9	2.9	46.9	66.7	0.0	30	0.047	0.987	0.9662
1992	19.5	20.7	2.9	80.5	71.1	0.0	30	1.082	0.900	0.0086
1993	15.2	9.7	2.1	76.5	41.4	0.0	30	0.808	0.900	0.0086
1994	22.0	23.9	2.6	63.4	47.4	0.0	30	-0.028	0.955	0.2286
1995	24.2	21.1	4.0	89.3	80.0	0.0	30	1.073	0.889	0.0047
1996	9.7	9.0	1.6	91.3	27.3	0.0	30	0.371	0.893	0.0057
1997	7.7	4.1	1.8	127.8	33.3	0.0	30	1.334	0.790	0.0000
1998	4.0	0.0	1.3	176.0	27.3	0.0	30	1.974	0.649	0.0000
1999	15.7	13.7	3.1	107.7	60.0	0.0	30	1.234	0.845	0.0005
2000	4.9	4.2	1.4	151.0	31.6	0.0	30	2.318	0.678	0.0000
2001	16.5	17.6	2.2	73.2	41.4	0.0	30	0.369	0.939	0.0868
2002	.	.	.	.	.	.	.	.	.	.
2003	21.0	19.6	2.6	67.2	54.5	0.0	30	0.455	0.969	0.5081
2004	13.3	13.3	1.7	70.7	34.3	0.0	30	0.192	0.957	0.2656
2005	17.6	17.2	2.5	78.1	59.7	0.0	30	0.940	0.927	0.0411
2006	18.4	20.0	1.9	56.4	44.4	0.0	30	0.338	0.962	0.3442
2007	17.3	18.3	2.7	85.3	60.0	0.0	30	0.769	0.915	0.0197

Means[a]	
Recent	17.5
Overall	16.3

[a]Recent = 5-year mean (2003-2007).

Table 44.—Cabin Creek, Upper site (B125), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	13.2	11.1	2.3	92.9	40.0	0.0	29	0.948	0.866	0.0017
1991	23.7	23.2	2.8	64.3	53.2	0.0	30	-0.016	0.963	0.3719
1992	17.5	11.1	3.5	109.7	60.5	0.0	30	0.887	0.846	0.0005
1993	13.6	8.0	2.8	112.3	58.3	0.0	30	1.115	0.845	0.0005
1994	29.0	29.7	4.5	84.3	76.9	0.0	30	0.268	0.913	0.0173
1995	53.5	53.3	4.0	41.1	90.6	12.5	30	0.178	0.955	0.2365
1996	.	.	.	.	.	.	.	.	.	.
1997	24.9	20.2	3.0	64.8	58.7	0.0	30	0.501	0.951	0.1746
1998	7.8	0.0	2.1	148.4	39.1	0.0	30	1.426	0.724	0.0000
1999	18.2	15.7	2.4	72.4	54.3	0.0	30	1.259	0.898	0.0074
2000	18.0	16.7	2.8	86.0	51.0	0.0	30	0.514	0.921	0.0292
2001	27.5	28.4	2.9	56.9	60.0	0.0	30	0.271	0.974	0.6572
2002	.	.	.	.	.	.	.	.	.	.
2003	13.6	12.0	2.3	91.4	41.2	0.0	30	0.411	0.891	0.0051
2004	27.7	23.9	3.1	61.1	65.5	0.0	30	0.511	0.951	0.1744
2005	18.0	15.8	2.2	67.8	38.0	0.0	30	0.275	0.926	0.0395
2006	15.2	10.6	2.1	76.0	39.3	0.0	30	0.546	0.928	0.0446
2007	39.4	38.9	2.6	36.4	81.3	11.1	30	0.601	0.972	0.5904

Means[a]	
Recent	25.1
Overall	22.6

[a]Recent = 5-year mean (2003-2007).

Table 45.—Cabin Creek, Lower site (B126), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	31.5	28.3	2.1	36.4	56.5	9.1	30	0.304	0.978	0.7661
1991	33.0	30.8	4.2	69.5	100.0	0.0	30	0.730	0.951	0.1812
1992	35.0	42.3	5.0	78.7	83.3	0.0	30	-0.098	0.888	0.0042
1993	23.2	13.0	5.4	126.6	100.0	0.0	30	1.260	0.798	0.0001
1994	40.9	46.3	5.5	74.1	87.5	0.0	30	-0.177	0.897	0.0070
1995	66.9	71.4	3.8	31.4	100.0	10.5	30	-1.043	0.920	0.0269
1996	20.4	16.8	2.5	68.1	50.0	0.0	30	0.684	0.938	0.0808
1997	17.8	15.2	2.5	77.4	42.9	0.0	30	0.286	0.919	0.0260
1998	8.9	5.4	1.9	115.6	39.1	0.0	30	1.254	0.836	0.0003
1999	6.1	3.9	1.6	140.5	34.5	0.0	30	2.118	0.702	0.0000
2000	16.1	16.0	1.3	42.7	30.0	0.0	30	-0.061	0.987	0.9660
2001	22.7	22.0	2.8	68.0	55.6	0.0	30	0.391	0.946	0.1307
2002	.	.	.	.	.	.	.	.	.	.
2003	13.4	10.0	2.3	94.1	61.8	0.0	30	2.065	0.824	0.0002
2004	18.6	16.5	2.2	65.0	39.5	0.0	30	0.314	0.940	0.0913
2005	25.8	26.3	2.6	55.3	51.9	3.0	30	0.065	0.960	0.3155
2006	11.7	7.5	2.1	99.1	43.5	0.0	30	1.282	0.850	0.0006
2007	47.4	45.3	3.9	44.8	91.1	8.6	30	0.383	0.958	0.2805
Means[a]										
Recent	23.4									
Overall	25.8									

[a]Recent = 5-year mean (2003-2007).

Table 46.—Cabin Creek, Middle site (B127), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	25.1	25.2	2.0	42.7	50.0	6.9	30	0.556	0.952	0.1882
1991	17.5	15.9	2.4	74.1	46.3	0.0	30	0.449	0.950	0.1669
1992	23.4	24.7	3.4	80.2	64.4	0.0	30	0.268	0.929	0.0475
1993	12.0	9.1	2.5	112.5	66.7	0.0	30	2.495	0.760	0.0000
1994	24.4	20.6	4.0	89.7	67.4	0.0	30	0.377	0.900	0.0086
1995	27.3	25.0	3.2	63.3	72.2	0.0	30	0.934	0.924	0.0347
1996	18.1	17.2	2.3	68.5	47.7	0.0	30	0.509	0.962	0.3428
1997	24.5	23.8	2.9	63.6	60.3	0.0	30	0.292	0.972	0.6058
1998	12.4	11.2	1.7	75.9	34.3	0.0	30	0.570	0.940	0.0899
1999	18.8	14.6	2.5	72.8	50.0	0.0	29	0.361	0.930	0.0556
2000	24.1	24.4	1.4	32.8	40.0	6.8	30	-0.203	0.971	0.5797
2001	43.3	43.9	2.6	33.5	70.7	20.8	30	0.060	0.956	0.2455
2002	.	.	.	.	.	.	.	.	.	.
2003	20.9	17.8	2.3	60.3	48.1	2.2	30	0.426	0.956	0.2451
2004	18.0	15.6	2.0	59.7	39.1	0.0	30	0.247	0.960	0.3166
2005	21.6	19.2	2.4	62.1	54.7	0.0	30	0.789	0.948	0.1460
2006	16.9	14.0	1.6	51.4	39.3	6.3	30	0.803	0.918	0.0233
2007	46.0	45.0	4.1	49.0	84.8	0.0	30	-0.055	0.979	0.7892
Means[a]										
Recent	24.7									
Overall	23.2									

[a]Recent = 5-year mean (2003-2007).

Table 47.—Camp Creek, Upper site (E129), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	27.9	26.1	4.9	92.1	75.0	0.0	28	0.474	0.881	0.0043
1991	14.9	10.0	3.1	115.6	65.2	0.0	30	1.329	0.831	0.0003
1992	9.4	6.7	2.1	121.8	44.0	0.0	30	1.490	0.791	0.0000
1993	2.4	0.0	0.8	179.8	12.5	0.0	30	1.480	0.600	0.0000
1994	1.7	0.0	0.8	249.8	16.7	0.0	30	2.581	0.466	0.0000
1995	8.2	0.0	2.1	139.6	33.3	0.0	30	1.126	0.734	0.0000
1996	12.0	7.3	3.0	134.6	60.0	0.0	30	1.573	0.771	0.0000
1997	12.6	3.6	3.9	169.5	100.0	0.0	30	2.793	0.642	0.0000
1998	2.9	0.0	1.0	179.1	14.7	0.0	30	1.443	0.596	0.0000
1999	5.5	0.0	1.8	175.7	33.3	0.0	30	1.676	0.636	0.0000
2000	4.4	0.0	1.5	187.6	33.3	0.0	30	2.177	0.615	0.0000
2001	18.3	12.2	3.9	117.9	79.6	0.0	30	1.273	0.820	0.0002
2002	.	.	.	.	.	.	.	.	.	.
2003	5.0	0.0	1.5	160.6	25.0	0.0	30	1.382	0.670	0.0000
2004	9.9	3.6	2.7	147.6	66.7	0.0	30	2.315	0.711	0.0000
2005	12.2	9.3	3.1	137.6	57.1	0.0	30	1.338	0.761	0.0000
2006	18.1	15.2	3.0	92.2	63.2	0.0	30	0.792	0.905	0.0113
2007	12.8	2.9	3.5	151.5	71.4	0.0	30	1.775	0.713	0.0000

Means[a]	
Recent	11.6
Overall	10.5

[a]Recent = 5-year mean (2003-2007).

Table 48.—Camp Creek, Lower site (E130), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	12.4	7.7	2.7	104.0	33.3	0.0	23	0.509	0.831	0.0013
1991	18.8	16.7	2.8	81.6	55.2	0.0	30	0.580	0.933	0.0575
1992	18.5	14.3	3.4	99.4	90.0	0.0	30	2.229	0.792	0.0000
1993	11.7	9.1	1.9	91.2	45.0	0.0	30	1.183	0.895	0.0063
1994	7.2	1.6	2.2	164.1	50.0	0.0	30	2.214	0.674	0.0000
1995	23.3	22.0	4.0	93.7	63.6	0.0	30	0.289	0.869	0.0016
1996	10.4	5.7	3.3	174.4	93.8	0.0	30	3.662	0.574	0.0000
1997	6.4	2.0	1.7	142.8	33.3	0.0	30	1.535	0.743	0.0000
1998	4.4	0.0	1.1	130.1	20.0	0.0	30	1.138	0.781	0.0000
1999	5.5	0.0	1.5	149.8	26.3	0.0	30	1.247	0.709	0.0000
2000	3.9	0.0	1.1	159.1	22.7	0.0	30	1.673	0.690	0.0000
2001	16.4	16.0	2.5	84.0	51.0	0.0	30	0.508	0.927	0.0399
2002	.	.	.	.	.	.	.	.	.	.
2003	3.5	0.0	1.1	170.5	22.2	0.0	30	1.751	0.633	0.0000
2004	5.2	0.0	1.6	167.4	35.3	0.0	30	1.863	0.664	0.0000
2005	14.5	7.4	3.0	112.5	53.8	0.0	30	0.960	0.839	0.0004
2006	13.7	9.1	2.6	102.0	47.4	0.0	30	1.171	0.854	0.0007
2007	16.7	12.8	2.7	89.0	50.0	0.0	30	0.856	0.899	0.0077

Means[a]	
Recent	10.7
Overall	11.3

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

These data are not included because most sites have been sampled for cobble embeddedness very few times and not since 1994. The exception is site E068 on Fourmile Creek, for which data are shown in Table 38 above.

Surface Fines

Table 49.—Fourmile Creek, Campground site (E067), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	21.0	16.7	3.6	94.3	95.0	0.0	30	2.058	0.814	0.0001
1992	23.1	23.3	2.5	60.5	55.0	1.7	30	0.462	0.965	0.4028
1993	11.4	8.3	1.8	88.8	35.0	0.0	30	0.909	0.894	0.0061
1994	19.4	12.5	4.1	116.7	88.3	0.0	30	2.116	0.701	0.0000
1995	8.7	6.7	1.5	96.7	43.3	0.0	30	2.586	0.763	0.0000
1996	5.9	3.3	1.2	107.6	21.7	0.0	30	0.826	0.849	0.0006
1997	20.6	15.0	2.9	76.5	70.0	1.7	30	1.529	0.853	0.0007
1998	17.1	9.2	3.6	116.0	73.3	0.0	30	1.620	0.791	0.0000
1999	6.5	5.0	1.2	104.4	30.0	0.0	30	1.549	0.849	0.0006
2000	29.2	27.5	2.9	53.7	65.0	5.0	30	0.629	0.951	0.1810
2001	27.0	20.0	3.7	76.0	76.7	0.0	30	1.030	0.880	0.0028
2002	.	.	.	.	.	.	.	.	.	.
2003	11.0	10.0	1.2	58.4	28.3	0.0	30	0.744	0.951	0.1774
2004	9.4	6.7	1.7	96.9	46.7	0.0	30	2.492	0.773	0.0000
2005	20.0	15.0	3.9	105.8	100.0	0.0	30	2.037	0.811	0.0001
2006	13.6	9.2	1.9	76.2	35.0	0.0	30	0.718	0.904	0.0105
2007	12.8	11.7	2.1	89.3	48.3	0.0	30	1.331	0.883	0.0034
Means[a]										
Recent	13.4									
Overall	16.0									

[a]Recent = 5-year mean (2003-2007).

Table 50.—Cabin Creek, Upper site (B125), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	26.8	20.0	3.7	75.5	75.0	0.0	30	1.021	0.889	0.0046
1992	27.3	19.2	5.0	100.7	100.0	0.0	30	1.486	0.825	0.0002
1993	23.3	16.7	4.8	111.9	100.0	0.0	30	1.786	0.795	0.0001
1994	16.6	4.2	5.1	166.8	100.0	0.0	30	2.085	0.653	0.0000
1995	6.9	5.0	1.6	126.9	46.7	0.0	30	3.359	0.654	0.0000
1996	.	.	.	.	.	.	.	.	.	.
1997	20.6	15.8	3.3	88.6	68.3	0.0	30	0.846	0.913	0.0172
1998	22.4	6.7	6.0	147.2	100.0	0.0	30	1.679	0.680	0.0000
1999	5.2	3.3	1.1	113.0	21.7	0.0	30	1.736	0.783	0.0000
2000	26.2	20.8	3.2	66.0	63.3	0.0	30	0.512	0.933	0.0576
2001	28.4	27.5	2.8	53.1	66.7	6.7	30	0.633	0.950	0.1721
2002	.	.	.	.	.	.	.	.	.	.
2003	10.1	8.3	1.5	80.3	28.3	0.0	30	0.824	0.917	0.0222
2004	6.4	1.7	3.3	282.0	100.0	0.0	30	5.163	0.324	0.0000
2005	22.4	11.7	4.6	112.1	95.0	0.0	30	1.408	0.824	0.0002
2006	10.4	9.2	2.8	145.4	85.0	0.0	30	4.383	0.504	0.0000
2007	15.6	9.2	3.5	122.8	81.7	0.0	30	2.270	0.728	0.0000
Means[a]										
Recent	13.7									
Overall	17.9									

[a]Recent = 5-year mean (2003-2007).

Table 51.—Cabin Creek, Lower site (B126), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	72.9	77.5	4.2	31.7	100.0	21.7	30	-0.772	0.909	0.0142
1992	36.5	25.8	6.0	89.9	100.0	1.7	30	0.914	0.848	0.0006
1993	24.8	7.5	5.8	127.9	100.0	0.0	30	1.323	0.772	0.0000
1994	14.9	6.7	4.5	165.7	100.0	0.0	30	2.568	0.603	0.0000
1995	2.1	0.0	0.6	169.9	13.3	0.0	30	1.909	0.662	0.0000
1996	8.9	8.3	1.4	83.8	31.7	0.0	30	1.317	0.889	0.0045
1997	33.6	22.5	5.4	88.3	100.0	3.3	30	1.477	0.771	0.0000
1998	22.1	7.5	5.8	144.6	100.0	0.0	30	1.644	0.689	0.0000
1999	14.2	6.7	3.9	152.1	91.7	0.0	30	2.655	0.638	0.0000
2000	11.7	8.3	2.0	94.7	50.0	0.0	30	1.919	0.805	0.0001
2001	37.3	34.2	4.0	59.0	95.0	6.7	30	0.731	0.947	0.1442
2002	.	.	.	.	.	.	.	.	.	.
2003	15.6	8.3	2.6	91.1	48.3	0.0	30	0.790	0.873	0.0020
2004	7.9	4.2	1.8	126.3	46.7	0.0	30	2.188	0.765	0.0000
2005	26.8	21.7	4.3	87.5	90.0	0.0	30	1.335	0.856	0.0008
2006	23.2	14.2	4.4	103.2	98.3	1.7	30	1.854	0.785	0.0000
2007	13.0	10.0	2.4	103.2	66.7	0.0	30	2.292	0.773	0.0000

Means[a]	
Recent	17.3
Overall	22.8

[a]Recent = 5-year mean (2003-2007).

Table 52.—Camp Creek, Upper site (E129), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	21.1	20.8	1.9	48.1	45.0	3.3	28	0.274	0.975	0.7273
1991	15.9	10.0	2.9	98.3	81.7	0.0	30	2.828	0.704	0.0000
1992	11.9	9.2	1.8	80.7	36.7	0.0	30	0.837	0.923	0.0327
1993	6.4	2.5	1.7	146.3	36.7	0.0	30	1.942	0.710	0.0000
1994	13.0	7.5	3.3	140.0	86.7	0.0	30	2.741	0.679	0.0000
1995	12.0	10.8	1.8	83.0	40.0	0.0	30	0.985	0.917	0.0220
1996	13.3	13.3	2.4	98.2	53.3	0.0	30	1.211	0.877	0.0024
1997	19.1	15.0	2.8	79.7	56.7	1.7	30	0.968	0.890	0.0048
1998	20.9	15.8	3.6	95.1	75.0	0.0	30	1.280	0.860	0.0010
1999	12.7	9.2	2.3	99.5	48.3	0.0	30	1.200	0.872	0.0018
2000	21.3	19.2	2.6	67.9	68.3	0.0	30	1.347	0.906	0.0117
2001	27.8	22.5	3.1	60.7	86.7	10.0	30	2.136	0.772	0.0000
2002	.	.	.	.	.	.	.	.	.	.
2003	20.1	10.0	4.5	122.5	98.3	0.0	30	1.656	0.789	0.0000
2004	15.2	12.5	2.6	92.4	48.3	0.0	30	0.661	0.904	0.0108
2005	15.4	13.3	2.3	82.9	43.3	0.0	30	0.810	0.904	0.0105
2006	16.7	10.0	3.3	107.8	65.0	0.0	30	1.916	0.732	0.0000
2007	24.1	13.3	3.9	88.0	88.3	3.3	30	1.325	0.825	0.0002

Means[a]	
Recent	18.3
Overall	16.9

[a]Recent = 5-year mean (2003-2007).

Table 53.—Camp Creek, Lower site (E130), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	34.0	31.7	4.3	61.2	100.0	0.0	23	1.435	0.892	0.0177
1991	16.1	9.2	3.8	131.3	91.7	0.0	30	2.708	0.653	0.0000
1992	20.1	13.3	2.8	77.5	68.3	0.0	30	1.435	0.817	0.0001
1993	10.9	10.0	1.3	66.9	33.3	0.0	30	0.907	0.932	0.0562
1994	3.9	0.0	1.0	146.9	21.7	0.0	30	1.634	0.736	0.0000
1995	12.3	5.0	3.6	158.7	95.0	0.0	30	3.325	0.554	0.0000
1996	10.0	5.0	2.8	152.0	78.3	0.0	30	3.425	0.611	0.0000
1997	18.2	13.3	3.3	100.4	86.7	0.0	30	2.505	0.702	0.0000
1998	14.8	10.0	2.5	92.2	58.3	0.0	30	1.871	0.805	0.0001
1999	8.4	6.7	1.7	108.5	41.7	0.0	30	1.895	0.810	0.0001
2000	14.8	10.8	2.2	80.3	41.7	1.7	30	1.045	0.857	0.0009
2001	20.7	16.7	2.5	66.5	68.3	0.0	30	1.707	0.862	0.0011
2002	.	.	.	.	.	.	.	.	.	.
2003	10.8	7.5	1.7	85.4	36.7	0.0	30	1.448	0.826	0.0002
2004	18.4	13.3	3.1	91.2	81.7	0.0	30	2.256	0.756	0.0000
2005	15.7	6.7	4.2	144.6	93.3	0.0	30	2.341	0.668	0.0000
2006	16.1	15.0	1.8	62.6	45.0	1.7	30	1.517	0.852	0.0007
2007	33.7	29.2	3.5	57.3	83.3	8.3	30	0.820	0.935	0.0677

Means[a]	
Recent	18.9
Overall	16.4

[a]Recent = 5-year mean (2003-2007).

Supplemental Sites

30-Hoop Free Matrix

Table 54.—Blackmare Creek, Middle site (E005), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	2.8	0.0	1.1	215.2	22.2	0.0	30	2.217	0.540	0.0000
1990	15.6	11.8	3.0	105.1	50.0	0.0	29	0.904	0.851	0.0008
1991	16.7	12.7	3.4	112.5	78.6	0.0	30	1.430	0.834	0.0003
1992	10.1	0.0	2.7	149.2	60.6	0.0	30	1.676	0.721	0.0000
1993	8.5	0.0	3.6	231.1	100.0	0.0	30	3.884	0.477	0.0000
1994	3.7	0.0	1.5	221.1	31.8	0.0	30	2.254	0.527	0.0000
1995	20.8	18.8	3.7	96.1	69.2	0.0	30	0.815	0.894	0.0061
1996	8.2	5.2	1.9	128.7	36.7	0.0	30	1.375	0.775	0.0000
1997	10.7	0.0	2.9	149.8	53.8	0.0	30	1.498	0.719	0.0000
1998	3.2	0.0	1.0	173.6	21.4	0.0	30	1.897	0.654	0.0000
1999	10.5	7.5	2.3	116.9	40.0	0.0	30	1.169	0.813	0.0001
2000	4.0	0.0	1.4	188.4	28.6	0.0	30	2.052	0.611	0.0000
2001	11.2	6.5	2.6	125.4	45.5	0.0	30	1.247	0.795	0.0001
2002	10.2	5.9	2.3	126.2	54.5	0.0	30	1.799	0.788	0.0000
2003	40.8	42.2	2.9	38.4	72.0	12.5	30	-0.112	0.963	0.3633
2004	12.9	9.8	3.0	127.3	83.9	0.0	30	3.025	0.686	0.0000
2005	12.0	9.2	2.7	123.0	75.0	0.0	30	2.828	0.716	0.0000
2006	15.0	8.1	3.1	111.6	51.3	0.0	30	1.037	0.823	0.0002
2007	21.4	18.0	3.2	81.3	54.5	0.0	30	0.331	0.920	0.0263

Means[a]	
Recent	20.4
Overall	12.5

[a]Recent = 5-year mean (2003-2007).

Table 55.—Fourmile Creek, Upper site (E139), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	6.4	0.0	1.7	146.0	40.0	0.0	30	1.985	0.727	0.0000
1991	32.3	24.0	5.4	92.5	100.0	0.0	30	0.760	0.900	0.0086
1992	17.4	9.5	3.7	115.7	69.8	0.0	30	1.202	0.824	0.0002
1993	12.7	11.8	2.6	110.6	52.2	0.0	30	1.198	0.846	0.0005
1994	19.9	5.3	4.4	120.8	66.7	0.0	30	0.747	0.788	0.0000
1995	50.2	53.6	5.3	57.5	90.0	0.0	30	-0.567	0.910	0.0147
1996	12.3	6.0	2.9	130.1	53.3	0.0	30	1.220	0.783	0.0000
1997	8.4	0.0	2.2	142.3	42.1	0.0	29	1.407	0.748	0.0000
1998	3.3	0.0	1.4	237.4	31.3	0.0	30	2.608	0.496	0.0000
1999	12.7	10.3	2.4	102.9	38.5	0.0	30	0.638	0.860	0.0010
2000	9.3	1.9	2.0	117.4	30.8	0.0	30	0.614	0.789	0.0000
2001	25.6	10.6	6.0	127.3	100.0	0.0	30	1.252	0.778	0.0000
2002	.	.	.	.	.	.	.	.	.	.
2003	16.6	4.2	4.7	155.5	100.0	0.0	30	1.843	0.701	0.0000
2004	16.1	8.4	3.6	123.1	75.0	0.0	30	1.377	0.810	0.0001
2005	9.8	0.0	2.9	159.5	57.1	0.0	30	1.758	0.694	0.0000
2006	.	.	.	.	.	.	.	.	.	.
2007	16.0	5.0	3.6	124.5	75.0	0.0	30	1.138	0.796	0.0001
Means[a]										
Recent	16.8									
Overall	16.8									

[a]Recent = 5-year mean (2001-2007).

Table 56.—Fourmile Creek, Lower site (E128), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	23.7	24.1	3.0	69.9	54.5	0.0	31	0.162	0.947	0.1260
1990	8.1	10.0	1.3	87.2	23.1	0.0	30	0.184	0.887	0.0041
1991	34.1	37.6	2.8	45.3	57.1	0.0	30	-0.896	0.909	0.0143
1992	26.2	25.3	2.9	59.9	75.0	0.0	30	0.757	0.946	0.1343
1993	19.5	16.7	2.8	77.4	48.8	0.0	30	0.715	0.906	0.0118
1994	19.3	16.0	3.3	93.4	64.3	0.0	30	0.821	0.905	0.0114
1995	56.8	56.7	3.4	33.0	85.7	0.0	30	-1.081	0.925	0.0352
1996	14.0	10.5	2.6	102.0	40.0	0.0	30	0.580	0.840	0.0004
1997	23.0	17.2	4.2	99.3	68.2	0.0	30	0.705	0.872	0.0019
1998	14.7	10.2	3.1	113.8	54.5	0.0	30	1.011	0.833	0.0003
1999	10.8	6.8	2.4	119.6	51.7	0.0	30	1.604	0.805	0.0001
2000	7.8	2.6	2.4	167.9	60.0	0.0	30	2.738	0.641	0.0000
2001	35.6	35.0	3.5	54.5	73.1	0.0	30	-0.116	0.975	0.6939
2002	.	.	.	.	.	.	.	.	.	.
2003	25.5	25.1	2.4	51.0	46.2	0.0	30	-0.211	0.968	0.4884
2004	21.4	20.0	2.5	63.0	48.0	0.0	30	0.245	0.963	0.3659
2005	12.3	11.3	2.0	87.0	30.3	0.0	30	0.176	0.878	0.0026
2006	15.9	9.3	3.6	125.0	80.7	0.0	30	1.808	0.771	0.0000
2007	12.5	2.4	3.0	130.5	53.3	0.0	30	1.037	0.773	0.0000
Means[a]										
Recent	17.5									
Overall	21.2									

[a]Recent = 5-year mean (2003-2007).

Table 57.—Buckhorn Creek, Upper site (E015), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	13.5	12.7	2.1	83.3	50.0	0.0	30	1.236	0.905	0.0114
1990	22.6	22.2	2.4	60.1	50.0	0.0	31	0.094	0.973	0.6169
1991	36.8	36.7	2.8	42.3	63.6	0.0	30	-0.588	0.957	0.2656
1992	28.5	26.6	2.7	52.1	60.9	0.0	30	0.294	0.973	0.6320
1993	29.5	25.8	3.5	65.7	65.4	5.1	30	0.575	0.906	0.0117
1994	15.3	12.9	3.1	110.4	60.0	0.0	30	1.187	0.841	0.0004
1995	37.1	38.9	2.5	37.1	58.3	6.3	30	-0.621	0.949	0.1556
1996	20.7	15.1	3.5	92.0	71.4	0.0	30	0.702	0.899	0.0079
1997	17.1	17.6	2.9	91.7	43.6	0.0	30	0.205	0.864	0.0012
1998	15.2	13.4	2.3	81.3	41.7	0.0	30	0.477	0.929	0.0462
1999	13.9	10.3	2.4	92.5	50.0	0.0	30	1.241	0.879	0.0027
2000	14.3	13.6	2.3	89.1	50.0	0.0	30	0.842	0.916	0.0209
2001	20.7	21.1	2.4	63.4	50.0	0.0	30	0.328	0.956	0.2420
2002	16.0	14.6	2.1	73.1	47.1	0.0	30	0.846	0.939	0.0848
2003	29.3	28.3	2.8	52.6	69.0	6.3	30	0.718	0.950	0.1718
2004	20.3	18.8	2.4	63.7	54.8	0.0	30	0.729	0.962	0.3408
2005	20.8	19.0	3.0	80.1	63.3	0.0	30	0.801	0.934	0.0622
2006	24.9	25.4	2.6	56.4	48.3	0.0	30	-0.291	0.952	0.1916
2007	24.1	22.0	3.1	71.3	63.2	0.0	30	0.705	0.941	0.0981

Means[a]	
Recent	23.9
Overall	22.1

[a]Recent = 5-year mean (2003-2007).

Table 58.—Buckhorn Creek, Middle site (E019), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	36.4	32.6	3.2	48.2	84.2	0.0	30	0.343	0.974	0.6670
1990	11.4	8.3	2.2	105.4	50.0	0.0	31	1.321	0.843	0.0004
1991	21.8	19.6	3.0	74.8	47.8	0.0	30	0.163	0.922	0.0310
1992	16.9	15.0	2.8	89.6	55.0	0.0	30	1.126	0.879	0.0027
1993	18.3	10.7	3.5	104.0	63.5	0.0	30	0.958	0.862	0.0011
1994	9.0	0.0	2.9	176.9	60.0	0.0	30	2.404	0.619	0.0000
1995	27.2	26.0	3.5	71.2	61.1	0.0	30	0.301	0.940	0.0907
1996	14.6	9.3	3.0	112.8	58.1	0.0	30	0.981	0.843	0.0004
1997	9.2	5.4	2.1	123.0	36.8	0.0	30	1.084	0.804	0.0001
1998	7.5	0.0	2.0	150.6	34.6	0.0	30	1.378	0.709	0.0000
1999	16.7	16.7	1.7	55.3	35.3	0.0	30	0.044	0.981	0.8422
2000	8.8	7.0	1.7	108.1	35.7	0.0	30	1.264	0.850	0.0006
2001	.	.	.	.	.	.	.	.	.	.
2002	14.0	12.1	2.0	78.4	37.5	0.0	30	0.538	0.936	0.0702
2003	20.6	20.1	3.0	78.9	44.8	0.0	30	0.026	0.894	0.0059
2004	10.4	8.9	1.6	84.5	30.3	0.0	30	0.828	0.899	0.0078
2005	14.0	11.1	2.4	95.2	52.4	0.0	30	1.247	0.871	0.0017
2006	33.2	36.2	3.4	56.1	63.6	0.0	30	-0.336	0.952	0.1951
2007	13.6	12.7	2.1	85.2	37.5	0.0	30	0.406	0.918	0.0242

Means[a]	
Recent	18.4
Overall	16.9

[a]Recent = 5-year mean (2003-2007).

Table 59.—West Fork Buckhorn Creek, Upper site (E007), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	20.8	21.5	1.4	35.6	31.9	6.7	30	-0.283	0.959	0.2908
1990	19.5	18.9	1.8	51.0	35.3	0.0	30	-0.042	0.955	0.2235
1991	57.4	54.4	4.0	38.6	100.0	0.0	30	-0.263	0.960	0.3156
1992	49.1	50.1	3.5	38.7	82.4	0.0	30	-0.308	0.983	0.8893
1993	28.1	27.1	2.9	56.5	66.7	5.7	30	0.635	0.949	0.1548
1994	25.1	20.0	4.6	100.2	83.3	0.0	30	0.858	0.875	0.0022
1995	28.8	26.0	3.5	66.1	76.0	0.0	30	0.532	0.936	0.0721
1996	20.0	13.8	3.6	99.4	58.6	0.0	30	0.636	0.862	0.0011
1997	23.5	22.0	2.1	47.9	48.6	0.0	30	0.216	0.986	0.9582
1998	22.2	20.7	2.9	71.4	56.3	0.0	30	0.573	0.944	0.1173
1999	11.1	8.2	2.1	102.8	36.0	0.0	30	0.988	0.846	0.0005
2000	8.7	5.6	1.6	98.1	26.7	0.0	30	0.821	0.870	0.0017
2001	28.4	31.0	3.1	59.2	56.3	0.0	30	-0.340	0.940	0.0889
2002	15.2	11.7	2.7	97.6	63.4	0.0	30	1.497	0.853	0.0007
2003	41.1	41.6	3.0	39.3	85.1	10.3	30	0.525	0.979	0.8100
2004	17.7	18.0	2.5	78.9	61.1	0.0	30	0.899	0.921	0.0283
2005	23.7	20.8	2.7	62.3	55.3	0.0	30	0.431	0.950	0.1707
2006	.	.	.	.	.	.	.	.	.	.
2007	21.7	22.8	2.7	67.6	57.1	0.0	30	0.268	0.962	0.3554

Means[a]	
Recent	23.9
Overall	25.7

[a]Recent = 5-year mean (2002-2007).

Table 60.—West Fork Buckhorn Creek, Trailhead site (E014), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	6.1	4.0	1.5	134.4	30.8	0.0	30	1.908	0.734	0.0000
1990	5.7	0.0	2.0	195.9	45.0	0.0	30	2.847	0.557	0.0000
1991	14.1	12.3	2.4	93.9	44.0	0.0	30	1.253	0.829	0.0002
1992	9.9	5.6	2.1	117.3	40.7	0.0	30	1.078	0.829	0.0002
1993	24.3	22.2	3.7	83.4	75.0	0.0	30	0.663	0.927	0.0399
1994	10.2	0.0	3.1	166.9	66.7	0.0	30	1.873	0.671	0.0000
1995	17.8	18.2	2.8	85.2	60.9	0.0	30	0.900	0.907	0.0125
1996	12.8	10.8	2.4	101.7	42.1	0.0	30	0.857	0.868	0.0015
1997	13.8	8.7	3.8	150.0	100.0	0.0	30	2.767	0.677	0.0000
1998	6.5	0.0	1.6	137.9	29.4	0.0	30	1.208	0.753	0.0000
1999	10.0	9.1	1.8	97.4	36.4	0.0	30	1.049	0.881	0.0029
2000	11.5	0.0	3.3	158.6	75.0	0.0	30	2.006	0.694	0.0000
2001	16.3	6.8	3.6	120.7	64.0	0.0	30	0.852	0.801	0.0001
2002	29.4	25.0	3.6	66.4	80.0	0.0	30	0.725	0.936	0.0720
2003	13.5	8.2	3.0	123.8	58.6	0.0	30	1.420	0.800	0.0001
2004	11.3	9.1	2.0	96.0	38.1	0.0	30	0.812	0.895	0.0064
2005	13.9	9.5	2.5	97.7	42.9	0.0	30	0.728	0.874	0.0021
2006	.	.	.	.	.	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.

Means[a]	
Recent	16.9
Overall	13.4

[a]Recent = 5-year mean (2001-2005).

Table 61.—Little Buckhorn Creek, Upper Crossing site (E017), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	2.9	0.0	1.1	209.0	21.4	0.0	30	2.033	0.552	0.0000
1990	3.1	0.0	1.1	186.3	20.0	0.0	30	1.707	0.605	0.0000
1991	16.0	9.9	3.4	115.5	60.0	0.0	30	1.002	0.832	0.0003
1992	3.9	0.0	1.2	166.3	26.5	0.0	30	2.151	0.671	0.0000
1993	5.4	0.0	1.9	194.2	50.0	0.0	30	3.057	0.578	0.0000
1994	5.3	0.0	2.1	213.4	46.7	0.0	30	2.539	0.548	0.0000
1995	21.9	12.7	4.2	104.8	71.4	0.0	30	0.964	0.851	0.0007
1996	12.0	6.5	3.1	142.2	66.7	0.0	30	2.028	0.725	0.0000
1997	6.5	4.4	1.3	107.0	20.0	0.0	30	0.645	0.838	0.0004
1998	3.1	0.0	0.8	138.4	14.3	0.0	30	1.026	0.737	0.0000
1999	4.4	0.0	1.2	147.6	25.0	0.0	30	1.585	0.731	0.0000
2000	21.7	14.0	4.9	125.0	100.0	0.0	30	1.831	0.763	0.0000
2001	21.1	11.4	3.9	100.8	76.0	0.0	30	0.929	0.877	0.0024
2002	14.4	14.3	2.3	87.7	52.9	0.0	30	1.029	0.896	0.0067
2003	19.1	15.0	2.7	77.4	50.0	0.0	30	0.360	0.929	0.0450
2004	8.6	5.5	1.9	121.9	37.9	0.0	30	1.438	0.800	0.0001
2005	11.0	7.1	2.3	114.6	50.0	0.0	30	1.751	0.794	0.0001
2006	6.7	4.9	1.6	128.7	41.4	0.0	30	2.367	0.734	0.0000
2007	17.7	15.6	2.5	76.1	42.9	0.0	30	0.218	0.934	0.0641
Means[a]										
Recent	12.6									
Overall	10.8									

[a]Recent = 5-year mean (2003-2007).

Table 62.—North Fork Buckhorn Creek, Lower site (E008), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	24.4	21.5	3.4	75.6	53.3	0.0	30	0.107	0.914	0.0186
1990	11.3	10.5	1.6	78.8	40.3	0.0	31	1.175	0.919	0.0226
1991	30.3	32.3	3.1	55.6	59.1	0.0	30	-0.497	0.929	0.0462
1992	9.5	0.0	2.5	142.5	50.0	0.0	30	1.467	0.747	0.0000
1993	28.7	23.2	3.9	74.5	67.7	0.0	30	0.374	0.929	0.0471
1994	11.5	7.4	2.3	110.2	34.1	0.0	30	0.587	0.808	0.0001
1995	32.4	31.7	4.1	69.4	100.0	0.0	30	0.786	0.940	0.0895
1996	13.7	11.7	2.4	97.5	44.4	0.0	30	0.727	0.889	0.0046
1997	8.4	4.3	2.0	128.7	42.9	0.0	30	1.444	0.792	0.0000
1998	6.0	1.4	1.5	136.3	26.3	0.0	30	1.345	0.758	0.0000
1999	15.0	10.3	3.3	121.1	100.0	0.0	30	3.898	0.539	0.0000
2000	10.9	11.3	1.4	67.9	26.9	0.0	30	0.205	0.964	0.3839
2001	11.8	9.0	2.2	101.8	50.0	0.0	30	1.437	0.860	0.0010
2002	8.1	6.6	1.6	111.5	33.3	0.0	30	1.237	0.839	0.0004
2003	24.4	23.7	3.4	76.0	77.8	0.0	30	1.048	0.890	0.0048
2004	13.3	9.3	2.6	106.2	66.7	0.0	30	2.012	0.809	0.0001
2005	20.2	15.5	3.3	90.3	66.7	0.0	30	0.843	0.905	0.0112
2006	11.3	8.2	2.1	103.2	41.7	0.0	30	0.868	0.876	0.0022
2007	10.3	7.3	1.9	103.7	44.4	0.0	30	1.329	0.859	0.0010
Means[a]										
Recent	15.9									
Overall	15.9									

[a]Recent = 5-year mean (2003-2007).

Table 63.—North Fork Buckhorn Creek, Lower site (E098), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	31.9	28.6	3.0	51.5	75.0	0.0	30	0.728	0.954	0.2143
1991	42.5	45.3	4.6	59.7	82.1	0.0	30	-0.234	0.948	0.1505
1992	27.9	28.3	3.4	67.2	62.5	0.0	30	0.294	0.951	0.1809
1993	19.3	16.7	3.0	82.6	61.5	0.0	29	0.896	0.920	0.0308
1994	15.9	16.7	2.3	80.2	50.0	0.0	30	0.384	0.906	0.0116
1995	49.0	46.4	3.7	41.6	100.0	0.0	30	0.155	0.978	0.7763
1996	27.1	26.4	4.4	89.7	77.8	0.0	30	0.382	0.897	0.0072
1997	18.3	11.8	3.1	93.7	56.5	0.0	30	0.593	0.875	0.0022
1998	11.5	8.5	2.3	109.5	41.7	0.0	30	1.019	0.841	0.0004
1999	23.6	22.6	2.9	67.3	68.0	0.0	30	0.570	0.955	0.2307
2000	10.2	9.1	1.7	93.6	38.5	0.0	30	1.107	0.880	0.0028
2001	25.0	24.8	4.2	91.0	70.4	0.0	30	0.420	0.897	0.0070
2002	42.9	42.9	4.8	60.5	84.6	0.0	29	-0.102	0.953	0.2207
2003	34.1	36.9	4.5	71.8	87.8	0.0	30	0.163	0.949	0.1550
2004	14.8	9.1	2.9	106.7	50.0	0.0	30	0.747	0.852	0.0007
2005	15.1	11.1	3.5	126.6	60.0	0.0	30	1.083	0.779	0.0000
2006	.	.	.	.	.	.	.	.	.	.
2007	20.5	20.4	2.8	74.8	52.5	0.0	30	0.092	0.933	0.0588
Means[a]										
Recent	25.5									
Overall	25.3									

[a]Recent = 5-year mean (2002-2007).

Table 64.—Fitsum Creek, Lower site (E024), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	17.6	17.7	3.5	94.1	41.7	0.0	22	0.159	0.832	0.0016
1990	9.3	8.5	1.6	90.1	26.1	0.0	28	0.539	0.900	0.0113
1991	18.4	16.0	3.1	91.4	50.0	0.0	30	0.402	0.889	0.0046
1992	11.8	9.6	2.0	91.3	36.8	0.0	30	0.549	0.900	0.0086
1993	22.1	19.5	3.5	85.7	66.7	0.0	30	0.514	0.923	0.0317
1994	7.5	5.6	1.9	136.7	44.4	0.0	30	2.192	0.726	0.0000
1995	17.5	14.3	3.1	95.5	52.2	0.0	30	0.739	0.878	0.0025
1996	14.9	13.4	2.5	91.3	46.2	0.0	30	0.585	0.909	0.0138
1997	6.9	3.8	1.9	147.4	34.6	0.0	30	1.769	0.705	0.0000
1998	7.6	5.4	1.6	118.6	35.0	0.0	30	1.282	0.824	0.0002
1999	12.3	8.7	2.9	130.0	70.0	0.0	30	2.348	0.709	0.0000
2000	12.6	8.6	2.5	110.2	42.9	0.0	30	0.821	0.837	0.0003
2001	22.1	22.9	3.3	82.0	58.1	0.0	30	0.268	0.918	0.0235
2002	34.7	34.3	3.8	60.2	67.6	0.0	30	-0.202	0.918	0.0242
2003	13.1	9.4	2.2	92.7	37.5	0.0	30	0.558	0.889	0.0045
2004	13.9	11.4	2.4	95.3	44.2	0.0	30	0.659	0.894	0.0059
2005	6.2	0.0	1.4	125.1	25.0	0.0	30	0.845	0.776	0.0000
2006	20.0	17.9	2.9	79.4	66.7	0.0	30	1.135	0.916	0.0217
2007	20.7	22.2	2.8	72.8	68.2	0.0	30	0.878	0.916	0.0213
Means[a]										
Recent	14.8									
Overall	15.2									

[a]Recent = 5-year mean (2003-2007).

Table 65.—Fitsum Creek, Canyon site (E099), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	17.6	17.7	3.5	94.1	41.7	0.0	22	0.159	0.832	0.0016
1991	9.3	8.5	1.6	90.1	26.1	0.0	28	0.539	0.900	0.0113
1992	18.4	16.0	3.1	91.4	50.0	0.0	30	0.402	0.889	0.0046
1993	11.8	9.6	2.0	91.3	36.8	0.0	30	0.549	0.900	0.0086
1994	22.1	19.5	3.5	85.7	66.7	0.0	30	0.514	0.923	0.0317
1995	7.5	5.6	1.9	136.7	44.4	0.0	30	2.192	0.726	0.0000
1996	17.5	14.3	3.1	95.5	52.2	0.0	30	0.739	0.878	0.0025
1997	14.9	13.4	2.5	91.3	46.2	0.0	30	0.585	0.909	0.0138
1998	6.9	3.8	1.9	147.4	34.6	0.0	30	1.769	0.705	0.0000
1999	7.6	5.4	1.6	118.6	35.0	0.0	30	1.282	0.824	0.0002
2000	12.3	8.7	2.9	130.0	70.0	0.0	30	2.348	0.709	0.0000
2001	12.6	8.6	2.5	110.2	42.9	0.0	30	0.821	0.837	0.0003
2002	22.1	22.9	3.3	82.0	58.1	0.0	30	0.268	0.918	0.0235
2003	34.7	34.3	3.8	60.2	67.6	0.0	30	0.202	0.918	0.0242
2004	13.1	9.4	2.2	92.7	37.5	0.0	30	0.558	0.889	0.0045
2005	13.9	11.4	2.4	95.3	44.2	0.0	30	0.658	0.894	0.0059
2006	6.2	0.0	1.4	125.1	25.0	0.0	30	0.845	0.776	0.0000
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	34.6									
Overall	26.8									

[a]Recent = 5-year mean (2002-2006).

Table 66.—Fitsum Creek, Middle site (E124), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	5.6	5.9	1.0	91.8	15.4	0.0	29	0.293	0.872	0.0022
1991	22.7	17.9	3.3	80.5	60.0	0.0	30	0.690	0.919	0.0248
1992	9.0	8.5	1.5	91.9	25.7	0.0	30	0.390	0.887	0.0041
1993	25.7	24.0	3.9	84.0	100.0	0.0	30	1.433	0.887	0.0042
1994	17.9	14.4	3.6	111.0	73.7	0.0	30	1.015	0.850	0.0006
1995	18.8	15.1	3.8	110.1	75.0	0.0	30	1.264	0.839	0.0004
1996	20.9	14.2	3.6	95.8	68.4	0.0	30	0.641	0.889	0.0046
1997	12.0	7.4	2.7	125.0	54.4	0.0	30	1.671	0.769	0.0000
1998	4.0	0.0	1.3	181.1	25.0	0.0	30	1.961	0.619	0.0000
1999	8.9	6.9	1.6	99.9	34.0	0.0	30	0.997	0.883	0.0034
2000	10.5	7.9	2.0	106.7	39.4	0.0	30	1.422	0.829	0.0002
2001	20.4	17.5	3.1	82.6	52.4	0.0	30	0.440	0.922	0.0304
2002	40.5	42.8	3.3	44.5	89.4	13.5	30	0.560	0.956	0.2499
2003	19.5	12.9	3.8	108.0	65.5	0.0	30	0.834	0.852	0.0007
2004	19.7	15.5	3.3	92.4	58.3	0.0	30	0.743	0.889	0.0045
2005	23.6	20.5	2.5	58.4	64.7	0.0	30	0.861	0.951	0.1793
2006	14.8	10.8	2.5	93.9	51.4	0.0	30	0.910	0.900	0.0083
2007	22.4	21.3	3.8	93.3	93.9	0.0	30	1.573	0.862	0.0011
Means[a]										
Recent	20.0									
Overall	17.6									

[a]Recent = 5-year mean (2003-2007).

Table 67.—North Fork Fitsum Creek, Middle site (E021), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	9.3	5.9	1.6	96.1	28.0	0.0	30	0.948	0.858	0.0009
1990	7.1	6.9	1.4	107.0	30.0	0.0	29	1.341	0.851	0.0008
1991	22.9	20.5	2.8	66.2	50.0	0.0	30	0.104	0.954	0.2155
1992	14.1	12.5	1.7	65.6	41.4	0.0	30	1.046	0.933	0.0596
1993	13.0	8.8	2.3	98.5	40.0	0.0	30	0.793	0.876	0.0023
1994	7.3	0.0	2.4	179.6	47.8	0.0	30	2.160	0.626	0.0000
1995	26.0	28.6	3.2	68.4	70.6	0.0	30	0.320	0.963	0.3643
1996	17.2	10.1	3.3	105.3	64.3	0.0	30	1.183	0.842	0.0004
1997	8.8	7.7	1.3	83.5	20.0	0.0	30	0.172	0.887	0.0042
1998	5.8	4.5	1.3	124.1	25.9	0.0	30	1.299	0.804	0.0001
1999	10.2	5.6	2.4	126.3	47.4	0.0	30	1.509	0.794	0.0001
2000	8.5	8.7	1.6	105.2	38.5	0.0	30	1.260	0.824	0.0002
2001	23.0	20.1	3.5	82.9	71.9	0.0	30	0.699	0.926	0.0376
2002	25.4	22.2	2.4	51.6	60.0	2.7	30	0.637	0.963	0.3657
2003	17.4	15.4	2.2	69.3	40.6	0.0	30	0.384	0.942	0.1046
2004	22.6	20.3	2.2	52.0	50.0	0.0	30	0.196	0.978	0.7677
2005	15.3	13.7	2.5	89.8	47.6	0.0	30	0.796	0.903	0.0098
2006	.	.	.	.	.	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.

Means[a]	
Recent	20.7
Overall	14.9

[a]Recent = 5-year mean (2001-2005).

Table 68.—North Fork Fitsum Creek, Lower site (E022), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	4.7	4.3	0.8	93.4	15.6	0.0	30	0.941	0.883	0.0032
1990	8.4	6.0	1.6	95.5	30.0	0.0	26	0.763	0.890	0.0095
1991	24.2	23.2	3.0	67.0	60.0	0.0	30	0.288	0.953	0.2058
1992	13.7	10.8	2.0	81.4	33.3	0.0	30	0.436	0.907	0.0125
1993	17.4	17.6	2.6	82.6	56.3	0.0	30	0.872	0.927	0.0409
1994	16.8	10.1	3.8	122.7	70.4	0.0	30	1.316	0.802	0.0001
1995	23.5	23.8	3.4	80.1	62.5	0.0	30	0.495	0.931	0.0512
1996	7.7	7.7	1.4	97.0	25.0	0.0	30	0.884	0.874	0.0021
1997	9.6	6.5	1.8	101.5	39.3	0.0	30	1.243	0.873	0.0020
1998	7.9	5.1	1.8	125.6	40.0	0.0	30	2.194	0.723	0.0000
1999	12.6	12.3	1.7	73.1	31.0	0.0	30	0.185	0.944	0.1198
2000	17.4	14.8	2.5	80.0	52.6	0.0	30	0.951	0.906	0.0120
2001	22.7	19.1	2.9	70.6	57.1	0.0	30	0.405	0.944	0.1195
2002	50.6	51.8	3.2	35.1	85.7	12.5	30	-0.067	0.985	0.9394
2003	48.5	51.3	3.5	39.1	84.2	5.6	30	-0.465	0.972	0.5840
2004	14.5	12.6	2.5	94.0	50.0	0.0	30	0.957	0.898	0.0074
2005	14.3	12.9	2.2	83.7	35.3	0.0	30	0.250	0.902	0.0094
2006	21.1	19.5	3.7	95.4	100.0	0.0	30	2.306	0.792	0.0000
2007	16.9	11.3	2.9	93.1	60.9	0.0	30	0.934	0.894	0.0059

Means[a]	
Recent	23.1
Overall	19.3

[a]Recent = 5-year mean (2003-2007).

Table 69.—North Fork Fitsum Creek, Upper site (E138), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	8.7	7.1	1.6	90.5	26.3	0.0	23	0.748	0.906	0.0334
1991	28.8	30.5	2.9	55.3	61.1	0.0	30	-0.143	0.977	0.7539
1992	22.1	20.0	2.3	55.9	56.0	4.3	30	0.846	0.938	0.0798
1993	15.0	10.9	2.6	95.9	65.6	0.0	30	1.716	0.843	0.0004
1994	10.4	0.0	2.7	141.7	46.9	0.0	30	1.277	0.733	0.0000
1995	28.9	24.4	3.5	67.3	81.8	0.0	30	1.082	0.916	0.0215
1996	18.3	14.0	3.4	100.9	66.7	0.0	30	1.465	0.829	0.0002
1997	18.7	16.0	2.5	74.5	55.3	0.0	30	0.955	0.930	0.0502
1998	20.6	20.5	2.7	70.7	55.6	0.0	30	0.601	0.943	0.1099
1999	12.7	12.1	1.8	77.0	34.8	0.0	30	0.583	0.943	0.1071
2000	20.2	19.1	2.1	57.8	66.7	3.8	30	2.120	0.830	0.0002
2001	23.9	23.0	3.3	76.0	61.9	0.0	30	0.347	0.936	0.0702
2002	42.1	43.4	3.3	43.5	75.0	7.5	30	-0.115	0.959	0.2929
2003	31.7	29.1	3.1	52.9	70.8	0.0	30	0.611	0.959	0.2890
2004	15.8	16.2	1.6	57.0	34.5	0.0	30	0.206	0.981	0.8523
2005	26.7	25.4	2.7	55.7	55.2	0.0	30	0.125	0.970	0.5382
2006	.	.	.	.	.	.	.	.	.	.
2007	35.2	34.2	3.8	58.9	81.1	0.0	30	0.194	0.974	0.6416
Means[a]										
Recent	30.3									
Overall	22.3									

[a]Recent = 5-year mean (2002-2007).

Table 70.—Cabin Creek, Upper site (B127), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	25.1	25.2	2.0	42.7	50.0	6.9	30	0.556	0.952	0.1882
1991	17.5	15.9	2.4	74.1	46.3	0.0	30	0.449	0.950	0.1669
1992	23.4	24.7	3.4	80.2	64.4	0.0	30	0.268	0.929	0.0475
1993	12.0	9.1	2.5	112.5	66.7	0.0	30	2.495	0.760	0.0000
1994	24.4	20.6	4.0	89.7	67.4	0.0	30	0.377	0.900	0.0086
1995	27.3	25.0	3.2	63.3	72.2	0.0	30	0.934	0.924	0.0347
1996	18.1	17.2	2.3	68.5	47.7	0.0	30	0.509	0.962	0.3428
1997	24.5	23.8	2.9	63.6	60.3	0.0	30	0.292	0.972	0.6058
1998	12.4	11.2	1.7	75.9	34.3	0.0	30	0.570	0.940	0.0899
1999	18.8	14.6	2.5	72.8	50.0	0.0	29	0.361	0.930	0.0556
2000	24.1	24.4	1.4	32.8	40.0	6.8	30	-0.203	0.971	0.5797
2001	43.3	43.9	2.6	33.5	70.7	20.8	30	0.060	0.956	0.2455
2002	.	.	.	.	.	.	.	.	.	.
2003	20.9	17.8	2.3	60.3	48.1	2.2	30	0.426	0.956	0.2451
2004	18.0	15.6	2.0	59.7	39.1	0.0	30	0.247	0.960	0.3166
2005	21.6	19.2	2.4	62.1	54.7	0.0	30	0.789	0.948	0.1460
2006	16.9	14.0	1.6	51.4	39.3	6.3	30	0.803	0.918	0.0233
2007	46.0	45.0	4.1	49.0	84.8	0.0	30	-0.055	0.979	0.7892
Means[a]										
Recent	24.7									
Overall	23.2									

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

These data were not collected at site E138 was not monitored in 2006; refer to Nelson *et al.* (2006) for the latest summary. The other supplemental sites have not had cobble embeddedness measurements more recently than 2002 and their data were displayed in Nelson *et al.* (2004a).

Surface Fines

Table 71.—Blackmare Creek, Middle site (E005), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	19.2	10.0	5.2	148.3	100.0	0.0	30	2.238	0.646	0.0000
1992	40.3	35.8	4.6	62.7	100.0	8.3	30	0.772	0.922	0.0296
1993	24.8	18.3	4.4	96.9	100.0	0.0	30	1.665	0.822	0.0002
1994	20.1	5.8	5.0	137.6	90.0	0.0	30	1.573	0.734	0.0000
1995	21.9	11.7	4.9	121.4	96.7	0.0	30	1.878	0.722	0.0000
1996	6.7	3.3	1.5	120.7	33.3	0.0	30	1.958	0.773	0.0000
1997	15.4	15.8	2.2	77.1	46.7	0.0	30	1.023	0.915	0.0194
1998	24.1	13.3	4.6	105.3	86.7	0.0	30	1.353	0.817	0.0001
1999	10.3	8.3	1.7	92.4	48.3	0.0	30	2.503	0.763	0.0000
2000	17.3	11.7	3.0	95.4	58.3	1.7	30	1.395	0.793	0.0000
2001	15.1	15.0	1.8	65.1	46.7	0.0	30	1.326	0.893	0.0056
2002	27.1	26.7	3.1	63.5	75.0	1.7	30	0.899	0.933	0.0591
2003	4.3	3.3	1.0	129.6	25.0	0.0	30	2.348	0.727	0.0000
2004	16.3	11.7	3.3	112.6	80.0	0.0	30	2.212	0.749	0.0000
2005	10.4	6.7	2.4	124.6	43.3	0.0	30	1.629	0.758	0.0000
2006	14.9	10.0	3.3	122.4	71.7	0.0	30	1.922	0.755	0.0000
2007	16.3	10.0	3.4	112.9	70.0	0.0	30	2.075	0.719	0.0000

Means[a]	
Recent	12.4
Overall	17.9

[a]Recent = 5-year mean (2003-2007).

Table 72.—Fourmile Creek, Upper site (E139), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	12.7	8.3	2.8	122.2	66.7	0.0	30	2.290	0.731	0.0000
1992	14.1	9.2	3.5	136.1	95.0	0.0	30	2.847	0.696	0.0000
1993	8.2	3.3	2.1	142.8	58.3	0.0	30	3.046	0.661	0.0000
1994	6.2	3.3	1.4	121.6	31.7	0.0	30	1.924	0.780	0.0000
1995	8.1	3.3	3.3	227.4	100.0	0.0	30	4.647	0.428	0.0000
1996	10.6	6.7	3.3	172.8	100.0	0.0	30	4.248	0.513	0.0000
1997	22.8	16.7	4.3	102.6	100.0	0.0	29	2.007	0.773	0.0000
1998	17.3	6.7	4.1	131.3	88.3	0.0	30	1.741	0.750	0.0000
1999	18.4	15.8	3.0	89.8	55.0	0.0	30	0.977	0.875	0.0022
2000	23.0	20.0	3.9	93.7	96.7	0.0	30	1.666	0.854	0.0008
2001	17.0	7.5	4.4	141.2	93.3	0.0	30	2.103	0.701	0.0000
2002	.	.	.	.	.	.	.	.	.	.
2003	22.7	16.7	4.1	99.4	100.0	0.0	30	1.547	0.852	0.0007
2004	15.2	8.3	3.3	120.5	75.0	0.0	30	2.182	0.693	0.0000
2005	7.4	3.3	2.1	157.3	51.7	0.0	30	2.463	0.676	0.0000
2006	.	.	.	.	.	.	.	.	.	.
2007	16.0	7.5	4.0	135.8	81.7	0.0	30	1.735	0.750	0.0000

Means[a]	
Recent	15.7
Overall	14.6

[a]Recent = 5-year mean (2001-2007).

Table 73.—Fourmile Creek, Upper site (E128), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	9.5	7.5	1.7	97.2	35.0	0.0	30	1.460	0.837	0.0003
1992	20.5	12.5	4.4	118.1	85.0	0.0	30	1.542	0.773	0.0000
1993	8.3	3.3	3.2	209.5	93.3	0.0	30	4.384	0.460	0.0000
1994	15.1	11.7	3.6	130.2	100.0	0.0	30	3.077	0.675	0.0000
1995	9.3	6.7	2.5	149.5	76.7	0.0	30	4.212	0.527	0.0000
1996	13.9	7.5	3.9	152.3	100.0	0.0	30	3.072	0.607	0.0000
1997	15.4	6.7	3.7	131.3	100.0	0.0	30	2.830	0.693	0.0000
1998	10.7	3.3	3.8	192.8	88.3	0.0	30	2.782	0.573	0.0000
1999	11.2	8.3	2.1	105.2	58.3	1.7	30	2.492	0.744	0.0000
2000	26.1	23.3	2.9	60.8	60.0	3.3	30	0.417	0.947	0.1438
2001	19.7	12.5	4.0	110.1	100.0	0.0	30	2.174	0.771	0.0000
2002	12.7	8.3	2.7	114.9	58.3	0.0	30	1.921	0.765	0.0000
2003	.	.	.	.	.	.	.	.	.	.
2004	8.2	4.2	2.8	189.6	81.7	0.0	30	3.952	0.533	0.0000
2005	25.1	16.7	4.6	100.8	91.7	0.0	30	1.255	0.851	0.0007
2006	27.5	20.0	4.7	93.8	100.0	1.7	30	1.730	0.799	0.0001
2007	27.0	10.8	5.7	116.2	100.0	0.0	30	1.237	0.783	0.0000
Means[a]										
Recent	20.1									
Overall	16.3									

[a]Recent = 5-year mean (2002-2007).

Table 74.—Buckhorn Creek, Upper site (E015), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	3.7	3.3	0.9	138.4	25.0	0.0	30	2.742	0.695	0.0000
1992	5.1	4.2	1.0	111.3	23.3	0.0	30	1.361	0.840	0.0004
1993	7.7	3.3	2.0	140.2	45.0	0.0	30	2.120	0.726	0.0000
1994	1.8	0.0	0.7	198.8	13.3	0.0	30	2.364	0.573	0.0000
1995	5.1	3.3	0.9	100.6	20.0	0.0	30	1.270	0.855	0.0008
1996	9.7	3.3	3.4	194.6	95.0	0.0	30	3.594	0.546	0.0000
1997	17.3	12.5	3.0	96.2	75.0	0.0	30	2.165	0.776	0.0000
1998	11.3	8.3	1.9	94.5	48.3	0.0	30	1.849	0.822	0.0002
1999	7.4	3.3	2.9	212.0	86.7	0.0	30	4.672	0.422	0.0000
2000	5.7	1.7	1.6	153.8	45.0	0.0	30	3.349	0.613	0.0000
2001	16.1	15.0	2.2	75.1	66.7	1.7	30	2.800	0.731	0.0000
2002	15.3	15.0	1.7	61.1	41.7	1.7	30	0.917	0.938	0.0785
2003	5.6	3.3	1.1	111.8	23.3	0.0	30	1.293	0.840	0.0004
2004	7.0	5.0	2.3	177.4	70.0	0.0	30	4.788	0.425	0.0000
2005	3.9	1.7	1.0	140.3	25.0	0.0	30	2.243	0.728	0.0000
2006	13.0	10.8	2.1	88.8	55.0	0.0	30	2.052	0.813	0.0001
2007	21.0	15.0	3.4	89.8	85.0	1.7	30	1.692	0.828	0.0002
Means[a]										
Recent	10.1									
Overall	9.2									

[a]Recent = 5-year mean (2003-2007).

Table 75.—Buckhorn Creek, Middle site (E019), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	6.5	4.2	1.4	118.2	30.0	0.0	30	1.348	0.817	0.0001
1992	15.9	10.0	3.3	112.9	71.7	0.0	30	1.813	0.782	0.0000
1993	21.1	5.0	5.6	144.5	100.0	0.0	30	1.597	0.722	0.0000
1994	15.7	3.3	5.0	175.2	100.0	0.0	30	2.239	0.629	0.0000
1995	18.4	12.5	3.7	109.7	100.0	0.0	30	2.650	0.718	0.0000
1996	8.3	5.0	2.0	130.1	50.0	0.0	30	2.614	0.673	0.0000
1997	10.4	8.3	1.9	101.2	46.7	0.0	30	1.561	0.849	0.0006
1998	10.6	7.5	1.8	92.6	30.0	0.0	30	0.733	0.886	0.0039
1999	5.3	3.3	1.1	112.8	21.7	0.0	30	1.283	0.835	0.0003
2000	4.1	0.0	1.6	215.5	40.0	0.0	30	3.021	0.542	0.0000
2001	.	.	.	.	.	.	.	.	.	.
2002	14.7	11.7	2.2	83.5	61.7	0.0	30	2.282	0.789	0.0000
2003	10.6	6.7	2.0	101.0	38.3	0.0	30	1.106	0.869	0.0016
2004	12.4	7.5	2.6	115.1	73.3	0.0	30	2.880	0.708	0.0000
2005	8.1	1.7	2.9	197.3	71.7	0.0	30	3.006	0.552	0.0000
2006	9.4	5.0	2.4	139.1	53.3	0.0	30	2.138	0.725	0.0000
2007	12.5	8.3	2.4	103.9	55.0	0.0	30	1.907	0.776	0.0000

Means[a]	
Recent	10.6
Overall	11.5

[a]Recent = 5-year mean (2003-2007).

Table 76.—West Fork Buckhorn Creek, Upper site (E007), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	12.3	10.8	2.9	130.9	73.3	0.0	30	2.668	0.677	0.0000
1992	22.7	20.8	3.3	78.8	100.0	3.3	30	2.840	0.738	0.0000
1993	6.1	0.8	2.8	248.9	81.7	0.0	30	4.651	0.414	0.0000
1994	1.8	0.0	0.7	204.4	15.0	0.0	30	2.304	0.570	0.0000
1995	12.4	11.7	2.0	90.3	50.0	0.0	30	1.671	0.854	0.0008
1996	19.5	13.3	3.4	94.4	66.7	0.0	30	1.258	0.857	0.0009
1997	17.4	13.3	2.4	74.1	71.7	3.3	30	2.745	0.737	0.0000
1998	12.7	11.7	1.8	78.7	43.3	0.0	30	1.143	0.918	0.0234
1999	15.1	7.5	3.9	140.9	96.7	0.0	30	2.832	0.629	0.0000
2000	22.5	21.7	2.7	64.5	58.3	1.7	30	0.641	0.941	0.0944
2001	40.8	30.0	5.2	69.8	100.0	8.3	30	1.040	0.834	0.0003
2002	33.5	37.5	2.9	47.5	60.0	3.3	30	-0.376	0.946	0.1328
2003	12.3	8.3	2.7	120.4	73.3	0.0	30	2.817	0.686	0.0000
2004	29.1	23.3	4.0	75.4	85.0	5.0	30	0.727	0.891	0.0050
2005	10.1	5.0	3.0	163.5	85.0	0.0	30	3.607	0.558	0.0000
2006	.	.	.	.	.	.	.	.	.	.
2007	44.9	40.8	4.2	51.1	100.0	13.3	30	1.012	0.899	0.0081

Means[a]	
Recent	26.0
Overall	19.6

[a]Recent = 5-year mean (2002-2007).

Table 77.—West Fork Buckhorn Creek, Lower site (E014), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	19.3	15.8	4.0	112.6	90.0	0.0	30	2.396	0.709	0.0000
1992	26.9	17.5	4.8	98.2	100.0	0.0	30	1.700	0.791	0.0000
1993	12.9	2.5	4.2	176.9	95.0	0.0	30	2.424	0.625	0.0000
1994	8.1	0.0	3.5	236.9	100.0	0.0	30	4.188	0.461	0.0000
1995	14.4	6.7	4.4	166.0	100.0	0.0	30	3.019	0.567	0.0000
1996	10.0	5.0	2.4	131.4	50.0	0.0	30	1.798	0.751	0.0000
1997	26.7	20.0	4.9	101.3	100.0	0.0	30	1.438	0.831	0.0003
1998	11.6	9.2	2.6	123.8	81.7	0.0	30	4.315	0.513	0.0000
1999	11.3	5.0	3.5	167.8	80.0	0.0	30	2.699	0.603	0.0000
2000	8.4	5.0	2.0	130.6	41.7	0.0	30	1.906	0.749	0.0000
2001	25.3	20.8	3.9	84.0	86.7	0.0	30	1.344	0.868	0.0016
2002	16.6	15.8	1.6	53.9	40.0	0.0	30	0.486	0.973	0.6339
2003	19.3	13.3	3.1	88.9	63.3	0.0	30	0.985	0.892	0.0053
2004	13.4	8.3	2.3	91.8	53.3	0.0	30	1.503	0.849	0.0006
2005	14.6	9.2	2.9	109.4	75.0	0.0	30	2.195	0.775	0.0000
2006	.	.	.	.	.	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.

Means[a]	
Recent	17.8
Overall	15.9

[a]Recent = 5-year mean (2001-2005).

Table 78.—Little Buckhorn Creek, Upper Crossing site (E017), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	31.8	27.5	4.0	68.9	83.3	3.3	30	0.883	0.906	0.0115
1992	38.8	30.0	4.9	69.0	100.0	5.0	30	0.994	0.892	0.0052
1993	23.2	11.7	5.3	125.5	100.0	0.0	30	1.639	0.727	0.0000
1994	24.1	10.0	5.7	129.3	100.0	0.0	30	1.564	0.746	0.0000
1995	23.3	13.3	5.0	117.8	100.0	0.0	30	1.852	0.732	0.0000
1996	15.7	12.5	2.7	95.7	65.0	0.0	30	1.420	0.876	0.0023
1997	21.9	15.8	3.4	84.3	73.3	1.7	30	1.339	0.845	0.0005
1998	28.6	25.0	4.3	82.3	91.7	0.0	30	1.043	0.904	0.0106
1999	21.8	14.2	4.4	111.1	90.0	0.0	30	1.659	0.783	0.0000
2000	17.7	8.3	4.6	142.2	96.7	0.0	30	2.318	0.653	0.0000
2001	45.7	44.2	4.5	53.9	90.0	5.0	30	0.164	0.963	0.3677
2002	40.2	35.8	3.2	43.9	98.3	13.3	30	1.602	0.860	0.0010
2003	24.2	18.3	4.2	94.8	100.0	1.7	30	2.428	0.706	0.0000
2004	23.3	14.2	3.8	90.4	81.7	3.3	30	1.228	0.835	0.0003
2005	18.1	10.0	3.9	117.3	88.3	0.0	30	1.987	0.768	0.0000
2006	21.4	11.7	4.0	103.6	71.7	1.7	30	1.470	0.750	0.0000
2007	33.9	21.7	4.6	74.9	100.0	11.7	30	1.421	0.801	0.0001

Means[a]	
Recent	24.2
Overall	26.7

[a]Recent = 5-year mean (2003-2007).

Table 79.—North Fork Buckhorn Creek, Lower site (E008), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	25.1	10.8	5.8	126.9	100.0	0.0	30	1.361	0.769	0.0000
1992	61.4	60.8	4.6	41.2	100.0	20.0	30	0.046	0.944	0.1141
1993	15.3	11.7	3.6	128.3	98.3	0.0	30	3.094	0.653	0.0000
1994	11.7	0.0	4.0	186.6	73.3	0.0	30	1.843	0.605	0.0000
1995	18.7	13.3	2.7	80.0	55.0	0.0	30	0.837	0.916	0.0217
1996	14.9	8.3	3.4	126.6	75.0	0.0	30	1.915	0.766	0.0000
1997	22.8	17.5	3.5	84.7	73.3	0.0	30	0.945	0.907	0.0127
1998	14.4	8.3	3.8	143.6	93.3	1.7	30	3.274	0.518	0.0000
1999	8.6	6.7	1.7	106.4	43.3	0.0	30	2.301	0.776	0.0000
2000	7.9	5.0	1.7	118.4	36.7	0.0	30	1.691	0.797	0.0001
2001	11.9	5.0	3.1	139.9	73.3	0.0	30	2.276	0.691	0.0000
2002	26.2	25.0	2.5	52.1	60.0	1.7	30	0.707	0.954	0.2153
2003	18.9	12.5	3.3	96.9	73.3	0.0	30	1.226	0.869	0.0016
2004	21.4	15.0	3.8	96.9	71.7	1.7	30	1.138	0.834	0.0003
2005	12.4	5.0	3.2	143.4	66.7	0.0	30	2.098	0.711	0.0000
2006	12.4	10.0	2.0	88.3	50.0	0.0	30	1.521	0.873	0.0019
2007	21.8	15.8	3.6	90.1	78.3	0.0	30	1.696	0.813	0.0001
Means[a]										
Recent	17.4									
Overall	19.2									

[a]Recent = 5-year mean (2003-2007).

Table 80.—North Fork Buckhorn Creek, Lower site (E098), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	11.3	4.2	3.7	179.6	85.0	0.0	30	2.930	0.568	0.0000
1992	10.4	5.0	2.1	109.8	40.0	0.0	30	1.262	0.820	0.0002
1993	9.0	3.3	3.5	209.5	100.0	0.0	29	4.338	0.439	0.0000
1994	2.2	0.0	0.6	164.3	11.7	0.0	30	1.445	0.667	0.0000
1995	9.8	7.5	1.9	106.9	38.3	0.0	30	1.650	0.804	0.0001
1996	7.2	3.3	1.8	137.2	40.0	0.0	30	1.974	0.735	0.0000
1997	10.7	6.7	2.0	101.5	38.3	0.0	30	1.092	0.868	0.0015
1998	8.8	6.7	2.0	123.5	51.7	0.0	30	2.474	0.743	0.0000
1999	3.2	0.0	1.5	253.4	41.7	0.0	30	4.000	0.446	0.0000
2000	2.6	1.7	0.4	92.9	8.3	0.0	30	0.687	0.885	0.0036
2001	7.4	5.0	1.3	98.3	21.7	0.0	30	0.519	0.870	0.0017
2002	14.0	11.7	2.9	112.1	55.0	0.0	29	1.666	0.759	0.0000
2003	6.8	5.0	1.4	109.7	28.3	0.0	30	1.270	0.828	0.0002
2004	11.7	5.8	3.5	166.2	95.0	0.0	30	3.327	0.578	0.0000
2005	8.1	3.3	2.3	153.1	63.3	0.0	30	3.382	0.623	0.0000
2006	.	.	.	.	.	.	.	.	.	.
2007	12.3	10.8	2.0	88.6	46.7	0.0	30	1.543	0.859	0.0010
Means[a]										
Recent	10.6									
Overall	8.5									

[a]Recent = 5-year mean (2002-2007).

Table 81.—Fitsum Creek, Lower site (E024), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	15.3	9.2	3.2	115.2	75.0	0.0	30	2.018	0.779	0.0000
1992	17.4	16.7	1.9	60.5	45.0	3.3	30	0.689	0.945	0.1269
1993	20.2	13.3	4.4	119.9	100.0	0.0	30	1.997	0.746	0.0000
1994	7.2	0.0	3.4	261.3	100.0	0.0	30	4.539	0.406	0.0000
1995	8.8	5.0	1.8	112.2	35.0	0.0	30	1.419	0.811	0.0001
1996	4.7	1.7	1.6	190.7	38.3	0.0	30	2.810	0.572	0.0000
1997	19.6	13.3	3.7	103.6	78.3	0.0	30	1.907	0.760	0.0000
1998	8.0	5.0	1.6	108.2	35.0	0.0	30	1.640	0.823	0.0002
1999	10.8	3.3	3.6	183.7	81.7	0.0	30	2.717	0.590	0.0000
2000	4.6	1.7	1.5	180.0	41.7	0.0	30	3.551	0.555	0.0000
2001	17.8	15.0	2.9	90.1	85.0	1.7	30	2.687	0.750	0.0000
2002	11.5	10.0	1.7	80.6	38.3	1.7	30	1.404	0.846	0.0005
2003	10.7	9.2	1.5	78.1	40.0	0.0	30	1.805	0.849	0.0006
2004	21.9	17.5	3.7	91.9	76.7	0.0	30	1.265	0.865	0.0013
2005	5.4	3.3	1.3	134.4	30.0	0.0	30	2.004	0.743	0.0000
2006	3.3	1.7	0.6	94.7	10.0	0.0	30	0.620	0.858	0.0009
2007	10.7	8.3	1.9	99.5	48.3	0.0	30	1.859	0.828	0.0002
Means[a]										
Recent	10.4									
Overall	11.6									

[a]Recent = 5-year mean (2003-2007).

Table 82.—Fitsum Creek, Canyon site (E099), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	18.9	15.0	3.0	87.9	71.7	0.0	30	1.528	0.871	0.0018
1992	28.9	15.0	6.0	114.5	100.0	0.0	30	1.241	0.793	0.0000
1993	42.4	30.0	6.6	84.9	100.0	3.3	30	0.757	0.816	0.0001
1994	20.2	6.7	6.1	165.7	100.0	0.0	30	1.942	0.600	0.0000
1995	17.7	8.3	4.8	147.6	95.0	0.0	30	2.101	0.664	0.0000
1996	13.9	9.2	3.2	125.2	73.3	0.0	30	2.395	0.704	0.0000
1997	34.1	24.2	5.2	84.4	100.0	5.0	30	1.458	0.754	0.0000
1998	17.3	8.3	3.9	124.2	86.7	1.7	30	2.015	0.709	0.0000
1999	21.7	15.8	3.9	99.1	100.0	1.7	30	2.431	0.722	0.0000
2000	20.4	21.7	3.1	83.6	50.0	0.0	30	0.238	0.896	0.0067
2001	47.9	42.5	4.8	54.4	95.0	10.0	30	0.565	0.912	0.0165
2002	18.6	13.3	3.0	88.5	71.7	0.0	30	1.795	0.814	0.0001
2003	29.7	18.3	5.4	99.2	100.0	3.3	30	1.610	0.742	0.0000
2004	16.3	15.0	2.1	69.8	38.3	1.7	30	0.789	0.885	0.0037
2005	17.2	9.2	4.0	129.2	100.0	1.7	30	2.757	0.577	0.0000
2006	7.7	5.0	1.6	111.1	45.0	1.7	30	3.178	0.645	0.0000
2007	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Means[a]										
Recent	17.9									
Overall	23.3									

[a]Recent = 5-year mean (2002-2006).

Table 83.—Fitsum Creek, Middle site (E124), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	18.9	11.7	3.7	107.6	100.0	0.0	30	2.405	0.764	0.0000
1992	20.8	15.0	4.2	111.4	100.0	0.0	30	2.310	0.733	0.0000
1993	29.7	22.5	4.6	84.7	100.0	1.7	30	1.481	0.850	0.0006
1994	18.9	0.0	6.0	175.3	100.0	0.0	30	1.749	0.624	0.0000
1995	26.6	13.3	5.8	119.1	100.0	0.0	30	1.569	0.724	0.0000
1996	16.3	7.5	5.0	169.7	100.0	0.0	30	2.404	0.578	0.0000
1997	32.2	23.3	4.9	82.9	100.0	5.0	30	1.691	0.758	0.0000
1998	36.9	21.7	6.6	97.2	100.0	1.7	30	0.955	0.777	0.0000
1999	30.9	15.8	5.7	101.2	100.0	1.7	30	1.374	0.771	0.0000
2000	21.7	21.7	1.6	41.6	41.7	3.3	30	0.170	0.972	0.6050
2001	49.7	45.0	4.6	50.9	100.0	11.7	30	0.583	0.931	0.0534
2002	12.9	9.2	2.0	85.0	46.7	0.0	30	1.484	0.850	0.0006
2003	43.5	28.3	7.5	94.4	100.0	1.7	30	0.430	0.797	0.0001
2004	23.7	14.2	4.5	103.6	95.0	0.0	30	1.523	0.807	0.0001
2005	17.3	10.0	4.3	136.9	100.0	0.0	30	2.434	0.657	0.0000
2006	24.8	16.7	4.7	104.6	88.3	0.0	30	1.495	0.779	0.0000
2007	29.9	20.0	5.2	95.2	100.0	0.0	30	1.492	0.799	0.0001

Means[a]	
Recent	27.8
Overall	26.7

[a]Recent = 5-year mean (2003-2007).

Table 84.—North Fork Fitsum Creek, Middle site (E021), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	16.8	10.0	3.4	112.0	76.7	0.0	30	2.091	0.749	0.0000
1992	15.8	14.2	1.9	66.3	51.7	1.7	30	1.644	0.864	0.0013
1993	22.5	8.3	5.0	121.6	100.0	0.0	30	1.401	0.790	0.0000
1994	14.5	5.0	4.7	177.0	100.0	0.0	30	2.726	0.588	0.0000
1995	6.4	3.3	1.5	130.7	38.3	0.0	30	2.352	0.736	0.0000
1996	7.3	3.3	1.4	108.8	28.3	0.0	30	1.215	0.827	0.0002
1997	15.9	10.8	2.0	69.8	38.3	0.0	30	0.802	0.898	0.0075
1998	7.6	5.0	1.6	111.9	31.7	0.0	30	1.421	0.831	0.0003
1999	13.7	10.0	2.1	85.6	46.7	0.0	30	0.964	0.916	0.0214
2000	18.1	17.5	2.3	69.3	60.0	0.0	30	1.264	0.894	0.0059
2001	23.8	20.0	3.1	71.6	71.7	0.0	30	0.939	0.937	0.0742
2002	14.9	9.2	2.4	87.0	46.7	0.0	30	1.014	0.882	0.0031
2003	9.2	6.7	1.4	82.9	31.7	0.0	30	1.121	0.908	0.0129
2004	11.2	6.7	2.5	120.8	60.0	0.0	30	1.861	0.796	0.0001
2005	6.9	5.0	1.2	96.9	28.3	0.0	30	1.436	0.869	0.0016
2006	.	.	.	.	.	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.

Means[a]	
Recent	13.2
Overall	13.6

[a]Recent = 5-year mean (2001-2005).

Table 85.—North Fork Fitsum Creek, Lower site (E022), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	14.1	11.7	2.5	98.2	48.3	0.0	30	1.009	0.882	0.0031
1992	8.3	6.7	2.1	140.8	65.0	0.0	30	4.189	0.540	0.0000
1993	11.0	6.7	2.9	145.2	81.7	0.0	30	3.386	0.608	0.0000
1994	5.5	0.0	3.3	331.1	100.0	0.0	30	5.145	0.310	0.0000
1995	14.3	10.8	2.9	112.5	66.7	0.0	30	2.066	0.763	0.0000
1996	8.3	5.0	1.4	91.8	26.7	0.0	30	1.124	0.863	0.0012
1997	13.9	11.7	2.1	82.8	63.3	0.0	30	2.945	0.704	0.0000
1998	10.3	8.3	1.9	98.7	48.3	0.0	30	2.112	0.798	0.0001
1999	8.0	6.7	1.4	96.5	36.7	0.0	30	2.239	0.778	0.0000
2000	12.6	10.0	2.0	86.4	43.3	0.0	30	0.880	0.903	0.0098
2001	17.6	14.2	1.8	54.6	41.7	3.3	30	0.983	0.916	0.0214
2002	9.0	6.7	1.3	80.1	23.3	0.0	30	0.703	0.892	0.0055
2003	15.2	10.8	2.3	82.5	45.0	1.7	30	1.091	0.857	0.0009
2004	13.5	9.2	2.6	106.5	58.3	0.0	30	1.762	0.795	0.0001
2005	18.5	10.0	3.8	112.4	76.7	0.0	30	1.866	0.728	0.0000
2006	9.9	6.7	1.8	102.3	33.3	0.0	30	0.825	0.851	0.0007
2007	5.6	1.7	1.2	116.6	25.3	0.0	30	1.277	0.811	0.0001
Means[a]										
Recent	12.5									
Overall	11.5									

[a]Recent = 5-year mean (2003-2007).

Table 86.—North Fork Fitsum Creek, Upper site (E138), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	14.7	10.0	3.4	126.6	100.0	0.0	30	3.507	0.632	0.0000
1992	10.4	8.3	1.5	78.8	26.7	0.0	30	0.555	0.925	0.0373
1993	19.3	15.0	3.8	107.0	100.0	0.0	30	2.336	0.772	0.0000
1994	15.7	0.0	5.8	201.2	100.0	0.0	30	2.192	0.532	0.0000
1995	9.3	6.7	2.4	142.5	66.7	0.0	30	3.087	0.659	0.0000
1996	9.7	5.0	2.9	161.6	61.7	0.0	30	2.742	0.584	0.0000
1997	9.7	8.3	1.4	76.8	30.0	0.0	30	1.057	0.912	0.0169
1998	3.1	2.5	0.6	100.2	10.0	0.0	30	0.715	0.865	0.0013
1999	9.3	5.8	1.9	113.2	41.7	0.0	30	1.426	0.823	0.0002
2000	5.7	4.2	1.0	97.0	21.7	0.0	30	1.263	0.865	0.0013
2001	21.2	19.2	2.7	70.2	75.0	1.7	30	1.933	0.833	0.0003
2002	6.9	5.8	1.3	107.0	33.3	0.0	30	2.018	0.793	0.0000
2003	8.8	6.7	1.3	83.4	25.0	0.0	30	0.715	0.908	0.0134
2004	21.4	10.8	4.4	113.7	96.7	0.0	30	1.914	0.753	0.0000
2005	15.3	14.2	2.4	87.5	55.0	0.0	30	1.070	0.896	0.0069
2006	.	.	.	.	.	.	.	.	.	.
2007	13.7	10.0	2.0	80.3	51.7	1.7	30	1.838	0.817	0.0001
Means[a]										
Recent	13.2									
Overall	12.1									

[a]Recent = 5-year mean (2002-2007).

Table 87.—Cabin Creek, Upper site (B127), percent surface fines univariate statistical summary, 1990-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	35.5	29.2	4.4	67.4	96.7	0.0	30	0.949	0.912	0.0163
1992	35.4	25.0	5.6	86.3	100.0	0.0	30	0.982	0.865	0.0013
1993	48.8	43.3	3.9	44.2	95.0	16.7	30	0.637	0.938	0.0816
1994	39.2	20.8	6.4	89.0	100.0	0.0	30	0.742	0.837	0.0003
1995	31.3	27.5	3.3	57.3	75.0	5.0	30	0.904	0.924	0.0345
1996	13.4	11.7	2.6	105.7	76.7	0.0	30	3.375	0.642	0.0000
1997	21.4	18.3	2.6	66.1	71.7	3.3	30	1.727	0.866	0.0013
1998	12.7	8.3	3.4	145.2	100.0	0.0	30	4.098	0.499	0.0000
1999	7.5	3.3	1.9	137.1	50.0	0.0	29	2.855	0.687	0.0000
2000	11.4	10.0	1.3	60.4	28.3	1.7	30	0.584	0.954	0.2118
2001	29.6	25.0	2.7	50.7	66.7	1.7	30	0.716	0.956	0.2404
2002	.	.	.	.	.	.	.	.	.	.
2003	14.5	10.0	2.9	109.2	80.0	1.7	30	3.107	0.621	0.0000
2004	14.4	10.0	2.9	110.7	75.0	0.0	30	2.398	0.729	0.0000
2005	25.3	26.7	4.0	86.4	80.0	0.0	30	0.873	0.909	0.0142
2006	11.8	11.7	1.4	64.7	33.3	1.7	30	0.767	0.941	0.0959
2007	23.3	14.2	4.4	102.9	100.0	3.3	30	2.275	0.699	0.0000

Means[a]	
Recent	17.9
Overall	23.5

[a]Recent = 5-year mean (2001-2006).

Miscellaneous Sites

These sites are no longer part of our normal monitoring schedule and are no longer being updated[8].

[8] Data were collected at site E002 in 2007, but it is not reported here.

Secesh River

Primary Sites

30-Hoop Free Matrix

Table 88.—Lick Creek, Lower site (E057), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	25.1	24.0	3.3	71.4	65.4	0.0	30	0.402	0.956	0.2427
1989	18.4	17.7	2.4	72.5	50.0	0.0	30	0.385	0.954	0.2119
1990	20.6	18.5	2.2	59.2	46.7	0.0	30	0.246	0.966	0.4345
1991	42.9	50.8	4.2	53.4	87.5	0.0	30	-0.217	0.958	0.2828
1992	26.3	25.4	3.1	65.1	62.5	0.0	30	0.263	0.966	0.4441
1993	19.2	19.5	2.8	81.1	57.1	0.0	30	0.392	0.929	0.0470
1994	27.1	24.5	3.1	62.1	77.8	0.0	30	0.922	0.946	0.1344
1995	32.7	33.3	4.7	79.2	81.0	0.0	30	0.258	0.920	0.0263
1996	17.6	15.2	2.4	75.4	49.1	0.0	30	0.728	0.930	0.0499
1997	15.3	7.4	3.2	115.8	67.9	0.0	30	1.249	0.832	0.0003
1998	14.8	13.3	2.3	84.1	51.4	0.0	30	0.820	0.917	0.0219
1999	19.9	14.1	3.1	84.2	52.0	0.0	30	0.464	0.897	0.0070
2000	22.0	18.6	3.5	86.1	61.1	0.0	30	0.655	0.908	0.0135
2001	44.1	47.2	4.8	60.2	92.7	0.0	30	-0.140	0.961	0.3265
2002	.	.	.	.	.	.	.	.	.	.
2003	16.6	16.2	2.8	91.9	58.3	0.0	30	0.828	0.896	0.0066
2004	24.5	24.5	2.3	50.6	45.7	0.0	30	-0.076	0.974	0.6497
2005	15.3	14.9	2.4	85.5	58.1	0.0	30	0.112	0.985	0.9037
2006	41.5	39.6	3.9	51.1	100.0	0.0	30	0.736	0.957	0.2555
2007	21.5	15.5	3.9	98.8	90.0	0.0	30	1.242	0.871	0.0018
Means[a]										
Recent	23.9									
Overall	24.5									

[a]Recent = 5-year mean (2003-2007).

Table 89.—Grouse Creek, Lower site (E062), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	14.5	13.3	1.0	36.5	25.0	5.9	30	0.308	0.961	0.3224
1989	10.2	8.1	1.3	69.1	23.9	0.0	31	0.413	0.915	0.0179
1990	45.3	39.7	4.0	46.7	89.7	18.2	28	0.854	0.886	0.0056
1991	23.8	25.0	3.2	72.5	62.3	0.0	30	0.386	0.929	0.0448
1992	43.1	46.4	3.3	42.5	68.1	0.0	30	-0.998	0.911	0.0154
1993	24.6	23.0	3.4	74.7	91.7	0.0	30	1.546	0.880	0.0028
1994	29.3	28.6	2.7	51.2	63.0	0.0	30	0.404	0.977	0.7308
1995	27.1	30.1	3.4	68.3	61.4	0.0	30	-0.094	0.925	0.0371
1996	19.9	16.9	2.8	77.1	60.4	0.0	30	0.860	0.933	0.0582
1997	12.3	11.6	1.7	75.2	45.9	0.0	30	1.644	0.881	0.0030
1998	24.8	25.5	2.5	54.2	49.4	0.0	30	-0.053	0.976	0.7077
1999	13.4	11.3	1.9	78.8	39.7	0.0	30	0.834	0.909	0.0137
2000	36.5	37.0	1.6	23.3	52.3	0.0	30	-2.683	0.744	0.0000
2001	66.1	67.0	3.0	24.6	97.4	27.8	30	-0.419	0.979	0.8041
2002	.	.	.	.	.	.	.	.	.	.
2003	39.7	37.9	2.2	30.6	68.8	10.9	30	0.180	0.973	0.6116
2004	9.8	8.9	1.1	59.9	23.5	0.0	30	0.388	0.954	0.2102
2005	42.5	42.0	2.5	31.9	65.6	17.5	30	-0.071	0.968	0.4984
2006	54.3	53.5	2.5	25.1	77.3	29.5	30	0.128	0.961	0.3279
2007	44.7	42.0	2.9	35.8	83.3	14.5	30	0.739	0.949	0.1620
Means[a]										
Recent	38.2									
Overall	30.6									

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Table 90.—Lick Creek, Lower site (E057), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	19.3	19.7	1.7	89.4	72.7	0.0	101	0.527	0.906	0.0000
1984	19.4	1.7	2.5	133.5	96.2	0.0	108	1.250	0.770	0.0000
1985	.	.	.	.	.	.	.	.	.	.
1986	19.0	8.4	2.2	125.2	82.4	0.0	116	1.101	0.794	0.0000
1987	.	.	.	.	.	.	.	.	.	.
1988	28.3	27.1	1.9	70.9	81.8	0.0	108	0.277	0.956	0.0014
1989	42.4	48.0	3.1	73.5	95.7	0.0	104	-0.097	0.909	0.0000
1990	34.1	37.7	3.0	88.8	87.2	0.0	103	0.108	0.859	0.0000
1991	13.1	0.0	2.4	185.5	93.2	0.0	105	1.724	0.603	0.0000
1992	32.9	36.2	2.8	86.8	97.9	0.0	106	0.136	0.879	0.0000
1993	26.6	0.0	3.0	116.3	94.8	0.0	104	0.546	0.778	0.0000
1994	20.7	0.0	2.8	137.8	87.8	0.0	106	0.888	0.719	0.0000
1995	17.8	9.0	2.4	136.4	98.9	0.0	103	1.658	0.754	0.0000
1996	32.9	38.4	2.5	78.5	87.8	0.0	109	0.140	0.915	0.0000
1997	24.2	24.9	1.9	80.6	74.4	0.0	110	0.465	0.934	0.0000
1998	39.3	36.4	2.3	59.9	93.8	0.0	105	0.073	0.971	0.0223
1999	27.8	25.0	2.5	93.4	87.5	0.0	106	0.409	0.885	0.0000
2000	22.5	0.0	2.7	122.3	85.7	0.0	102	0.702	0.772	0.0000
2001	39.8	38.8	3.6	91.2	93.8	0.0	104	0.092	0.826	0.0000
2002	31.6	41.0	3.0	95.9	90.9	0.0	103	0.131	0.816	0.0000
2003	20.5	0.0	2.3	118.5	74.8	0.0	108	0.691	0.791	0.0000
2004	34.3	29.7	3.0	89.6	86.8	0.0	103	0.307	0.873	0.0000
2005	30.3	8.3	3.3	110.5	96.0	0.0	104	0.472	0.797	0.0000
2006	33.5	28.7	2.9	88.3	88.2	0.0	104	0.397	0.892	0.0000
2007	36.1	50.0	3.0	88.3	88.2	0.0	112	-0.071	0.812	0.0000
Means[a]										
Recent	30.9									
Overall	28.1									

[a]Recent = 5-year mean (2003-2007).

Table 91.—Grouse Creek, Lower site (E062), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	41.5	45.7	2.2	54.7	80.0	0.0	103	-0.596	0.918	0.0000
1989	37.8	40.0	2.5	65.3	80.0	0.0	101	-0.286	0.915	0.0000
1990	35.2	40.0	2.7	77.0	90.5	0.0	100	0.005	0.910	0.0000
1991	23.9	0.0	3.1	137.9	88.0	0.0	112	0.850	0.700	0.0000
1992	28.3	20.9	3.2	114.2	93.8	0.0	104	0.679	0.803	0.0000
1993	25.0	23.1	1.6	70.6	74.3	0.0	118	0.628	0.954	0.0005
1994	26.3	24.0	2.7	104.5	94.0	0.0	105	0.540	0.845	0.0000
1995	6.7	0.0	1.5	232.7	68.6	0.0	107	2.311	0.495	0.0000
1996	35.4	34.7	2.6	77.5	92.4	0.0	110	0.411	0.928	0.0000
1997	27.6	25.0	2.6	98.8	88.2	0.0	106	0.634	0.867	0.0000
1998	23.6	15.3	2.5	107.4	89.1	0.0	100	0.846	0.855	0.0000
1999	38.7	33.3	2.7	71.9	97.2	0.0	107	0.311	0.941	0.0001
2000	9.2	0.0	1.7	186.7	71.4	0.0	107	1.739	0.599	0.0000
2001	1.2	0.0	0.8	729.0	84.2	0.0	130	8.066	0.122	0.0000
2002	21.5	0.0	2.9	133.2	83.9	0.0	100	0.844	0.735	0.0000
2003	37.4	41.4	3.3	87.2	91.5	0.0	100	0.045	0.853	0.0000
2004	36.4	37.2	2.3	63.3	92.4	0.0	103	0.111	0.965	0.0083
2005	21.5	0.0	2.4	116.2	86.7	0.0	105	0.784	0.809	0.0000
2006	29.5	0.0	3.3	115.1	92.9	0.0	105	0.482	0.768	0.0000
2007	15.3	0.0	2.9	190.7	87.0	0.0	102	1.552	0.561	0.0000
Means[a]										
Recent	28.0									
Overall	26.1									

[a]Recent = 5-year mean (2003-2007).

Surface Fines

Table 92.—Lick Creek, Lower site (E057), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	7.4	3.3	1.8	129.4	30.0	0.0	30	1.213	0.769	0.0000
1992	19.4	10.0	4.7	133.8	100.0	0.0	30	1.953	0.744	0.0000
1993	16.8	9.2	4.3	140.3	100.0	0.0	30	2.442	0.685	0.0000
1994	3.3	0.0	0.8	137.8	18.3	0.0	30	1.619	0.757	0.0000
1995	6.4	1.7	1.9	158.8	38.3	0.0	30	1.956	0.681	0.0000
1996	7.9	5.8	1.7	115.7	48.3	0.0	30	3.146	0.679	0.0000
1997	10.9	8.3	2.0	100.2	45.0	0.0	30	1.588	0.834	0.0003
1998	3.1	1.7	0.8	135.2	16.7	0.0	30	1.806	0.747	0.0000
1999	8.2	1.7	2.5	166.6	66.7	0.0	30	2.989	0.634	0.0000
2000	10.3	5.8	3.0	157.5	83.3	0.0	30	3.400	0.619	0.0000
2001	10.9	10.8	1.5	73.8	28.3	0.0	30	0.496	0.949	0.1582
2002	.	.	.	.	.	.	.	.	.	.
2003	4.0	2.5	1.1	154.6	23.3	0.0	30	2.044	0.671	0.0000
2004	6.8	6.7	1.0	78.8	20.0	0.0	30	0.923	0.901	0.0090
2005	4.1	1.7	0.9	127.1	20.0	0.0	30	1.676	0.768	0.0000
2006	3.5	1.7	0.9	142.8	23.3	0.0	30	2.389	0.716	0.0000
2007	8.1	5.0	2.1	138.9	56.7	0.0	30	3.047	0.667	0.0000
Means[a]										
Recent	5.3									
Overall	8.2									

[a]Recent = 5-year mean (2003-2007).

Table 93.—Grouse Creek, Lower site (E062), percent surface fines univariate statistical summary, 1990-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	16.1	10.8	3.7	126.6	100.0	0.0	30	2.793	0.693	0.0000
1992	26.7	14.2	5.4	110.7	100.0	0.0	30	1.454	0.781	0.0000
1993	27.7	18.3	5.0	99.7	100.0	0.0	30	1.661	0.774	0.0000
1994	19.7	15.0	3.3	90.5	88.3	3.3	30	2.854	0.656	0.0000
1995	26.9	12.5	6.1	123.9	100.0	0.0	30	1.497	0.720	0.0000
1996	15.6	11.7	3.2	110.8	96.7	1.7	30	3.769	0.599	0.0000
1997	1.3	0.0	0.5	213.8	11.7	0.0	30	2.772	0.534	0.0000
1998	10.3	1.7	4.2	221.0	100.0	0.0	30	3.115	0.488	0.0000
1999	11.7	10.0	1.5	67.8	36.7	1.7	30	1.445	0.877	0.0024
2000	5.4	3.3	2.2	223.1	66.7	0.0	30	4.876	0.389	0.0000
2001	22.2	18.3	3.0	73.1	83.3	5.0	30	2.064	0.821	0.0002
2002	.	.	.	.	.	.	.	.	.	.
2003	13.3	12.5	1.6	66.2	40.0	0.0	30	1.240	0.911	0.0158
2004	12.7	9.2	1.8	79.0	43.3	0.0	30	1.465	0.866	0.0014
2005	14.3	10.0	2.1	82.2	45.0	0.0	30	1.030	0.899	0.0079
2006	9.5	8.3	1.0	59.7	25.0	0.0	30	1.308	0.877	0.0024
2007	12.0	9.2	1.9	88.1	41.7	0.0	30	1.621	0.811	0.0001
Means[a]										
Recent	12.4									
Overall	15.3									

[a]Recent = 5-year mean (2001-2006).

Supplemental Sites

30-Hoop Free Matrix

Table 94.—Lake Creek, Corduroy Junction site (E034), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	12.1	12.6	1.8	80.7	30.9	0.0	30	0.139	0.915	0.0205
1991	34.9	36.4	3.4	53.2	75.5	0.0	30	-0.123	0.970	0.5288
1992	14.1	9.7	2.9	113.7	57.4	0.0	30	0.968	0.842	0.0004
1993	31.5	31.2	4.0	69.9	76.7	0.0	30	0.168	0.948	0.1473
1994	15.0	9.3	3.0	109.1	51.4	0.0	30	0.680	0.836	0.0003
1995	48.4	54.2	4.6	52.0	86.7	0.0	30	-0.709	0.917	0.0224
1996	26.6	23.0	2.6	54.6	57.5	6.5	30	0.556	0.939	0.0859
1997	3.1	2.4	0.7	127.1	15.6	0.0	30	1.548	0.791	0.0000
1998	7.6	5.9	1.4	100.8	33.3	0.0	30	1.447	0.863	0.0012
1999	27.4	27.8	1.8	36.2	45.5	5.3	30	-0.419	0.973	0.6137
2000	.	.	.	.	.	.	.	.	.	.
2001	46.1	44.8	1.7	20.5	64.5	28.6	30	0.210	0.975	0.6832
2002	.	.	.	.	.	.	.	.	.	.
2003	22.5	20.0	3.1	76.0	74.0	0.0	30	1.006	0.928	0.0436
2004	21.6	15.5	3.1	79.6	56.0	0.0	30	0.423	0.920	0.0267
2005	44.2	42.9	3.0	36.9	94.1	20.0	30	0.847	0.943	0.1112
2006	49.0	47.1	1.8	20.6	68.5	29.4	30	0.319	0.965	0.4143
2007	68.4	67.0	2.3	18.1	88.9	47.4	30	0.129	0.948	0.1473
Means[a]										
Recent	41.1									
Overall	29.5									

[a]Recent = 5-year mean (2003-2007).

Table 95.—Lake Creek, Nethker Creek site (E035), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	.	.	.	.	.	.	.	.	.	.
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	34.0	31.0	2.9	46.8	67.3	0.0	31	0.114	0.969	0.5021
1994	30.4	30.5	3.6	64.1	100.0	0.0	30	1.386	0.884	0.0034
1995	31.8	34.4	3.1	53.3	60.0	0.0	30	-0.685	0.916	0.0212
1996	1.6	0.0	0.6	210.8	15.6	0.0	30	2.899	0.552	0.0000
1997	2.5	0.0	0.7	154.3	13.9	0.0	30	1.753	0.707	0.0000
1998	4.8	3.5	0.9	98.7	15.0	0.0	30	0.940	0.867	0.0015
1999	14.3	14.6	1.1	41.0	25.0	3.3	30	0.117	0.975	0.6837
2000	23.4	21.6	1.7	40.0	55.1	9.5	30	1.211	0.918	0.0243
2001	21.4	19.5	2.0	50.5	63.0	5.6	30	1.953	0.847	0.0005
2002	.	.	.	.	.	.	.	.	.	.
2003	14.4	11.1	2.0	75.7	46.4	0.0	30	1.084	0.920	0.0276
2004	17.3	13.0	2.6	84.1	55.6	0.0	30	0.902	0.903	0.0099
2005	29.5	29.7	2.5	47.1	63.9	7.1	30	0.495	0.947	0.1390
2006	42.8	44.0	3.1	39.4	73.5	7.1	30	-0.409	0.965	0.4015
2007	33.0	29.0	4.2	70.3	76.9	0.0	30	0.473	0.931	0.0509
Means[a]										
Recent	27.4									
Overall	21.5									

[a]Recent = 5-year mean (2003-2007).

Table 96.—Threemile Creek, Upper site (E077), percent free particles univariate statistical summary, 1988-2007 (1993-1995 data from fisheries–range monitoring at location approximately 0.25mi upstream of most measurements).

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	8.4	7.6	1.0	67.0	20.4	0.0	30	0.429	0.961	0.3268
1989	16.0	14.7	1.5	52.0	30.4	2.9	30	0.179	0.944	0.1197
1990	.	.	.	.	.	.	.	.	.	.
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	33.6	36.9	3.8	61.3	72.6	0.0	30	-0.257	0.950	0.1679
1994	28.0	24.6	3.8	73.6	93.3	0.0	30	1.205	0.921	0.0287
1995	27.8	31.7	3.0	60.1	52.6	0.0	30	-0.423	0.924	0.0349
1996	14.9	11.1	2.5	92.5	46.3	0.0	30	0.905	0.883	0.0034
1997	11.5	9.3	2.0	94.9	42.9	0.0	30	1.682	0.822	0.0002
1998	13.5	9.5	3.4	136.3	100.0	0.0	30	3.747	0.595	0.0000
1999	9.6	7.9	1.9	107.4	39.7	0.0	30	1.351	0.848	0.0006
2000	11.4	8.4	1.8	85.3	33.3	0.0	30	0.982	0.891	0.0051
2001	19.1	21.6	3.0	85.8	59.1	0.0	30	0.328	0.903	0.0099
2002	.	.	.	.	.	.	.	.	.	.
2003	19.9	17.0	3.1	86.0	66.7	0.0	30	0.814	0.917	0.0225
2004	16.3	14.3	2.3	76.3	50.0	0.0	30	0.631	0.938	0.0801
2005	19.4	20.7	2.7	75.8	50.0	0.0	30	-0.018	0.915	0.0194
2006	13.5	10.6	2.0	82.3	42.9	0.0	30	0.887	0.920	0.0261
2007	45.9	46.1	3.3	39.4	100.0	0.0	30	0.179	0.938	0.0791
Means[a]										
Recent	23.0									
Overall	19.3									

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Table 97.—Lake Creek, Corduroy Junction site (E034), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	31.8	33.3	2.1	69.5	93.3	0.0	107	0.246	0.949	0.0004
1990	44.7	45.5	2.9	65.5	92.9	0.0	103	-0.052	0.936	0.0001
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	.	.	.	.	.	.	.	.	.	.
1994	14.7	0.0	2.3	161.2	75.8	0.0	109	1.215	0.651	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	33.8	35.7	2.3	75.6	86.7	0.0	123	0.131	0.931	0.0000
1997	29.2	30.0	2.2	80.6	85.7	0.0	111	0.365	0.928	0.0000
1998	31.9	27.5	2.4	76.0	87.3	0.0	100	0.563	0.939	0.0002
1999	39.4	42.9	2.9	75.9	90.9	0.0	106	-0.178	0.878	0.0000
2000	.	.	.	.	.	.	.	.	.	.
2001	13.7	0.0	2.4	185.7	80.0	0.0	117	1.541	0.583	0.0000
2002	16.8	0.0	2.4	154.6	87.9	0.0	116	1.182	0.678	0.0000
2003	23.4	16.2	2.3	105.4	71.4	0.0	110	0.422	0.820	0.0000
2004	24.9	0.0	2.9	118.0	90.5	0.0	103	0.642	0.788	0.0000
2005	23.4	16.2	2.3	105.4	71.4	0.0	110	0.422	0.820	0.0000
2006	25.6	20.8	2.3	93.9	85.1	0.0	105	0.816	0.887	0.0000
2007	43.0	50.0	3.2	74.6	93.8	0.0	101	-0.267	0.864	0.0000
Means[a]										
Recent	28.1									
Overall	28.3									

[a]Recent = 5-year mean (2003-2007).

Table 98.—Lake Creek, Nethker Creek site (E035), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	.	.	.	.	.	.	.	.	.	.
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	37.8	45.5	2.9	90.2	100.0	0.0	141	0.074	0.841	0.0000
1994	31.6	31.8	2.9	91.6	84.4	0.0	100	0.200	0.860	0.0000
1995	9.3	0.0	1.5	163.8	55.7	0.0	103	1.333	0.656	0.0000
1996	41.4	42.3	1.7	45.7	88.2	0.0	119	0.148	0.983	0.1282
1997	33.3	34.9	2.0	63.5	81.6	0.0	116	-0.047	0.958	0.0012
1998	38.8	43.1	2.8	71.5	88.2	0.0	100	-0.022	0.924	0.0000
1999	47.5	62.5	3.0	67.3	87.5	0.0	115	-0.628	0.783	0.0000
2000	22.0	18.8	2.0	100.3	83.3	0.0	123	0.817	0.874	0.0000
2001	29.5	0.0	3.0	110.3	87.5	0.0	116	0.377	0.766	0.0000
2002	18.1	0.0	2.4	136.1	85.5	0.0	109	1.019	0.746	0.0000
2003	44.0	54.0	3.0	68.8	94.0	0.0	105	-0.446	0.855	0.0000
2004	20.8	0.0	2.5	130.2	81.8	0.0	118	0.834	0.750	0.0000
2005	44.0	54.0	3.0	68.8	94.0	0.0	105	-0.446	0.855	0.0000
2006	30.1	27.9	2.6	87.7	94.8	0.0	107	0.409	0.905	0.0000
2007	36.8	43.1	2.6	71.6	87.9	0.0	105	-0.243	0.894	0.0000
Means[a]										
Recent	35.1									
Overall	32.3									

[a]Recent = 5-year mean (2003-2007).

Table 99.—Threemile Creek, Middle site (E077), percent cobble embeddedness univariate statistical summary, 1983-2007 (1993-1995 data from fisheries–range monitoring at location approximately 0.25mi upstream of most measurements).

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	41.0	43.5	2.5	65.2	92.1	0.0	115	-0.215	0.931	0.0000
1989	41.4	40.7	2.8	70.3	89.3	0.0	111	0.004	0.923	0.0000
1990	.	.	.	.	.	.	.	.	.	.
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	34.8	32.1	2.8	87.3	100.0	0.0	114	0.278	0.896	0.0000
1994	31.9	34.3	2.5	82.7	91.7	0.0	108	0.218	0.912	0.0000
1995	30.7	21.4	3.2	105.5	93.8	0.0	105	0.386	0.812	0.0000
1996	45.9	50.0	2.4	52.8	91.7	0.0	100	-0.241	0.968	0.0146
1997	40.1	40.0	2.6	66.0	86.5	0.0	101	-0.040	0.938	0.0001
1998	38.5	37.5	2.2	56.7	88.0	0.0	103	0.126	0.979	0.0995
1999	41.1	42.1	2.8	70.0	94.4	0.0	102	-0.061	0.929	0.0000
2000	35.5	33.3	2.1	61.9	85.7	0.0	108	0.213	0.967	0.0092
2001	40.4	50.0	2.9	74.4	90.0	0.0	106	-0.282	0.857	0.0000
2002	54.7	63.6	2.7	51.4	92.6	0.0	107	-0.934	0.861	0.0000
2003	37.6	47.8	3.1	83.1	86.7	0.0	104	-0.161	0.828	0.0000
2004	41.5	46.3	2.7	66.9	93.8	0.0	102	-0.261	0.916	0.0000
2005	11.5	10.0	1.3	115.5	82.0	0.0	113	1.641	0.803	0.0000
2006	16.4	14.7	1.8	113.0	74.3	0.0	105	0.972	0.854	0.0000
2007	6.9	0.0	1.5	234.1	80.0	0.0	113	2.506	0.496	0.0000
Means[a]										
Recent	22.8									
Overall	34.7									

[a]Recent = 5-year mean (2003-2007).

Surface Fines

Table 100.—Lake Creek, Corduroy Junction site (E034), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	11.2	8.3	2.0	97.7	35.0	0.0	30	0.761	0.872	0.0019
1991	36.4	26.7	5.0	75.8	96.7	1.7	30	0.723	0.905	0.0113
1992	44.7	39.2	6.0	72.9	100.0	0.0	30	0.253	0.927	0.0405
1993	29.7	18.3	5.6	102.5	100.0	0.0	30	0.997	0.857	0.0009
1994	9.3	0.0	4.4	257.0	93.3	0.0	30	2.928	0.450	0.0000
1995	11.9	7.5	2.6	120.1	51.7	0.0	30	1.559	0.790	0.0000
1996	7.4	3.3	1.7	122.0	40.0	0.0	30	1.930	0.782	0.0000
1997	15.5	13.3	2.1	75.7	58.3	0.0	30	1.611	0.872	0.0019
1998	8.4	6.7	1.5	97.3	40.0	0.0	30	2.448	0.751	0.0000
1999	19.1	14.2	2.7	78.9	53.3	0.0	30	0.667	0.912	0.0163
2000	.	.	.	.	.	.	.	.	.	.
2001	9.1	6.7	1.2	74.4	23.3	0.0	30	0.807	0.908	0.0133
2002	.	.	.	.	.	.	.	.	.	.
2003	3.8	1.7	1.1	158.7	26.7	0.0	30	2.583	0.660	0.0000
2004	8.5	6.7	1.7	106.9	36.7	0.0	30	1.292	0.852	0.0007
2005	8.1	5.0	1.6	111.5	38.3	0.0	30	2.029	0.775	0.0000
2006	8.0	3.3	1.9	130.8	38.3	0.0	30	1.821	0.738	0.0000
2007	15.2	10.8	2.7	98.6	53.3	0.0	30	1.340	0.840	0.0004
Means[a]										
Recent	8.7									
Overall	15.4									

[a]Recent = 5-year mean (2001-2007).

Table 101.—Lake Creek, Nethker Creek site (E035), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	30.9	25.0	4.3	78.1	100.0	1.7	31	1.237	0.886	0.0032
1994	16.1	16.7	1.8	61.8	31.7	0.0	30	0.056	0.930	0.0498
1995	20.1	15.0	3.8	104.4	88.3	0.0	30	2.037	0.779	0.0000
1996	29.7	27.5	2.0	36.9	55.0	11.7	30	0.545	0.947	0.1442
1997	10.3	8.3	1.5	81.9	38.3	0.0	30	1.993	0.798	0.0001
1998	11.4	10.8	1.2	56.2	30.0	3.3	30	0.823	0.934	0.0635
1999	27.5	28.3	1.3	25.3	41.7	15.0	30	0.288	0.960	0.3084
2000	9.8	9.2	1.0	56.2	26.7	0.0	30	0.855	0.947	0.1381
2001	7.4	6.7	0.7	55.1	18.3	1.7	30	1.220	0.880	0.0028
2002	.	.	.	.	.	.	.	.	.	.
2003	29.3	22.5	4.2	78.8	100.0	3.3	30	2.103	0.757	0.0000
2004	19.7	20.0	1.8	49.9	51.7	1.7	30	1.061	0.921	0.0281
2005	2.4	0.8	0.7	157.9	13.3	0.0	30	1.849	0.676	0.0000
2006	3.9	1.7	0.9	121.8	15.0	0.0	30	1.244	0.778	0.0000
2007	39.2	31.7	4.2	58.5	100.0	13.3	30	1.181	0.881	0.0030
Means[a]										
Recent	18.9									
Overall	18.4									

[a]Recent = 5-year mean (2001-2007).

Table 102.—Threemile Creek, Middle site (E077), percent surface fines univariate statistical summary, 1990-2007 (1993-1995 data from fisheries–range monitoring at location approximately 0.25mi upstream of most measurements).

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	39.8	31.7	5.3	73.4	100.0	1.7	30	0.782	0.890	0.0047
1994	21.2	6.7	5.7	147.2	96.7	0.0	30	1.586	0.704	0.0000
1995	13.3	8.3	3.5	144.6	75.0	0.0	30	2.331	0.685	0.0000
1996	16.4	10.8	3.5	117.4	81.7	0.0	30	2.191	0.735	0.0000
1997	14.3	9.2	2.1	80.9	45.0	3.3	30	1.274	0.834	0.0003
1998	27.0	23.3	3.8	77.9	75.0	1.7	30	0.734	0.916	0.0214
1999	22.4	15.0	3.4	83.3	76.7	1.7	30	1.639	0.821	0.0002
2000	19.9	17.5	2.4	67.0	51.7	0.0	30	0.619	0.947	0.1382
2001	42.3	36.7	3.9	51.2	91.7	11.7	30	0.539	0.933	0.0583
2002	.	.	.	.	.	.	.	.	.	.
2003	47.1	46.7	5.5	64.3	91.7	0.0	30	0.010	0.929	0.0471
2004	15.1	12.5	2.5	92.0	51.7	0.0	30	0.902	0.905	0.0113
2005	42.9	31.7	6.0	76.9	100.0	3.3	30	0.552	0.893	0.0058
2006	15.3	13.3	1.3	47.2	31.7	0.0	30	0.405	0.970	0.5349
2007	24.3	17.5	3.8	85.4	80.0	1.7	30	1.411	0.841	0.0004
Means[a]										
Recent	28.9									
Overall	25.8									

[a]Recent = 5-year mean (2003-2007).

Miscellaneous Sites

30-Hoop Free Matrix

Data were not collected at these sites after 2004; refer to Nelson *et al*. (2006) for most recent summaries except for site E142 which has been presented incorrectly in recent reports and is corrected here.

Table 103.—Threemile Creek, Upper site (E142), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990[b]	14.8	8.3	3.2	118.6	56.5	0.0	31	0.899	0.818	0.0001
1991	16.3	6.3	4.0	136.1	100.0	0.0	30	2.117	0.747	0.0000
1992	4.5	0.0	2.4	285.2	66.7	0.0	30	4.169	0.399	0.0000
1993	23.6	22.9	4.1	94.7	100.0	0.0	30	1.365	0.869	0.0016
1994	24.0	7.9	5.2	118.8	78.8	0.0	30	0.685	0.788	0.0000
1995	28.4	18.5	5.5	106.2	84.6	0.0	30	0.648	0.838	0.0004
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.
2002	.	.	.	.	.	.	.	.	.	.
2003	.	.	.	.	.	.	.	.	.	.
2004	.	.	.	.	.	.	.	.	.	.
2005	.	.	.	.	.	.	.	.	.	.
2006	.	.	.	.	.	.	.	.	.	.
2007	46.2	48.9	5.0	59.0	100.0	0.0	30	0.001	0.970	0.5441
Means[a]										
Recent	25.3									
Overall	22.5									

[a]Recent = 5-year mean (1992-1994 and 2007).
[b]This result differs from Ries *et al*. (1991), but we have thoroughly checked this result and believe it to be correct.

Cobble Embeddedness

Data were not collected at these sites after 2004; refer to Nelson *et al*. (2006) for most recent summaries except for site E142 which has been presented incorrectly in recent reports and is corrected here.

Table 104.—Threemile Creek, Upper site (E142), percent cobble embeddedness univariate statistical summary, 1983-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	.	.	.	.	.	.	.	.	.	.
1991[a]	26.3	25.0	2.3	85.9	87.5	0.0	100	0.393	0.915	0.0000
1992	.	.	.	.	.	.	.	.	.	.
1993	.	.	.	.	.	.	.	.	.	.
1994	.	.	.	.	.	.	.	.	.	.
1995	23.4	0.0	2.8	123.8	82.9	0.0	106	0.642	0.750	0.0000
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.
2002	.	.	.	.	.	.	.	.	.	.
2003	.	.	.	.	.	.	.	.	.	.
2004	.	.	.	.	.	.	.	.	.	.
2005	.	.	.	.	.	.	.	.	.	.
2006	.	.	.	.	.	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.
Means										
Recent	.									
Overall	24.9									

[a]This result differs from Ries *et al*. (1991), but we have thoroughly checked this result and believe it to be correct.

Surface Fines

Data were not collected at these sites after 2004; refer to Nelson *et al*. (2006) for most recent summaries except for site E142 which has been presented incorrectly in recent reports and is corrected here.

Table 105.—Threemile Creek, Upper site (E142), percent surface fines univariate statistical summary, 1990-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	56.7	50.8	5.8	55.7	100.0	3.3	30	0.142	0.908	0.0130
1992	85.3	96.7	3.8	24.3	100.0	26.7	30	-1.558	0.750	0.0000
1993	36.8	35.0	5.1	76.0	100.0	0.0	30	0.511	0.940	0.0929
1994	7.9	0.8	3.2	222.1	80.0	0.0	30	3.142	0.507	0.0000
1995	28.9	15.8	5.2	99.0	100.0	0.0	30	1.155	0.836	0.0003
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.
2002	.	.	.	.	.	.	.	.	.	.
2003	.	.	.	.	.	.	.	.	.	.
2004	.	.	.	.	.	.	.	.	.	.
2005	.	.	.	.	.	.	.	.	.	.
2006	.	.	.	.	.	.	.	.	.	.
2007	46.8	44.2	6.3	73.9	100.0	0.0	30	0.099	0.885	0.0038
Means[a]										
Recent	41.1									
Overall	43.7									

[a]Recent = 5-year mean (1991-1995).

East Fork South Fork Salmon River

Primary Sites

30-Hoop Free Matrix

Table 106.—Tamarack Creek, Bridge site (E076), percent free particles univariate statistical summary, 1988-200.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	33.8	30.4	2.5	40.5	69.0	7.1	30	0.856	0.931	0.0517
1989	53.6	54.8	2.5	25.6	77.8	20.7	30	-0.349	0.984	0.9152
1990	30.2	26.5	2.8	51.1	65.9	9.5	30	0.851	0.922	0.0311
1991	37.2	36.7	2.5	37.5	61.7	10.0	30	-0.002	0.977	0.7388
1992	53.2	54.1	2.9	29.9	85.7	22.2	30	0.078	0.983	0.8878
1993	40.9	42.2	2.7	35.8	65.9	7.7	30	-0.604	0.943	0.1087
1994	37.9	38.4	4.3	62.0	85.0	0.0	30	0.114	0.964	0.3795
1995	70.8	71.4	2.6	20.0	92.6	38.5	30	-0.679	0.947	0.1376
1996	28.9	28.1	3.0	56.7	66.7	0.0	30	0.429	0.972	0.5850
1997	33.6	33.0	2.2	36.2	52.9	9.5	30	-0.158	0.970	0.5340
1998	45.2	42.3	3.1	37.2	77.3	10.0	30	0.068	0.980	0.8271
1999	23.6	26.3	2.2	51.3	47.2	0.0	30	-0.163	0.974	0.6584
2000	43.3	43.1	3.7	47.1	79.3	0.0	30	-0.243	0.976	0.7184
2001	64.8	65.0	2.6	22.0	90.3	23.1	30	-0.831	0.951	0.1789
2002	.	.	.	.	.	.	.	.	.	.
2003	55.7	53.5	2.3	23.0	86.5	36.8	30	0.627	0.954	0.2102
2004	31.4	31.9	1.9	33.2	54.8	7.7	30	-0.189	0.977	0.7349
2005	45.8	49.1	2.6	31.6	66.7	8.3	30	-1.028	0.910	0.0146
2006	50.2	49.4	2.8	30.2	100.0	23.8	30	1.048	0.939	0.0878
2007	35.3	40.3	3.6	56.2	71.0	0.0	30	-0.408	0.941	0.0996
Means[a]										
Recent	43.7									
Overall	42.9									

[a]Recent = 5-year mean (2003-2007).

Data were not collected other primary sites in 2006 or 2007; refer to Nelson *et al*. (2006) for most recent summaries.

Cobble Embeddedness

Table 107.—Tamarack Creek, Bridge site (E076), percent cobble embeddedness univariate statistical summary, 1983-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P
1983	14.0	0.0	2.4	175.8	87.6	0.0	103	1.715	0.632	0.0000
1984	15.6	0.0	2.7	174.2	96.2	0.0	105	1.568	0.632	0.0000
1985	17.5	0.0	2.6	161.0	96.3	0.0	120	1.373	0.667	0.0000
1986	14.2	0.0	2.3	180.0	92.4	0.0	125	1.661	0.616	0.0000
1987	12.1	0.0	2.4	197.6	91.9	0.0	102	1.800	0.569	0.0000
1988	18.7	0.0	2.5	134.0	90.9	0.0	100	1.064	0.756	0.0000
1989	13.7	0.0	2.3	176.2	76.6	0.0	106	1.347	0.599	0.0000
1990	32.2	36.6	2.5	81.7	85.4	0.0	115	-0.018	0.878	0.0000
1991	24.5	27.7	1.9	77.7	71.2	0.0	99	0.025	0.909	0.0000
1992	27.9	0.0	3.3	114.5	96.2	0.0	96	0.468	0.773	0.0000
1993	19.4	0.0	2.5	133.2	89.1	0.0	105	0.800	0.728	0.0000
1994	13.4	0.0	2.3	175.5	84.9	0.0	105	1.406	0.614	0.0000
1995	48.0	48.6	3.6	77.2	100.0	0.0	104	0.038	0.881	0.0000
1996	38.5	43.8	2.6	72.8	88.6	0.0	112	-0.111	0.911	0.0000
1997	26.0	23.6	2.4	100.5	87.4	0.0	124	0.368	0.841	0.0000
1998	18.2	0.0	2.3	130.9	72.7	0.0	105	0.865	0.751	0.0000
1999	23.1	23.6	2.4	105.3	80.0	0.0	102	0.473	0.829	0.0000
2000	18.1	0.0	2.2	124.2	85.7	0.0	100	1.000	0.796	0.0000
2001	22.3	0.0	2.8	139.9	88.9	0.0	124	0.894	0.702	0.0000
2002	24.6	0.0	3.3	133.3	84.5	0.0	100	0.701	0.696	0.0000
2003	8.4	0.0	2.0	255.2	85.7	0.0	117	2.445	0.443	0.0000
2004	22.5	0.0	2.9	137.6	90.6	0.0	112	0.997	0.728	0.0000
2005	19.5	0.0	2.9	157.3	91.8	0.0	114	1.198	0.660	0.0000
2006	18.7	0.0	2.4	141.3	81.8	0.0	125	0.986	0.716	0.0000
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	18.7									
Overall	21.3									

[a]Recent = 5-year mean (2002-2006).

Data were not collected other primary sites in 2006 or 2007; refer to Nelson *et al*. (2006) for most recent summaries.

Surface Fines

Table 108.—Tamarack Creek, Bridge site (E076), percent surface fines univariate statistical summary, 1991-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1991	7.8	4.2	1.5	106.2	30.0	0.0	30	1.342	0.820	0.0002
1992	4.0	3.3	0.8	108.7	13.3	0.0	30	0.753	0.837	0.0003
1993	2.2	0.0	1.0	242.3	28.3	0.0	30	4.247	0.450	0.0000
1994	0.1	0.0	0.1	547.7	3.3	0.0	30	5.477	0.180	0.0000
1995	2.8	1.7	0.6	127.4	15.0	0.0	30	1.768	0.777	0.0000
1996	2.6	0.0	0.6	134.6	11.7	0.0	30	1.160	0.761	0.0000
1997	2.4	1.7	0.5	116.9	8.3	0.0	30	0.902	0.809	0.0001
1998	1.7	0.0	0.5	168.2	10.0	0.0	30	1.725	0.665	0.0000
1999	3.5	1.7	0.9	141.7	21.7	0.0	30	2.169	0.722	0.0000
2000	1.1	0.0	0.4	192.2	10.0	0.0	30	3.232	0.562	0.0000
2001	1.8	0.0	0.5	157.2	11.7	0.0	30	1.979	0.696	0.0000
2002	.	.	.	.	.	.	.	.	.	.
2003	1.2	0.0	0.3	159.8	6.7	0.0	30	1.596	0.685	0.0000
2004	4.0	1.7	0.9	125.0	15.0	0.0	30	1.094	0.768	0.0000
2005	2.6	0.0	1.4	301.4	35.0	0.0	30	3.491	0.388	0.0000
2006	3.3	1.7	1.0	159.2	21.7	0.0	30	2.149	0.676	0.0000
2007	3.8	1.7	1.1	165.5	28.3	0.0	30	2.744	0.635	0.0000

Means[a]	
Recent	3.0
Overall	2.8

[a]Recent = 5-year mean (2003-2007).

Data were not collected other primary sites in 2006 or 2007; refer to Nelson *et al*. (2006) for most recent summaries.

Supplemental Sites

These sites are no longer part of our normal monitoring schedule and are no longer being updated.

Miscellaneous Sites

These sites are no longer part of our normal monitoring schedule and are no longer being updated.

Lower South Fork Salmon River

Primary Sites

30-Hoop Free Matrix

Table 109.—Sheep Creek, Lower site (E039), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	22.1	23.1	3.3	82.7	60.7	0.0	31	0.479	0.929	0.0410
1990	10.1	6.8	2.0	107.6	34.1	0.0	30	0.756	0.850	0.0006
1991	9.0	0.0	2.5	150.6	53.6	0.0	30	1.811	0.717	0.0000
1992	14.2	10.6	2.7	104.4	54.5	0.0	30	1.076	0.865	0.0013
1993	8.3	3.6	1.8	120.9	33.3	0.0	30	0.937	0.811	0.0001
1994	.	.	.	.	.	.	.	.	.	.
1995	41.6	40.0	5.0	66.3	88.9	0.0	30	-0.059	0.945	0.1261
1996	13.2	7.8	2.8	114.4	53.3	0.0	30	1.068	0.840	0.0004
1997	7.3	0.0	2.1	159.6	47.4	0.0	30	1.876	0.696	0.0000
1998	2.0	0.0	0.7	188.3	13.6	0.0	30	1.821	0.604	0.0000
1999	12.8	10.1	2.6	110.9	60.0	0.0	30	1.303	0.830	0.0002
2000	6.5	2.4	1.5	126.9	29.2	0.0	30	1.317	0.781	0.0000
2001	9.8	0.0	2.3	126.6	37.5	0.0	30	0.929	0.780	0.0000
2002	5.8	0.0	1.5	142.3	30.0	0.0	30	1.508	0.748	0.0000
2003	10.8	10.1	2.0	101.2	46.2	0.0	30	1.262	0.861	0.0010
2004	12.5	10.3	2.3	100.2	47.8	0.0	30	0.935	0.883	0.0034
2005	10.7	9.5	1.9	95.1	28.4	0.0	30	0.403	0.972	0.4019
2006	30.8	29.1	4.2	73.9	80.8	0.0	30	0.626	0.940	0.0904
2007	22.4	18.9	3.9	94.9	69.4	0.0	30	0.820	0.880	0.0029
Means[a]										
Recent	17.4									
Overall	13.9									

[a]Recent = 5-year mean (2003-2007).

Table 110.—Elk Creek, Lower site (E030), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	9.0	8.4	1.8	112.7	40.0	0.0	30	1.286	0.835	0.0003
1990	.	.	.	.	.	.	.	.	.	.
1991	35.2	35.3	3.6	56.5	76.5	0.0	30	0.115	0.975	0.6816
1992	2.7	0.0	1.1	236.8	26.7	0.0	30	2.663	0.500	0.0000
1993	10.3	0.0	2.9	153.5	50.0	0.0	30	1.497	0.701	0.0000
1994	11.9	0.0	3.0	138.0	57.1	0.0	30	1.325	0.759	0.0000
1995	16.2	7.9	3.5	119.5	66.7	0.0	30	1.298	0.814	0.0001
1996	12.9	11.4	2.1	89.3	45.5	0.0	30	1.190	0.891	0.0052
1997	.	.	.	.	.	.	.	.	.	.
1998	11.4	6.1	2.5	121.7	50.0	0.0	30	1.157	0.816	0.0001
1999	10.0	8.0	2.1	112.8	40.0	0.0	30	1.236	0.829	0.0002
2000	3.9	0.0	1.0	140.1	15.4	0.0	30	1.044	0.726	0.0000
2001	17.5	11.8	3.2	100.7	60.9	0.0	30	1.117	0.866	0.0013
2002	10.4	9.5	1.7	87.1	30.0	0.0	30	0.547	0.916	0.0208
2003	35.9	36.2	3.0	46.1	70.0	0.0	30	-0.112	0.967	0.4622
2004	12.4	10.0	2.2	95.5	40.0	0.0	30	0.714	0.893	0.0058
2005	8.0	5.5	1.9	130.9	38.5	0.0	30	1.658	0.763	0.0000
2006	27.7	25.3	3.7	74.2	84.1	0.0	30	0.866	0.943	0.1128
2007	9.4	6.7	2.5	144.3	61.1	0.0	30	2.506	0.696	0.0000
Means[a]										
Recent	18.7									
Overall	14.4									

[a]Recent = 5-year mean (2003-2007).

Table 111.—Pony Creek, Lower site (E056), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	9.0	4.9	2.1	130.3	50.0	0.0	30	1.728	0.776	0.0000
1990	17.8	12.5	3.5	108.6	84.6	0.0	30	1.723	0.833	0.0003
1991	24.7	20.0	4.1	90.1	69.2	0.0	30	0.570	0.897	0.0070
1992	27.6	22.1	4.4	87.6	80.0	0.0	30	0.559	0.914	0.0188
1993	25.6	21.9	4.4	93.5	81.0	0.0	30	0.748	0.900	0.0083
1994	17.9	0.0	4.4	134.1	71.4	0.0	30	1.159	0.759	0.0000
1995	40.6	38.8	5.0	67.5	100.0	0.0	30	0.467	0.959	0.3004
1996	10.6	5.1	2.8	142.7	58.8	0.0	30	1.815	0.742	0.0000
1997	13.9	13.3	2.4	93.8	47.6	0.0	30	0.912	0.897	0.0069
1998	13.4	5.3	3.2	129.5	60.7	0.0	30	1.321	0.785	0.0000
1999	21.9	21.6	2.4	60.6	57.5	0.0	30	0.561	0.970	0.5477
2000	6.6	4.5	1.3	104.6	29.6	0.0	30	1.544	0.842	0.0004
2001	21.6	16.2	2.8	71.5	55.6	0.0	30	0.760	0.902	0.0092
2002	12.5	11.7	2.1	92.0	37.5	0.0	30	0.584	0.903	0.0100
2003	19.1	17.0	2.1	60.7	51.0	0.0	30	1.668	0.883	0.0033
2004	10.9	6.6	2.7	135.1	66.7	0.0	30	2.239	0.741	0.0000
2005	5.0	0.0	1.3	146.6	23.8	0.0	30	1.377	0.722	0.0000
2006	21.9	17.8	2.7	67.1	50.0	0.0	30	0.348	0.943	0.1090
2007	16.9	15.1	2.5	80.3	48.5	0.0	30	0.855	0.916	0.0211
Means[a]										
Recent	14.8									
Overall	17.8									

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Table 112.—Sheep Creek, Lower site (E039), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	29.4	26.3	2.3	85.6	91.8	0.0	116	0.531	0.921	0.0000
1990	56.8	62.0	1.9	36.2	92.1	0.0	115	-1.310	0.880	0.0000
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	.	.	.	.	.	.	.	.	.	.
1994	.	.	.	.	.	.	.	.	.	.
1995	.	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	.	.	.	.	.	.	.	.	.	.
1999	.	.	.	.	.	.	.	.	.	.
2000	.	.	.	.	.	.	.	.	.	.
2001	.	.	.	.	.	.	.	.	.	.
2002	.	.	.	.	.	.	.	.	.	.
2003	.	.	.	.	.	.	.	.	.	.
2004	.	.	.	.	.	.	.	.	.	.
2005	.	.	.	.	.	.	.	.	.	.
2006	.	.	.	.	.	.	.	.	.	.
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	.									
Overall	43.1									

[a]Recent = 5-year mean (2002-2006).

Data were not collected at other primary sites in 2006 or 2007; refer to Nelson *et al*. (2005) for most recent summaries. The summary for E039 is displayed because it will be regarded as a primary site beginning with this report, and cobble embeddedness will be collected there for determining the regression of free matrix on embeddedness beginning in 2009.

Surface Fines

Table 113.—Sheep Creek, Lower site (E039), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	12.6	5.0	3.6	157.3	91.7	0.0	30	2.536	0.671	0.0000
1991	16.2	10.0	3.5	118.4	78.3	0.0	30	1.978	0.749	0.0000
1992	16.9	8.3	3.9	126.5	100.0	0.0	30	2.338	0.738	0.0000
1993	8.4	3.3	3.0	197.5	88.3	0.0	30	4.180	0.497	0.0000
1994	.	.	.	.	.	.	.	.	.	.
1995	6.8	1.7	1.9	150.8	38.3	0.0	30	1.730	0.719	0.0000
1996	13.7	8.3	3.0	118.9	56.7	0.0	30	1.586	0.766	0.0000
1997	10.8	10.0	1.6	82.5	31.7	0.0	30	1.050	0.882	0.0031
1998	11.3	3.3	3.2	154.1	88.3	0.0	30	3.294	0.617	0.0000
1999	9.7	4.2	2.8	158.6	61.7	0.0	30	2.242	0.664	0.0000
2000	10.0	8.3	1.7	94.5	36.7	0.0	30	1.308	0.864	0.0012
2001	9.6	5.0	1.9	107.9	35.0	0.0	30	1.051	0.839	0.0004
2002	18.5	18.3	1.9	57.6	46.7	3.3	30	0.516	0.960	0.3041
2003	9.0	8.3	1.2	70.9	31.7	0.0	30	1.535	0.880	0.0028
2004	12.9	10.0	2.1	90.0	46.7	0.0	30	1.247	0.887	0.0040
2005	9.7	3.3	3.3	210.1	90.0	0.0	30	3.421	0.463	0.0000
2006	11.9	5.8	3.0	136.0	60.0	0.0	30	1.934	0.719	0.0000
2007	15.6	7.5	4.5	156.5	100.0	0.0	30	2.841	0.590	0.0000
Means[a]										
Recent	11.8									
Overall	12.0									

[a]Recent = 5-year mean (2003-2007).

Table 114.—Elk Creek, Lower site (E030), percent surface fines univariate statistical summary, 1991-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1991	3.4	0.0	1.1	177.8	28.3	0.0	30	2.810	0.621	0.0000
1992	12.8	6.7	3.0	130.0	75.0	0.0	30	2.500	0.705	0.0000
1993	4.3	0.8	1.2	152.0	25.0	0.0	30	1.851	0.711	0.0000
1994	5.0	0.0	1.2	134.5	23.3	0.0	30	1.256	0.770	0.0000
1995	23.4	14.2	5.3	124.8	100.0	0.0	30	1.825	0.689	0.0000
1996	7.2	5.0	1.7	133.4	46.7	0.0	30	2.745	0.705	0.0000
1997	.	.	.	.	.	.	.	.	.	.
1998	8.8	3.3	2.8	171.7	73.3	0.0	30	3.043	0.601	0.0000
1999	9.6	8.3	1.2	68.8	23.3	0.0	30	0.429	0.948	0.1452
2000	11.6	5.0	2.7	127.5	58.3	0.0	30	1.642	0.770	0.0000
2001	34.8	30.0	4.1	65.2	96.7	8.3	30	1.159	0.891	0.0051
2002	19.7	15.8	2.6	73.5	65.0	0.0	30	1.275	0.911	0.0158
2003	7.4	4.2	1.5	108.0	30.0	0.0	30	1.420	0.810	0.0001
2004	11.1	6.7	2.7	134.2	58.3	0.0	30	2.363	0.678	0.0000
2005	5.8	4.2	1.1	107.3	21.7	0.0	30	1.326	0.822	0.0002
2006	10.5	5.8	2.6	133.7	61.7	0.0	30	2.354	0.691	0.0000
2007	9.3	6.7	1.8	108.6	35.0	0.0	30	1.425	0.815	0.0001
Means[a]										
Recent	8.8									
Overall	11.5									

[a]Recent = 5-year mean (2003-2007).

Table 115.—Pony Creek, Lower site (E056), percent surface fines univariate statistical summary, 1991-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1991	12.4	7.5	2.5	108.7	55.0	0.0	30	1.469	0.839	0.0004
1992	8.7	5.0	1.6	102.6	31.7	0.0	30	0.863	0.874	0.0021
1993	7.9	0.8	3.5	245.4	100.0	0.0	30	4.117	0.445	0.0000
1994	12.3	1.7	5.0	224.5	100.0	0.0	30	2.652	0.488	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	23.1	17.5	3.9	92.7	81.7	0.0	30	1.565	0.827	0.0002
1997	16.8	11.7	2.9	94.0	71.7	1.7	30	1.887	0.806	0.0001
1998	4.8	3.3	1.1	127.2	25.0	0.0	30	1.780	0.775	0.0000
1999	12.8	8.3	3.0	127.5	81.7	0.0	30	2.965	0.675	0.0000
2000	13.2	5.0	2.9	122.5	63.3	0.0	30	1.686	0.773	0.0000
2001	32.1	24.2	4.6	79.0	100.0	1.7	30	1.159	0.877	0.0025
2002	20.3	20.0	2.3	62.1	58.3	0.0	30	1.183	0.915	0.0204
2003	15.1	8.3	3.1	113.8	70.0	0.0	30	2.073	0.728	0.0000
2004	11.9	8.3	2.9	131.9	83.3	1.7	30	3.664	0.547	0.0000
2005	3.6	0.8	1.4	212.1	31.7	0.0	30	3.173	0.504	0.0000
2006	9.4	7.5	1.6	92.9	31.7	0.0	30	0.898	0.875	0.0021
2007	9.4	4.2	1.9	109.2	33.3	0.0	30	1.067	0.836	0.0003
Means[a]										
Recent	9.9									
Overall	13.4									

[a]Recent = 5-year mean (2003-2007).

Supplemental Sites

30-Hoop Free Matrix

Table 116.—Porphyry Creek, Lower site (E054), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	46.4	45.9	3.6	43.4	83.3	6.7	31	-0.074	0.981	0.8283
1990	49.2	53.3	2.5	27.9	68.0	15.4	31	-1.010	0.894	0.0052
1991	36.4	38.1	4.0	59.8	75.0	0.0	30	0.035	0.957	0.2645
1992	30.9	32.4	3.1	55.2	72.0	0.0	30	0.137	0.985	0.9367
1993	32.2	30.8	2.5	41.7	60.6	3.7	30	-0.158	0.980	0.8164
1994	.	.	.	.	.	.	.	.	.	.
1995	17.2	11.8	3.2	101.0	57.1	0.0	30	0.988	0.859	0.0010
1996	28.4	31.9	2.2	41.8	46.4	0.0	30	-0.900	0.927	0.0419
1997	33.4	33.3	3.0	50.0	100.0	0.0	30	1.983	0.811	0.0001
1998	32.8	32.0	3.7	61.6	83.3	0.0	30	0.129	0.960	0.3189
1999	21.5	25.0	2.0	49.9	40.0	0.0	30	-0.727	0.922	0.0302
2000	13.9	7.8	3.2	127.0	66.7	0.0	30	1.622	0.785	0.0000
2001	44.4	43.2	4.3	53.3	100.0	0.0	30	0.189	0.987	0.9613
2002	48.2	43.7	3.0	33.9	77.1	18.8	30	0.129	0.960	0.3171
2003	55.4	59.7	3.1	31.0	91.7	0.0	30	-1.096	0.902	0.0096
2004	30.9	31.5	3.3	58.1	60.9	0.0	30	-0.230	0.959	0.2995
2005	26.6	23.7	2.9	60.5	58.3	0.0	30	0.348	0.955	0.2314
2006	37.3	39.4	3.3	49.1	67.3	0.0	30	-0.017	0.966	0.4352
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	39.7									
Overall	34.4									

[a]Recent = 5-year mean (2002-2006).

Table 117.—Elk Creek, Middle Fork site (E028), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	12.5	8.3	2.0	88.6	50.0	0.0	30	1.769	0.827	0.0002
1990	17.5	19.3	2.0	58.0	33.3	0.0	26	-0.200	0.949	0.2163
1991	36.3	34.1	2.2	33.7	60.5	11.8	30	0.312	0.966	0.4456
1992	28.0	27.4	2.8	54.7	64.3	0.0	30	0.465	0.966	0.4267
1993	28.6	29.6	2.6	50.4	66.7	0.0	30	0.494	0.965	0.4081
1994	30.5	28.5	4.5	81.0	100.0	0.0	30	0.738	0.931	0.0521
1995	.	.	.	.	.	.	.	.	.	.
1996	16.6	13.7	2.3	74.9	50.0	0.0	30	0.649	0.944	0.1151
1997	16.2	14.3	2.4	81.9	48.7	0.0	30	0.434	0.932	0.0565
1998	5.9	5.0	1.3	124.1	31.6	0.0	30	1.658	0.786	0.0000
1999	14.2	7.4	2.9	114.0	66.7	0.0	30	1.426	0.823	0.0002
2000	11.3	7.5	3.3	156.9	83.3	0.0	30	2.800	0.655	0.0000
2001	42.3	44.2	3.4	44.6	75.0	5.9	30	-0.133	0.965	0.4231
2002	18.1	17.9	2.3	69.5	47.1	0.0	30	0.316	0.955	0.2353
2003	35.3	32.8	3.0	46.6	68.9	0.0	30	0.056	0.985	0.9312
2004	16.9	16.3	2.3	74.6	42.9	0.0	30	0.170	0.939	0.0837
2005	15.6	12.9	2.2	77.1	50.0	0.0	30	0.863	0.930	0.0505
2006	30.1	31.4	2.6	47.1	54.8	0.0	30	-0.247	0.974	0.6528
2007	42.1	40.5	3.0	38.9	81.8	17.9	30	0.566	0.965	0.4024
Means[a]										
Recent	28.0									
Overall	23.2									

[a]Recent = 5-year mean (2003-2007).

Table 118.—Elk Creek, Yellow Jacket site (E031), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	10.1	7.3	1.4	73.6	34.8	0.0	30	1.553	0.864	0.0013
1990	11.9	11.0	2.2	100.5	47.4	0.0	30	1.316	0.852	0.0007
1991	42.0	40.0	3.3	42.8	70.6	0.0	30	-0.471	0.957	0.2590
1992	26.1	25.0	3.3	69.8	100.0	0.0	30	2.199	0.811	0.0001
1993	20.6	22.9	2.4	62.4	43.3	0.0	30	-0.101	0.953	0.2070
1994	30.1	34.5	3.3	60.8	54.5	0.0	30	-0.486	0.905	0.0114
1995	30.1	29.6	3.3	60.0	63.3	0.0	30	0.032	0.967	0.4602
1996	13.7	10.0	2.3	90.1	41.5	0.0	30	0.969	0.865	0.0013
1997	15.9	14.0	3.5	120.0	100.0	0.0	30	3.235	0.658	0.0000
1998	14.3	10.6	2.7	101.3	47.8	0.0	30	1.000	0.859	0.0010
1999	11.3	9.8	1.7	80.9	35.3	0.0	30	0.775	0.932	0.0549
2000	7.4	5.0	1.5	107.4	25.0	0.0	30	0.915	0.850	0.0006
2001	26.0	25.8	2.7	57.9	63.4	0.0	30	0.261	0.975	0.6969
2002	16.6	15.1	2.0	65.9	43.2	0.0	30	0.684	0.953	0.2015
2003	27.0	24.1	2.6	52.8	56.3	0.0	30	0.375	0.972	0.5867
2004	9.6	6.3	1.8	101.1	34.7	0.0	30	0.939	0.869	0.0016
2005	11.1	10.8	1.9	94.2	41.2	0.0	30	1.250	0.863	0.0012
2006	32.6	32.2	2.7	45.6	70.8	6.5	30	0.561	0.965	0.4032
2007	28.2	23.1	3.1	60.8	78.4	7.1	30	1.246	0.899	0.0081
Means[a]										
Recent	21.7									
Overall	20.2									

[a]Recent = 5-year mean (2003-2007).

Table 119.—Elk Creek, Lower Middle site (E143), percent free particles univariate statistical summary, 1988-2007[9].

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	.	.	.	.	.	.	.	.	.	.
1990	14.4	8.9	3.2	113.9	66.7	0.0	26	1.450	0.832	0.0006
1991	31.0	32.5	3.4	60.7	80.0	0.0	30	0.279	0.960	0.3085
1992	13.2	12.9	2.6	108.3	50.0	0.0	30	0.981	0.849	0.0006
1993	43.4	38.4	4.4	55.3	100.0	7.7	30	0.608	0.951	0.1746
1994	33.9	31.5	5.2	84.1	80.8	0.0	30	0.135	0.887	0.0042
1995	13.6	7.7	2.8	112.4	50.0	0.0	30	0.936	0.840	0.0004
1996	12.4	10.7	2.1	94.1	35.3	0.0	30	0.703	0.875	0.0021
1997	9.6	0.0	2.6	146.4	44.1	0.0	30	1.381	0.722	0.0000
1998	8.5	5.1	1.8	114.3	29.4	0.0	30	0.786	0.826	0.0002
1999	8.7	6.3	1.6	100.1	34.5	0.0	30	1.050	0.878	0.0026
2000	14.6	14.0	2.0	75.2	35.7	0.0	30	0.252	0.943	0.1073
2001	15.9	13.7	2.7	92.2	56.3	0.0	30	1.021	0.889	0.0046
2002	7.8	0.0	1.9	135.1	35.7	0.0	30	1.309	0.766	0.0000
2003	35.3	30.5	3.4	53.3	70.2	0.0	30	0.370	0.953	0.2049
2004	12.1	6.7	2.6	117.2	48.5	0.0	30	1.001	0.828	0.0002
2005	7.9	0.0	1.9	132.0	30.0	0.0	30	1.000	0.752	0.0000
2006	25.0	21.1	4.0	86.8	100.0	0.0	30	1.482	0.883	0.0033
2007	27.9	20.0	4.9	96.6	100.0	0.0	30	1.447	0.839	0.0004

Means[a]	
Recent	21.6
Overall	18.6

[a]Recent = 5-year mean (2003-2007).

Table 120.—West Fork Elk Creek, Mouth site (E029), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	11.4	7.0	2.1	102.2	41.7	0.0	30	1.023	0.862	0.0011
1990	14.0	8.9	2.9	115.0	66.7	0.0	30	1.392	0.828	0.0002
1991	39.9	42.2	4.0	55.1	83.3	0.0	30	-0.217	0.968	0.4901
1992	21.7	24.0	3.2	81.6	66.7	0.0	30	0.398	0.924	0.0331
1993	15.9	7.3	3.6	125.3	75.0	0.0	30	1.269	0.807	0.0001
1994	11.5	9.7	2.3	111.7	41.7	0.0	30	0.922	0.832	0.0003
1995	.	.	.	.	.	.	.	.	.	.
1996	17.1	16.2	2.2	69.4	44.4	0.0	30	0.293	0.961	0.3265
1997	6.2	0.0	1.8	159.4	37.5	0.0	30	1.606	0.692	0.0000
1998	4.1	0.0	1.9	248.9	50.0	0.0	30	3.498	0.468	0.0000
1999	9.4	8.1	1.6	93.5	31.8	0.0	30	0.687	0.903	0.0098
2000	19.3	13.8	3.7	103.7	80.0	0.0	30	1.102	0.868	0.0015
2001	39.4	35.4	5.3	73.1	84.6	0.0	30	0.027	0.912	0.0172
2002	20.7	14.6	4.4	116.4	100.0	0.0	30	2.128	0.755	0.0000
2003	.	.	.	.	.	.	.	.	.	.
2004	22.9	20.0	3.4	82.2	77.8	0.0	30	0.878	0.929	0.0468
2005	19.5	16.2	3.9	110.7	66.7	0.0	30	0.926	0.837	0.0003
2006	36.1	36.4	2.9	43.9	63.2	0.0	30	-0.559	0.955	0.2326
2007	35.9	33.8	4.6	70.9	88.2	0.0	30	0.274	0.957	0.2569

Means[a]	
Recent	27.0
Overall	20.3

[a]Recent = 5-year mean (2002-2007).

[9] This table displayed incorrectly dasplayed data for site E031 in Nelson *et al.* (2007); this has been corrected here.

Table 121.—Pony Creek, Upper site (E055), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	9.1	5.7	2.3	142.0	50.0	0.0	30	2.176	0.697	0.0000
1990	18.8	17.0	3.2	93.1	60.0	0.0	30	0.682	0.904	0.0103
1991	37.6	40.0	3.8	55.0	80.8	0.0	30	0.138	0.982	0.8709
1992	21.2	13.8	4.4	113.0	100.0	0.0	30	1.570	0.832	0.0003
1993	15.9	14.8	3.0	102.6	45.0	0.0	30	0.421	0.839	0.0004
1994	12.8	0.0	3.8	161.9	84.4	0.0	30	2.147	0.679	0.0000
1995	44.2	40.0	4.9	61.1	100.0	0.0	30	0.489	0.961	0.3323
1996	7.0	0.0	2.0	152.5	31.0	-12.5	30	0.753	0.816	0.0001
1997	7.8	3.7	1.9	131.1	31.3	0.0	30	1.251	0.763	0.0000
1998	10.1	2.3	2.6	139.3	58.3	0.0	30	1.750	0.756	0.0000
1999	20.3	20.4	2.1	55.8	42.1	0.0	30	-0.047	0.972	0.5893
2000	12.8	10.9	2.3	97.2	46.9	0.0	30	0.886	0.897	0.0069
2001	33.6	35.8	3.8	62.0	87.5	0.0	30	0.142	0.953	0.2016
2002	21.7	17.3	3.0	76.0	54.2	0.0	30	0.435	0.926	0.0379
2003	27.3	24.0	3.4	67.8	73.9	0.0	30	0.961	0.926	0.0383
2004	15.7	11.1	2.7	92.8	45.8	0.0	30	0.736	0.875	0.0022
2005	9.7	0.0	2.8	158.0	60.0	0.0	30	1.950	0.695	0.0000
2006	40.4	36.9	4.2	56.6	88.1	0.0	30	0.144	0.981	0.8470
2007	51.1	52.7	4.8	51.9	95.5	0.0	30	-0.502	0.950	0.1701
Means[a]										
Recent	28.8									
Overall	22.0									

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Table 122.—Porphyry Creek, Lower site (E056), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	26.1	16.8	2.5	104.8	90.2	0.0	118	0.762	0.856	0.0000
1984	.	.	.	.	.	.	.	.	.	.
1985	7.6	0.0	2.0	281.4	88.6	0.0	115	2.816	0.401	0.0000
1986	25.4	18.4	2.7	106.8	92.9	0.0	103	0.735	0.851	0.0000
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	19.2	0.0	2.4	135.6	86.2	0.0	122	1.018	0.748	0.0000
1990	12.6	0.0	2.1	181.0	72.9	0.0	117	1.399	0.587	0.0000
1991	25.5	14.3	2.7	110.1	84.6	0.0	112	0.521	0.811	0.0000
1992	10.9	0.0	2.2	204.2	87.7	0.0	101	1.911	0.554	0.0000
1993	18.6	0.0	2.5	137.9	78.8	0.0	101	0.901	0.718	0.0000
1994	.	.	.	.	.	.	.	.	.	.
1995	.	.	.	.	.	.	.	.	.	.
1996	37.2	35.7	2.8	76.8	155.6	0.0	107	0.625	0.922	0.0000
1997	.	.	.	.	.	.	.	.	.	.
1998	39.0	40.0	2.5	70.0	90.0	0.0	117	-0.038	0.934	0.0000
1999	36.6	40.0	2.9	79.9	90.0	0.0	103	-0.049	0.881	0.0000
2000	20.8	0.0	2.5	122.0	83.3	0.0	101	0.826	0.791	0.0000
2001	29.2	20.0	3.0	107.3	90.9	0.0	107	0.375	0.796	0.0000
2002	16.4	0.0	2.3	146.7	90.0	0.0	107	1.131	0.708	0.0000
2003	31.5	33.3	3.0	96.1	87.0	0.0	103	0.282	0.848	0.0000
2004	25.0	0.0	2.9	117.5	86.6	0.0	101	0.628	0.785	0.0000
2005	15.1	0.0	2.3	152.7	75.0	0.0	105	1.118	0.679	0.0000
2006	29.9	33.9	2.2	80.4	81.8	0.0	115	0.107	0.909	0.0000
2007	.	.	.	.	.	.	.	.	.	.
Means[a]										
Recent	23.6									
Overall	23.7									

[a]Recent = 5-year mean (2002-2006).

Surface Fines

Table 123.—Porphyry Creek, Lower site (E054), percent surface fines univariate statistical summary, 1991-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1991	4.3	1.7	1.2	148.5	25.0	0.0	30	1.987	0.714	0.0000
1992	8.3	7.5	0.9	58.8	18.3	0.0	30	0.517	0.957	0.2648
1993	2.9	0.0	1.1	205.3	26.7	0.0	30	2.675	0.571	0.0000
1994	.	.	.	.	.	.	.	.	.	.
1995	1.2	0.0	0.5	228.7	10.0	0.0	30	2.312	0.506	0.0000
1996	4.2	0.0	1.1	139.5	20.0	0.0	29	1.454	0.751	0.0000
1997	6.4	2.5	2.3	193.2	65.0	0.0	30	4.016	0.509	0.0000
1998	1.6	0.0	0.8	258.4	18.3	0.0	30	3.212	0.455	0.0000
1999	5.9	3.3	1.1	102.4	18.3	0.0	30	0.687	0.861	0.0010
2000	5.8	5.0	1.0	98.7	26.7	0.0	30	1.791	0.832	0.0003
2001	17.1	15.0	2.3	73.2	45.0	0.0	30	0.541	0.946	0.1282
2002	7.3	5.0	1.2	90.4	21.7	0.0	30	1.076	0.851	0.0007
2003	4.4	1.7	1.3	157.7	28.3	0.0	30	2.213	0.677	0.0000
2004	3.8	1.7	1.2	170.2	35.0	0.0	30	4.002	0.540	0.0000
2005	.	.	.	.	.	.	.	.	.	.
2006	3.0	1.7	1.0	181.3	26.7	0.0	30	3.259	0.589	0.0000
2007	.	.	.	.	.	.	.	.	.	.

Means[a]	
Recent	7.1
Overall	5.4

[a]Recent = 5-year mean (2001-2004).

Table 124.—Elk Creek, Middle Fork site (E028), percent surface fines univariate statistical summary, 1990-2007[10].

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	5.1	2.5	1.4	147.8	36.7	0.0	30	2.695	0.680	0.0000
1992	16.0	13.3	3.1	106.1	85.0	0.0	30	2.457	0.773	0.0000
1993	13.0	4.2	4.6	194.2	100.0	0.0	30	3.004	0.529	0.0000
1994	18.5	11.7	4.6	136.4	100.0	0.0	30	2.366	0.690	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	7.7	6.7	1.6	116.6	43.3	0.0	30	2.462	0.739	0.0000
1997	5.8	3.3	1.4	134.4	35.0	0.0	30	2.429	0.710	0.0000
1998	7.8	3.3	1.9	135.3	48.3	0.0	30	2.203	0.743	0.0000
1999	16.8	5.8	4.4	143.9	86.7	0.0	30	1.982	0.687	0.0000
2000	8.6	5.0	2.3	147.0	61.7	0.0	30	2.866	0.675	0.0000
2001	13.4	9.2	2.3	94.1	53.3	0.0	30	1.592	0.840	0.0004
2002	16.9	12.5	2.1	69.2	46.7	1.7	30	1.017	0.882	0.0032
2003	9.5	7.5	1.9	112.1	58.3	0.0	30	3.577	0.620	0.0000
2004	14.8	10.0	2.5	90.8	55.0	1.7	30	1.433	0.834	0.0003
2005	3.7	1.7	1.1	158.5	25.0	0.0	30	2.276	0.689	0.0000
2006	12.4	6.7	3.1	138.5	81.7	0.0	30	2.833	0.665	0.0000
2007	8.2	4.2	2.3	150.0	58.3	0.0	30	2.803	0.660	0.0000

Means[a]	
Recent	9.7
Overall	11.1

[a]Recent = 5-year mean (2003-2007).

[10] In Nelson *et al.* (2007) the 5-year mean was shown as corresponding to FR at 11.5% when it should have been FA as it is here.

Table 125.—Elk Creek, Yellow Jacket site (E031), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	3.3	0.0	1.1	184.3	25.0	0.0	30	2.529	0.613	0.0000
1992	7.1	3.3	1.9	147.5	48.3	0.0	30	2.478	0.702	0.0000
1993	6.7	5.0	1.3	109.8	33.3	0.0	30	2.109	0.773	0.0000
1994	8.9	3.3	3.4	211.5	75.0	0.0	30	3.178	0.494	0.0000
1995	18.8	15.8	3.0	87.3	83.3	1.7	30	2.615	0.730	0.0000
1996	6.6	3.3	2.5	210.5	73.3	0.0	30	4.220	0.480	0.0000
1997	29.8	25.0	4.0	74.3	93.3	1.7	30	1.169	0.904	0.0103
1998	6.9	1.7	2.6	202.9	56.7	0.0	30	2.775	0.533	0.0000
1999	3.3	1.7	1.0	161.4	25.0	0.0	30	2.797	0.641	0.0000
2000	10.3	6.7	1.9	101.4	41.7	0.0	30	1.517	0.837	0.0003
2001	21.6	19.2	2.4	62.2	48.3	0.0	30	0.183	0.971	0.5545
2002	18.0	15.0	2.4	71.6	55.0	0.0	30	0.928	0.934	0.0618
2003	13.7	11.7	1.6	66.0	38.3	3.3	30	0.834	0.897	0.0071
2004	9.7	8.3	1.2	65.4	31.7	1.7	30	1.512	0.875	0.0021
2005	3.8	3.3	0.7	98.3	11.7	0.0	30	0.538	0.868	0.0015
2006	5.6	5.0	1.0	97.6	18.3	0.0	30	1.085	0.860	0.0010
2007	4.1	1.7	0.9	115.1	20.0	0.0	30	1.823	0.794	0.0001

Means[a]	
Recent	7.4
Overall	10.5

[a]Recent = 5-year mean (2003-2007).

Table 126.—Elk Creek, Lower Middle site (E143), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	5.0	2.5	1.6	174.0	45.0	0.0	30	3.639	0.576	0.0000
1992	12.6	10.0	2.0	87.2	41.7	0.0	30	1.042	0.895	0.0064
1993	8.5	3.3	3.5	223.1	100.0	0.0	30	4.207	0.469	0.0000
1994	3.3	0.0	0.9	152.5	18.3	0.0	30	1.430	0.700	0.0000
1995	21.8	8.3	4.8	121.4	100.0	0.0	30	1.662	0.771	0.0000
1996	10.7	5.0	3.3	170.2	90.0	0.0	30	3.186	0.614	0.0000
1997	51.7	42.5	6.2	65.3	100.0	3.3	30	0.186	0.890	0.0048
1998	11.6	10.8	1.8	83.3	35.0	0.0	30	0.887	0.914	0.0191
1999	11.2	10.0	1.4	68.3	28.3	0.0	30	0.500	0.953	0.2010
2000	4.8	3.3	1.3	145.0	26.7	0.0	30	1.909	0.699	0.0000
2001	38.9	35.0	4.5	62.8	90.0	1.7	30	0.806	0.902	0.0095
2002	29.6	21.7	4.4	80.5	88.3	3.3	30	1.176	0.859	0.0010
2003	10.7	4.2	2.9	146.1	71.7	0.0	30	2.576	0.688	0.0000
2004	11.0	8.3	1.9	96.1	40.0	0.0	30	1.334	0.850	0.0006
2005	3.6	0.0	1.5	230.9	40.0	0.0	30	3.445	0.504	0.0000
2006	11.6	3.3	3.6	169.1	73.3	0.0	30	2.123	0.642	0.0000
2007	7.1	3.3	1.9	149.4	50.0	0.0	30	2.682	0.680	0.0000

Means[a]	
Recent	8.8
Overall	14.9

[a]Recent = 5-year mean (2003-2007).

Table 127.—West Fork Elk Creek, Mouth site (E029), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	5.3	0.0	2.5	254.4	68.3	0.0	30	4.029	0.442	0.0000
1992	11.5	8.3	2.3	111.2	58.3	0.0	30	1.824	0.815	0.0001
1993	9.7	3.3	3.4	195.3	100.0	0.0	30	4.074	0.512	0.0000
1994	11.9	6.7	2.8	130.6	65.0	0.0	30	2.283	0.720	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	5.6	4.2	1.1	106.5	28.3	0.0	30	2.101	0.799	0.0001
1997	41.4	31.7	6.3	83.2	100.0	0.0	30	0.397	0.889	0.0047
1998	14.1	5.0	3.9	153.2	93.3	0.0	30	2.338	0.685	0.0000
1999	12.5	9.2	2.3	99.5	56.7	0.0	30	2.043	0.796	0.0001
2000	6.4	3.3	1.5	132.3	33.3	0.0	30	2.093	0.724	0.0000
2001	18.7	13.3	3.6	104.3	70.0	0.0	30	1.187	0.845	0.0005
2002	12.3	8.3	2.0	90.3	53.3	0.0	30	1.822	0.845	0.0005
2003	.	.	.	.	.	.	.	.	.	.
2004	8.7	5.0	2.1	132.9	48.3	0.0	30	2.071	0.745	0.0000
2005	2.2	0.0	0.9	232.2	25.0	0.0	30	3.543	0.492	0.0000
2006	9.6	5.0	2.0	113.6	38.3	0.0	30	1.447	0.808	0.0001
2007	3.3	1.7	1.0	166.6	25.0	0.0	30	2.690	0.640	0.0000

Means[a]	
Recent	7.2
Overall	11.5

[a]Recent = 5-year mean (2002-2007).

Table 128.—Pony Creek, Upper site (E055), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	5.7	3.3	1.2	110.2	20.0	0.0	30	0.923	0.834	0.0003
1992	22.5	9.2	5.2	126.8	96.7	0.0	30	1.639	0.733	0.0000
1993	17.7	8.3	4.2	129.8	93.3	0.0	30	1.922	0.756	0.0000
1994	7.5	0.0	3.4	247.0	95.0	0.0	30	4.013	0.453	0.0000
1995	7.6	5.0	1.6	115.3	30.0	0.0	30	1.414	0.795	0.0001
1996	8.2	5.0	1.6	109.8	28.3	0.0	30	0.836	0.846	0.0005
1997	29.8	15.8	5.8	106.7	100.0	1.7	30	1.183	0.783	0.0000
1998	14.0	8.3	3.1	120.3	80.0	0.0	30	2.405	0.740	0.0000
1999	17.6	10.8	3.5	109.9	75.0	0.0	30	1.773	0.787	0.0000
2000	10.8	5.8	2.6	129.3	65.0	0.0	30	2.339	0.742	0.0000
2001	20.1	11.7	3.9	106.6	81.7	0.0	30	1.849	0.742	0.0000
2002	21.7	18.3	3.3	82.3	70.0	0.0	30	1.430	0.850	0.0006
2003	12.4	10.0	1.8	81.5	40.0	0.0	30	1.209	0.883	0.0033
2004	18.9	10.8	4.0	115.7	88.3	0.0	30	1.717	0.788	0.0000
2005	5.3	0.0	3.3	343.3	100.0	0.0	30	5.105	0.305	0.0000
2006	11.8	5.8	3.4	156.4	91.7	0.0	30	3.329	0.588	0.0000
2007	6.7	3.3	1.7	138.0	41.7	0.0	30	2.416	0.709	0.0000

Means[a]	
Recent	11.0
Overall	14.0

[a]Recent = 5-year mean (2003-2007).

Miscellaneous Sites

These sites are no longer part of our normal monitoring schedule and are no longer being updated.

Chamberlain Creek

Primary Sites

30-Hoop Free Matrix

Table 129.—Chamberlain Creek, Upper site (E032), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	22.5	21.1	2.3	54.7	54.5	0.0	30	0.745	0.955	0.2315
1990	10.8	8.6	1.6	81.7	30.8	0.0	30	0.628	0.924	0.0350
1991	24.5	26.1	2.7	60.6	45.5	0.0	30	-0.307	0.929	0.0474
1992	.	.	.	.	.	.	.	.	.	.
1993	39.4	42.1	2.8	38.5	65.6	9.5	30	-0.269	0.961	0.3217
1994	19.3	20.0	2.3	66.7	46.2	0.0	30	0.274	0.961	0.3345
1995	19.3	17.1	3.1	86.7	50.0	0.0	30	0.390	0.903	0.0101
1996	15.7	12.9	2.5	86.6	45.2	0.0	30	0.873	0.889	0.0046
1997	20.6	18.5	2.7	71.7	54.5	0.0	30	0.750	0.941	0.0958
1998	12.7	10.7	2.3	98.0	42.5	0.0	30	1.043	0.858	0.0009
1999	9.8	8.5	1.3	73.1	32.0	0.0	30	0.995	0.931	0.0508
2000	16.8	14.3	3.0	98.6	53.8	0.0	30	0.888	0.874	0.0021
2001	18.1	16.0	1.9	58.3	33.3	0.0	30	0.183	0.918	0.0237
2002	.	.	.	.	.	.	.	.	.	.
2003	30.6	22.2	3.8	67.4	68.4	9.5	30	0.770	0.838	0.0003
2004	5.9	4.3	1.3	123.7	28.6	0.0	30	1.732	0.782	0.0000
2005	18.0	13.7	2.7	82.1	47.4	0.0	30	0.662	0.908	0.0133
2006	19.1	20.8	2.2	64.5	48.6	0.0	30	0.326	0.963	0.3722
2007	40.5	42.9	2.7	36.9	66.7	9.7	30	-0.518	0.960	0.3028

Means[a]	
Recent	22.8
Overall	20.2

[a]Recent = 5-year mean (2003-2007).

Table 130.—West Fork Chamberlain Creek, Lower site (E136), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	34.4	37.3	2.7	42.8	67.2	8.1	29	-0.047	0.966	0.4467
1990	49.8	51.4	2.1	24.0	72.5	24.1	31	-0.357	0.970	0.5309
1991	40.3	42.2	3.1	42.1	66.7	0.0	30	-1.179	0.882	0.0031
1992	35.6	38.1	2.3	36.0	54.5	12.5	30	-0.147	0.944	0.1165
1993	24.5	24.3	2.0	45.2	47.1	8.7	30	0.383	0.951	0.1805
1994	.	.	.	.	.	.	.	.	.	.
1995	21.5	17.9	2.3	59.0	50.0	0.0	30	1.049	0.886	0.0038
1996	16.3	14.8	2.3	76.5	46.4	0.0	30	0.718	0.942	0.1057
1997	27.2	27.6	2.6	53.2	56.7	3.8	30	0.119	0.969	0.5072
1998	8.5	8.2	1.4	91.9	25.0	0.0	30	0.673	0.891	0.0052
1999	21.3	19.8	2.3	60.2	48.5	0.0	30	0.302	0.968	0.4940
2000	38.0	38.9	2.3	33.8	68.3	12.2	30	0.082	0.983	0.9016
2001	53.2	55.1	2.1	21.2	72.4	27.3	30	-0.689	0.952	0.1884
2002	.	.	.	.	.	.	.	.	.	.
2003	48.3	45.0	2.8	32.3	79.4	11.8	30	-0.117	0.977	0.7544
2004	9.8	7.4	1.8	103.3	36.0	0.0	30	1.165	0.865	0.0013
2005	28.7	29.7	2.2	41.4	55.0	0.0	30	-0.127	0.990	0.9899
2006	28.4	27.0	1.6	31.3	49.0	11.1	30	0.235	0.982	0.8802
2007	68.8	79.2	4.2	33.7	94.3	0.0	30	-1.508	0.841	0.0004

Means[a]	
Recent	36.8
Overall	32.6

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Cobble embeddedness data have not been collected at site E032 since 1994; see Nelson *et al.* (2006) for latest summary.

Table 131.—West Fork Chamberlain Creek, Lower site (E136), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	.	.	.	.	.	.	.	.	.	.
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	25.3	23.5	2.0	80.0	78.3	0.0	105	0.504	0.932	0.0000
1990	40.0	41.7	2.9	74.0	86.7	0.0	105	-0.036	0.908	0.0000
1991	28.7	28.6	2.6	93.7	83.3	0.0	111	0.249	0.859	0.0000
1992	31.6	32.4	2.8	91.1	91.7	0.0	105	0.179	0.860	0.0000
1993	.	.	.	.	.	.	.	.	.	.
1994	21.8	0.0	2.8	137.4	85.0	0.0	112	0.785	0.698	0.0000
1995	36.0	44.4	2.9	81.6	83.5	0.0	105	-0.142	0.848	0.0000
1996	24.6	12.0	2.8	123.9	88.9	0.0	115	0.937	0.777	0.0000
1997	25.2	20.2	2.3	98.8	83.3	0.0	112	0.467	0.865	0.0000
1998	31.0	29.0	2.4	77.2	87.5	0.0	100	0.525	0.940	0.0002
1999	23.9	13.6	2.5	110.2	85.1	0.0	109	0.617	0.825	0.0000
2000	21.4	8.8	2.7	127.0	91.7	0.0	100	1.056	0.782	0.0000
2001	25.1	0.0	2.6	119.6	83.3	0.0	137	0.602	0.764	0.0000
2002	12.1	0.0	2.1	177.1	76.7	0.0	100	1.526	0.621	0.0000
2003	13.8	0.0	2.5	181.7	87.5	0.0	102	1.569	0.605	0.0000
2004	19.7	16.7	2.0	100.6	78.9	0.0	103	0.833	0.880	0.0000
2005	29.7	23.1	2.5	88.5	92.3	0.0	109	0.599	0.910	0.0000
2006	30.2	23.5	2.6	93.6	89.8	0.0	118	0.293	0.864	0.0000
2007	21.0	22.0	2.0	99.0	77.4	0.0	110	0.507	0.863	0.0000

Means[a]	
Recent	22.9
Overall	25.6

[a]Recent = 5-year mean (2003-2007).

Surface Fines

Table 132.—Chamberlain Creek, Upper site (E032), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	17.6	14.2	2.5	77.2	46.7	1.7	30	0.800	0.905	0.0110
1992	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1993	16.7	15.0	1.7	55.8	36.7	0.0	30	0.346	0.969	0.5209
1994	7.2	5.0	1.6	120.9	35.0	0.0	30	1.650	0.779	0.0000
1995	8.1	5.0	1.8	123.1	35.0	0.0	30	1.212	0.801	0.0001
1996	11.7	10.8	2.2	102.3	65.0	0.0	30	3.183	0.693	0.0000
1997	7.6	6.7	1.0	72.3	20.0	0.0	30	0.931	0.904	0.0105
1998	5.1	1.7	1.1	119.5	23.3	0.0	30	1.373	0.811	0.0001
1999	12.6	10.8	1.5	65.7	31.7	0.0	30	0.690	0.944	0.1182
2000	7.8	8.3	1.0	71.3	23.3	0.0	30	0.669	0.940	0.0900
2001	26.6	26.7	1.7	34.4	43.3	10.0	30	-0.015	0.974	0.6576
2002	.	.	.	.	.	.	.	.	.	.
2003	13.8	10.0	2.0	78.5	56.7	1.7	30	2.202	0.807	0.0001
2004	8.8	6.7	1.6	99.4	36.7	0.0	30	1.328	0.869	0.0016
2005	10.9	6.7	2.0	100.3	40.0	0.0	30	1.378	0.840	0.0004
2006	13.2	11.7	1.2	50.7	26.7	1.7	30	0.276	0.969	0.5100
2007	19.9	20.8	1.6	43.3	40.0	5.0	30	0.283	0.968	0.4955

Means[a]	
Recent	13.3
Overall	12.5

[a]Recent = 5-year mean (2003-2007).

Table 133.—West Fork Chamberlain Creek, Lower site (E136), percent surface fines univariate statistical summary, 1990-2006.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	31.7	30.0	2.0	34.1	53.3	15.0	30	0.372	0.960	0.3086
1992	24.7	23.3	2.2	48.4	51.7	6.7	30	0.394	0.963	0.3698
1993	24.0	20.8	3.1	69.6	78.3	5.0	30	1.647	0.856	0.0008
1994	.	.	.	.	.	.	.	.	.	.
1995	17.1	11.7	3.5	112.0	83.3	0.0	30	2.132	0.739	0.0000
1996	19.6	13.3	3.6	101.2	90.0	0.0	30	1.940	0.811	0.0001
1997	9.4	9.2	1.1	66.5	30.0	1.7	30	1.413	0.886	0.0039
1998	15.4	8.3	3.5	125.2	80.0	0.0	30	2.413	0.682	0.0000
1999	11.4	5.0	3.6	174.2	93.3	0.0	30	3.146	0.529	0.0000
2000	34.3	34.2	3.3	53.2	100.0	0.0	30	1.369	0.902	0.0093
2001	5.6	1.7	1.5	150.5	31.7	0.0	30	1.737	0.717	0.0000
2002	.	.	.	.	.	.	.	.	.	.
2003	13.3	10.8	2.4	98.1	70.0	0.0	30	2.944	0.723	0.0000
2004	11.1	10.8	1.8	89.0	45.0	0.0	30	1.456	0.877	0.0024
2005	11.3	6.7	2.3	111.2	68.3	0.0	30	3.363	0.652	0.0000
2006	8.3	7.5	1.5	100.3	35.0	0.0	30	1.777	0.810	0.0001
2007	20.6	11.7	4.3	118.5	98.3	1.7	30	2.013	0.692	0.0000

Means[a]	
Recent	12.9
Overall	17.2

[a]Recent = 5-year mean (2001-2006).

Supplemental Sites

30-Hoop Free Matrix

Table 134.—Chamberlain Creek, West Fork site (E134), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	36.4	34.8	2.6	39.4	76.0	12.5	30	0.626	0.970	0.5264
1990	28.3	26.8	2.1	40.4	52.9	9.7	30	0.430	0.967	0.4659
1991	33.9	34.8	2.4	38.3	65.6	7.1	30	0.048	0.974	0.6656
1992	26.6	24.6	2.9	60.4	61.2	0.0	30	0.366	0.964	0.3800
1993	25.6	27.6	2.7	56.8	47.1	0.0	30	-0.236	0.943	0.1111
1994	28.9	24.9	3.6	68.4	76.5	0.0	30	0.935	0.919	0.0258
1995	20.1	15.7	2.4	66.1	61.9	0.0	30	0.977	0.927	0.0408
1996	17.2	7.5	4.5	143.9	100.0	0.0	30	1.814	0.742	0.0000
1997	35.8	35.5	3.4	52.4	76.8	0.0	30	0.065	0.971	0.5734
1998	7.3	7.1	1.2	91.0	23.8	0.0	30	0.729	0.904	0.0106
1999	11.8	8.4	2.1	98.8	41.7	0.0	30	1.337	0.843	0.0004
2000	53.8	55.7	3.1	32.0	88.9	16.7	30	-0.261	0.984	0.9218
2001	50.5	47.7	2.3	24.6	75.0	25.0	30	0.214	0.971	0.5757
2002	.	.	.	.	.	.	.	.	.	.
2003	26.0	25.9	2.2	45.6	58.3	5.0	30	0.687	0.968	0.4758
2004	7.6	5.8	1.1	83.0	20.0	0.0	30	0.511	0.918	0.0244
2005	22.7	22.2	3.1	75.8	77.8	0.0	30	1.167	0.912	0.0162
2006	17.8	17.4	1.7	51.1	42.3	2.9	30	0.714	0.960	0.3031
2007	43.9	42.9	4.6	57.9	100.0	0.0	30	0.415	0.858	0.0009

Means[a]	
Recent	23.6
Overall	27.5

[a]Recent = 5-year mean (2003-2007).

Table 135.—West Fork Chamberlain Creek, Upper site (E135), percent free particles univariate statistical summary, 1988-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1988	.	.	.	.	.	.	.	.	.	.
1989	26.6	28.6	2.2	45.3	60.9	4.3	29	0.298	0.950	0.1860
1990	41.4	43.1	3.6	47.0	80.0	11.1	30	0.215	0.961	0.3356
1991	49.7	49.0	2.3	25.1	81.3	22.2	30	0.082	0.975	0.6886
1992	31.4	34.0	2.4	41.3	52.8	5.3	30	-0.282	0.965	0.4145
1993	31.4	35.1	2.6	45.2	56.5	0.0	30	-0.501	0.958	0.2787
1994	32.1	36.5	3.9	66.3	73.0	0.0	30	0.221	0.950	0.1678
1995	29.5	30.0	3.2	59.1	66.7	0.0	30	0.166	0.974	0.6611
1996	12.7	9.7	2.5	105.8	45.8	0.0	30	1.033	0.858	0.0009
1997	20.9	13.0	3.5	90.9	60.0	0.0	30	0.780	0.878	0.0026
1998	15.2	14.8	1.7	61.7	33.3	0.0	30	0.146	0.969	0.5219
1999	26.0	26.9	2.1	44.7	47.5	5.0	30	-0.107	0.973	0.6317
2000	24.2	25.3	2.2	50.4	46.2	0.0	30	-0.441	0.962	0.3541
2001	33.0	33.3	3.7	61.8	76.5	0.0	30	0.234	0.974	0.6405
2002	.	.	.	.	.	.	.	.	.	.
2003	43.3	47.0	3.0	38.1	68.1	8.3	30	-0.675	0.926	0.0393
2004	4.6	3.8	0.9	107.5	20.0	0.0	30	1.517	0.833	0.0003
2005	32.0	27.3	5.3	60.1	73.7	4.8	11	0.864	0.935	0.4643
2006	24.5	22.2	2.3	51.1	51.7	3.8	30	0.562	0.950	0.1645
2007	46.9	50.0	3.5	41.2	80.3	0.0	30	-0.725	0.947	0.1419
Means[a]										
Recent	30.3									
Overall	29.2									

[a]Recent = 5-year mean (2003-2007).

Cobble Embeddedness

Table 136.—Chamberlain Creek, West Fork site (E134), percent cobble embeddedness univariate statistical summary, 1983-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1983	.	.	.	.	.	.	.	.	.	.
1984	.	.	.	.	.	.	.	.	.	.
1985	20.5	0.0	2.9	145.6	95.0	0.0	107	1.227	0.717	0.0000
1986	.	.	.	.	.	.	.	.	.	.
1987	.	.	.	.	.	.	.	.	.	.
1988	.	.	.	.	.	.	.	.	.	.
1989	41.2	47.2	2.7	66.4	97.8	0.0	106	-0.144	0.937	0.0001
1990	29.5	27.8	2.8	99.3	91.8	0.0	106	0.385	0.852	0.0000
1991	.	.	.	.	.	.	.	.	.	.
1992	.	.	.	.	.	.	.	.	.	.
1993	24.3	0.0	2.7	126.1	86.3	0.0	129	0.620	0.730	0.0000
1994	20.4	0.0	3.1	153.3	91.9	0.0	103	0.980	0.647	0.0000
1995	.	.	.	.	.	.	.	.	.	.
1996	.	.	.	.	.	.	.	.	.	.
1997	.	.	.	.	.	.	.	.	.	.
1998	36.7	36.4	2.1	60.0	88.9	0.0	113	0.101	0.975	0.0296
1999	26.9	27.3	2.6	98.4	83.3	0.0	104	0.575	0.865	0.0000
2000	31.5	33.3	2.0	64.9	80.0	0.0	102	0.006	0.950	0.0007
2001	33.5	44.4	3.0	94.4	83.3	0.0	111	0.037	0.792	0.0000
2002	21.7	20.1	2.2	100.2	97.7	0.0	100	0.670	0.865	0.0000
2003	30.8	27.4	2.9	93.7	87.0	0.0	100	0.359	0.870	0.0000
2004	31.2	32.3	2.3	75.0	83.3	0.0	105	0.200	0.941	0.0002
2005	24.0	22.7	2.3	100.3	78.3	0.0	106	0.452	0.854	0.0000
2006	28.9	29.6	2.1	72.4	77.1	0.0	103	0.027	0.934	0.0001
2007	26.2	21.8	2.3	91.9	93.3	0.0	108	0.657	0.900	0.0000
Means[a]										
Recent	28.2									
Overall	28.5									

[a]Recent = 5-year mean (2003-2007).

Cobble embeddedness data have not been collected at site E135 since 1994; see Nelson *et al.* (2006) for latest summary.

Surface Fines

Table 137.—Chamberlain Creek, West Fork site (E134), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	17.2	14.2	2.7	85.6	50.0	0.0	30	0.585	0.899	0.0080
1992	9.1	6.7	1.6	99.4	35.0	0.0	30	1.542	0.835	0.0003
1993	9.5	8.3	1.6	89.7	26.7	0.0	30	0.457	0.899	0.0080
1994	2.2	0.0	0.6	156.7	11.7	0.0	30	1.504	0.694	0.0000
1995	11.4	3.3	3.3	159.4	85.0	0.0	30	2.709	0.660	0.0000
1996	14.1	5.8	3.6	141.7	78.3	0.0	30	1.980	0.695	0.0000
1997	6.7	4.2	2.1	170.8	65.0	0.0	30	4.788	0.423	0.0000
1998	14.1	9.2	2.6	100.1	55.0	0.0	30	1.161	0.868	0.0015
1999	13.3	10.8	2.1	88.0	55.0	0.0	30	1.681	0.865	0.0013
2000	7.5	5.0	1.3	92.8	25.0	0.0	30	1.232	0.857	0.0009
2001	12.7	8.3	2.0	88.1	43.3	0.0	30	0.923	0.903	0.0099
2002	.	.	.	.	.	.	.	.	.	.
2003	13.4	11.7	1.4	57.1	30.0	1.7	30	0.481	0.928	0.0439
2004	6.1	5.0	1.0	88.7	18.3	0.0	30	1.152	0.856	0.0008
2005	11.1	9.2	1.9	95.9	46.7	0.0	30	1.411	0.872	0.0019
2006	5.4	5.0	0.8	79.0	21.7	0.0	30	2.166	0.802	0.0001
2007	9.6	8.3	1.4	79.5	38.3	0.0	30	1.981	0.832	0.0003
Means[a]										
Recent	9.1									
Overall	10.2									

[a]Recent = 5-year mean (2003-2007).

Table 138.—West Fork Chamberlain Creek, Upper site (E135), percent surface fines univariate statistical summary, 1990-2007.

Year	Simple Statistics							Shape Statistics		
	Mean	Median	Std Err	CV (%)	Max	Min	N	Skew	W	P < W
1990	.	.	.	.	.	.	.	.	.	.
1991	25.9	25.0	2.0	42.8	58.3	8.3	30	0.950	0.929	0.0475
1992	17.5	18.3	2.0	61.0	36.7	0.0	30	0.065	0.958	0.2695
1993	14.8	15.0	0.8	30.0	23.3	6.7	30	0.115	0.963	0.3590
1994	2.6	0.0	0.6	127.9	10.0	0.0	30	0.829	0.764	0.0000
1995	10.7	7.5	2.1	108.2	51.7	0.0	30	1.880	0.811	0.0001
1996	26.4	18.3	4.6	96.3	100.0	1.7	30	1.649	0.773	0.0000
1997	24.8	24.2	2.0	44.3	60.0	6.7	30	0.993	0.944	0.1159
1998	10.8	8.3	1.7	88.8	43.3	0.0	30	2.061	0.781	0.0000
1999	17.6	15.8	2.0	62.7	45.0	1.7	30	1.034	0.908	0.0133
2000	12.0	6.7	2.5	114.2	41.7	0.0	30	1.229	0.776	0.0000
2001	28.9	28.3	2.9	54.2	78.3	3.3	30	1.102	0.933	0.0591
2002	.	.	.	.	.	.	.	.	.	.
2003	19.7	14.2	2.9	80.4	71.7	1.7	30	1.907	0.802	0.0001
2004	18.7	16.7	2.0	59.9	41.7	0.0	30	0.394	0.955	0.2295
2005	17.3	20.0	2.1	40.3	28.3	5.0	11	-0.354	0.963	0.8040
2006	5.8	3.3	0.8	80.4	18.3	0.0	30	1.137	0.881	0.0029
2007	17.8	16.7	1.9	58.1	45.0	3.3	30	1.041	0.915	0.0195
Means[a]										
Recent	15.9									
Overall	17.0									

[a]Recent = 5-year mean (2003-2007).

Appendix 5. Additional Time Series Analysis Tables

Upper South Fork Salmon River

30-Hoop Free Matrix

Table 139.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for supplemental sediment monitoring sites in the Upper SFSR watershed, including SFSR Road sites (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
SF Blackmare Creek	E002	Control	-1121.00	0.57**	0.04	1.23**	-1201.00	0.61**	0.22
Blackmare Creek	E005		-1034.00	0.52**	0.03	1.46**	-1030.00	0.52**	0.13
Fourmile Creek	E139		789.29	-0.39†	0.01	1.55**	742.77	-0.36	0.08
	E128		997.89	-0.49**	0.02	1.04**	957.14	-0.47	0.27
Buckhorn Creek	E015	Test	412.99	-0.20	0.00	1.38**	334.99	-0.16	0.12
	E019		467.05	-0.23†	0.01	1.38**	467.27	-0.23	0.12
WF Buckhorn Creek	E007		1523.00	-0.75**	0.04	1.04**	1473.00	-0.72*	0.33
	E014		-698.69	0.36*	0.01	1.69**	-701.60	0.36*	0.04
Little Buckhorn Creek	E017		-953.74	0.48**	0.03	1.60**	-949.31	0.48**	0.10
NF Buckhorn Creek	E008		954.82	-0.47**	0.02	1.43**	943.60	-0.46*	0.13
	E098		1057.00	-0.52**	0.02	1.34**	1029.00	-0.50†	0.15
Fitsum Creek	E024		-433.85	0.23†	0.01	1.58**	-415.23	0.22	0.07
	E099		-429.62	0.23	0.00	1.11**	-364.39	0.20	0.28
	E124		-910.54	0.46**	0.02	1.27**	-891.89	0.46†	0.16
NF Fitsum Creek	E021		-867.01	0.44**	0.02	1.37**	-867.17	0.44*	0.13
	E022		-1570.00	0.80**	0.06	1.10**	-1544.00	0.78**	0.29
	E138		-1634.00	0.83**	0.06	1.34**	-1662.00	0.84**	0.18
Cabin Creek	B127		-951.26	0.49**	0.02	1.14**	-941.56	0.48†	0.24

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Cobble Embeddedness

These sites are no longer monitored; see Nelson *et al.* (2004a) for most recent analyses.

Surface Fines

Table 140.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for supplemental sediment monitoring sites in the Upper SFSR watershed, including SFSR Road sites (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
SF Blackmare Creek	E002	Control	1117.00	-0.55**	0.03	1.42**	1112.00	-0.55*	0.13
Blackmare Creek	E005		1601.00	-0.79**	0.04	1.64**	1577.00	-0.78**	0.07
Fourmile Creek	E139		-778.81	0.40*	0.01	1.67**	-776.89	0.40†	0.04
	E128		-1489.00	0.75**	0.03	1.66**	-1484.00	0.75**	0.06
Buckhorn Creek	E015	Test	-1008.00	0.51**	0.04	1.62**	-1005.00	0.51**	0.08
	E019		550.89	-0.27†	0.01	1.57**	549.23	-0.27	0.05
WF Buckhorn Creek	E007		-2780.00	1.40**	0.10	1.41**	-2793.00	1.41**	0.22
	E014		254.58	-0.12	0.00	1.64**	277.84	-0.13	0.03
Little Buckhorn Creek	E017		154.08	-0.06	0.00	1.68**	152.75	-0.06	0.03
NF Buckhorn Creek	E008		1642.00	-0.81**	0.03	1.37**	1560.00	-0.77*	0.15
	E098		-168.01	0.09	0.00	1.68**	-166.09	0.09	0.03
Fitsum Creek	E024		639.59	-0.31*	0.01	1.89+	636.29	-0.31†	0.03
	E099		1148.00	-0.56*	0.01	1.39**	1087.00	-0.53	0.12
	E124		-670.07	0.35	0.00	1.31**	-727.56	0.38	0.14
NF Fitsum Creek	E021		658.23	-0.32†	0.01	1.59**	665.08	-0.33	0.05
	E022		-202.44	0.11	0.00	1.90	-196.59	0.10	0.01
	E138		-120.90	0.07	0.00	1.50**	-112.51	0.06	0.07
Cabin Creek	B127		2784.00	-1.38**	0.09	1.28**	2813.00	-1.40**	0.22

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

SFSR Road Sites

These are included with the Upper SFSR sites above.

Secesh River

30-Hoop Free Matrix

Table 141.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for supplemental sediment monitoring sites in the Secesh River watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Lake Creek	E034	Test	-3051.00	1.54**	0.13	0.82**	-3281.00	1.66**	0.50
	E035		-1359.00	0.69**	0.03	0.97**	-1403.00	0.71	0.34
Cow Creek	E013		1285.00	-0.64**	0.03	1.65**	1264.00	-0.63*	0.06

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Site E142 does not have a sufficient record for time series analysis.

Cobble Embeddedness

These sites are no longer monitored; see Nelson *et al.* (2004a) for most recent analyses; site E142 does not have a sufficient record for time series analysis.

Surface Fines

Table 142.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for supplemental sediment monitoring sites in the Secesh River watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Lake Creek	E034	Test	2411.00	-1.20**	0.09	1.28**	2369.00	-1.18**	0.22
	E035		697.89	-0.34+	0.01	0.99**	490.64	-0.24	0.27
Cow Creek	E013		2040.00	-1.01*	0.02	1.88	2053.00	-1.02*	0.03

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Site E142 does not have a sufficient record for time series analysis.

East Fork South Fork Salmon River

Monitoring at these sites has been discontinued.

Lower South Fork Salmon River

30-Hoop Free Matrix

Table 143.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for supplemental sediment monitoring sites in the Lower SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Elk Creek	E028	Test	-618.98	0.32*	0.01	1.32**	-676.13	0.35	0.15
	E031		153.29	-0.07	0.00	1.10**	181.47	-0.08	0.23
	E143		602.98	-0.29†	0.01	1.24**	520.40	-0.25	0.17
WF Elk Creek	E029		-1417.00	0.72**	0.04	1.52**	-1428.00	0.73**	0.14
Pony Creek	E055		-1403.00	0.71**	0.03	1.08**	-1527.00	0.78*	0.27

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Cobble Embeddedness

These sites are no longer monitored; see Nelson *et al.* (2004a) for most recent analyses.

Surface Fines

Table 144.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for supplemental sediment monitoring sites in the Lower SFSR watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Elk Creek	E028	Test	203.17	-0.10	0.00	1.77**	204.88	-0.10	0.02
	E031		95.13	-0.04	0.00	1.25**	107.63	-0.05	0.16
	E143		23.64	0.00	0.00	1.01**	84.09	-0.04	0.26
WF Elk Creek	E029		666.65	-0.33†	0.01	1.56**	666.79	-0.33	0.08
Pony Creek	E055		244.27	-0.12	0.00	1.66**	252.32	-0.12	0.05

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Chamberlain Creek

30-Hoop Free Matrix

Table 145.—Time series least-squares regression statistics and OLS and autoregressive models, percent free matrix particles over time, for supplemental sediment monitoring sites in the Chamberlain Creek watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Chamberlain Creek	E134	Control	290.45	-0.13	0.00	0.99**	261.33	-0.12	0.29
WF Chamberlain Creek	E135		666.00	-0.32*	0.01	1.07**	569.58	-0.27	0.26

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Cobble Embeddedness

These sites are no longer monitored; see Nelson *et al.* (2004a) for most recent analyses.

Surface Fines

Table 146.—Time series least-squares regression statistics and OLS and autoregressive models, percent surface fines over time, for supplemental sediment monitoring sites in the Chamberlain Creek watershed (linear equations of the form y = bx + a).

Site Information			Regression Parameters and Statistics						
			OLS Regression Model[a]				Autoregressive Model		
			a	b	r^2	DW[b]	a	b	r^2
Chamberlain Creek	E134	Control	290.46	-0.14	0.00	1.25**	290.92	-0.14	0.18
WF Chamberlain Creek	E135		208.78	-0.10	0.00	1.42**	158.03	-0.07	0.13

[a]Tests: coefficient b, P > |t|; H_o: b = 0; on Durbin-Watson, P < DW. †Moderately Significant (P < 0.10) **Highly significant (P < 0.01)
[b]DW - Durbin-Watson statistic. *Significant (P < 0.05)

Appendix 6. Time Series Graphs

Upper South Fork Salmon River

Primary Sites

30-Hoop Free Matrix

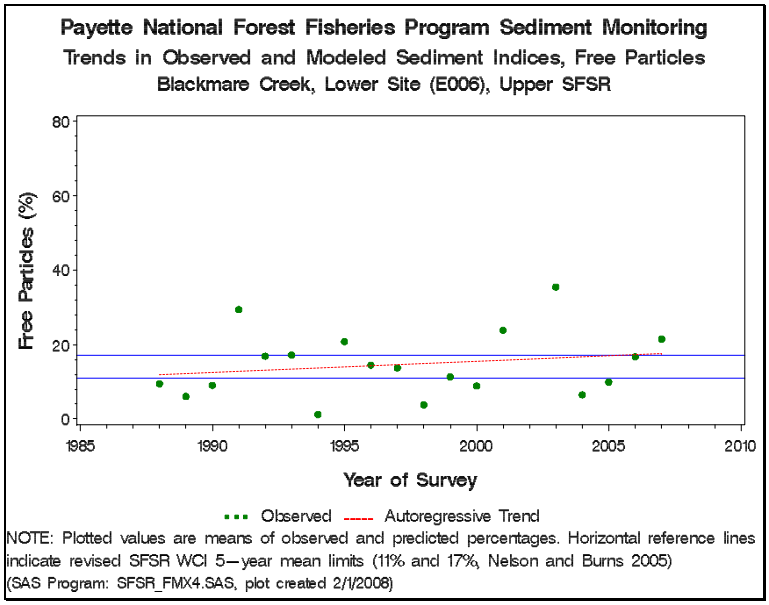

Figure 1.—Time trends in percent free matrix, Blackmare Creek, Lower site (E006), 1988-2007.

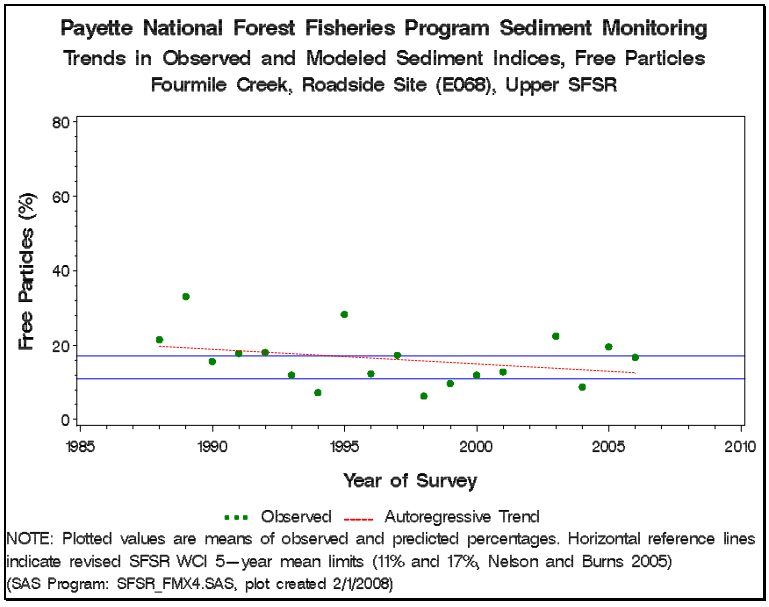

Figure 2.—Time trends in percent free matrix, Fourmile Creek, Roadside site (E068), 1988-2006.

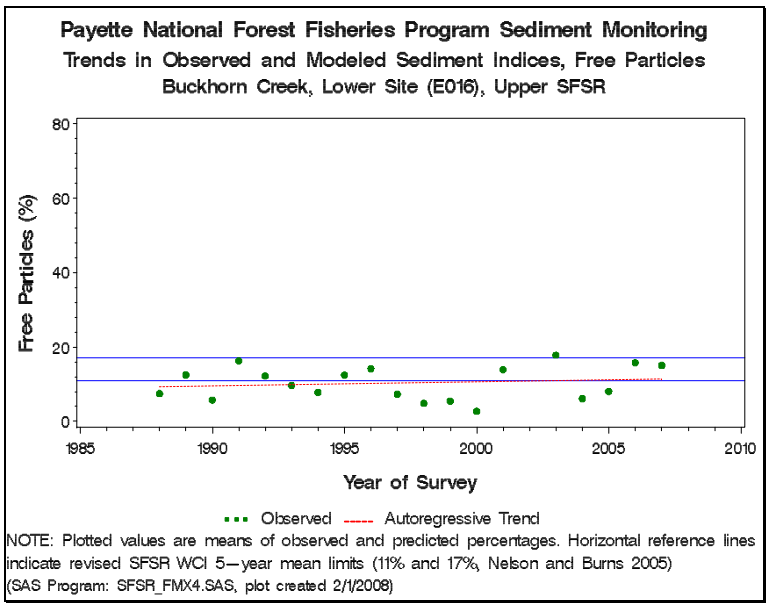

Figure 3.—Time trends in percent free matrix, Buckhorn Creek, Lower site (E016), 1988-2007.

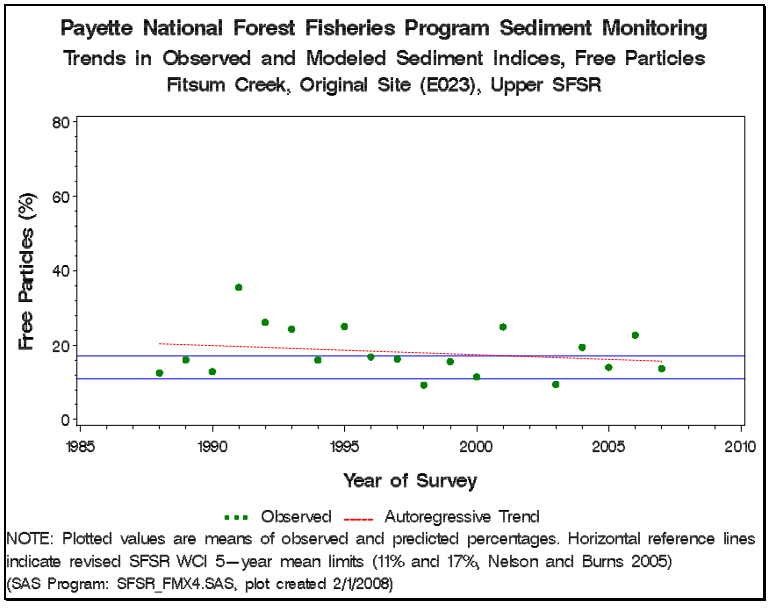

Figure 4.—Time trends in percent free matrix, Fitsum Creek, Original site (E023), 1988-2007.

Cobble Embeddedness

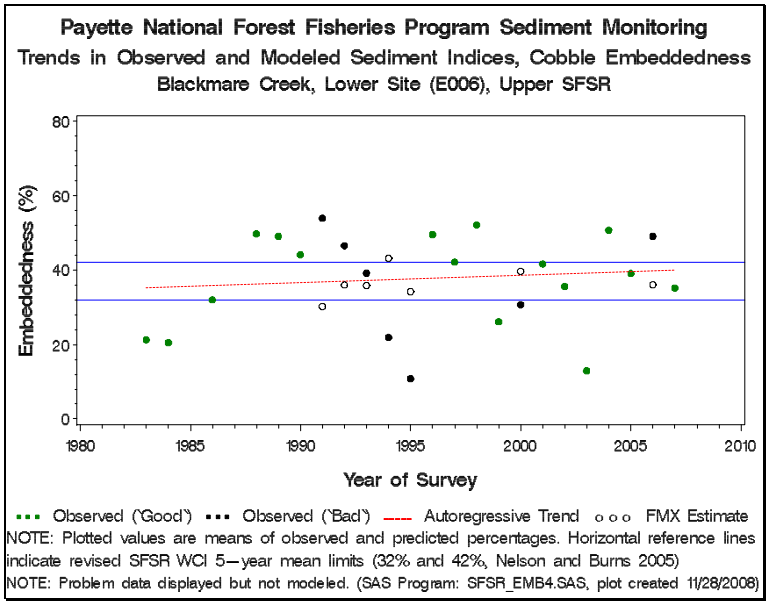

Figure 5.—Time trends in percent cobble embeddedness, Blackmare Creek, Lower site (E006), 1983-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

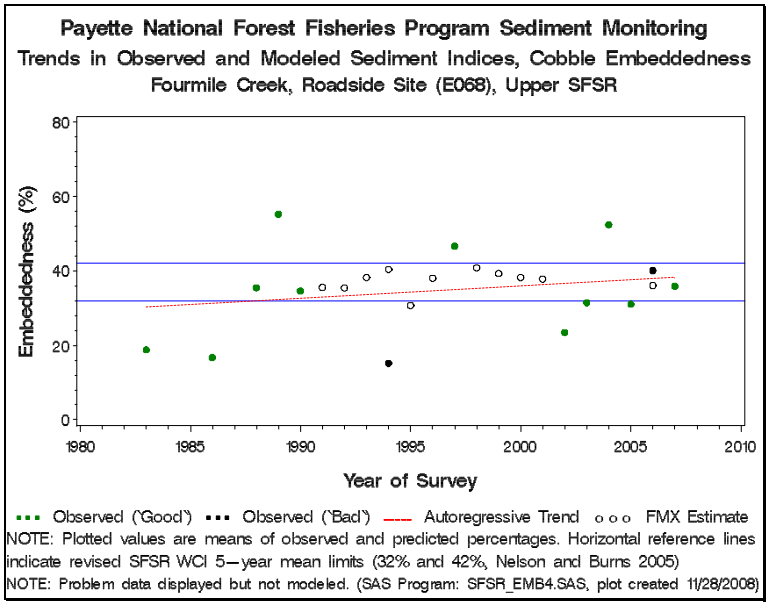

Figure 6.—Time trends in percent cobble embeddedness, Fourmile Creek, Roadside site (E068), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

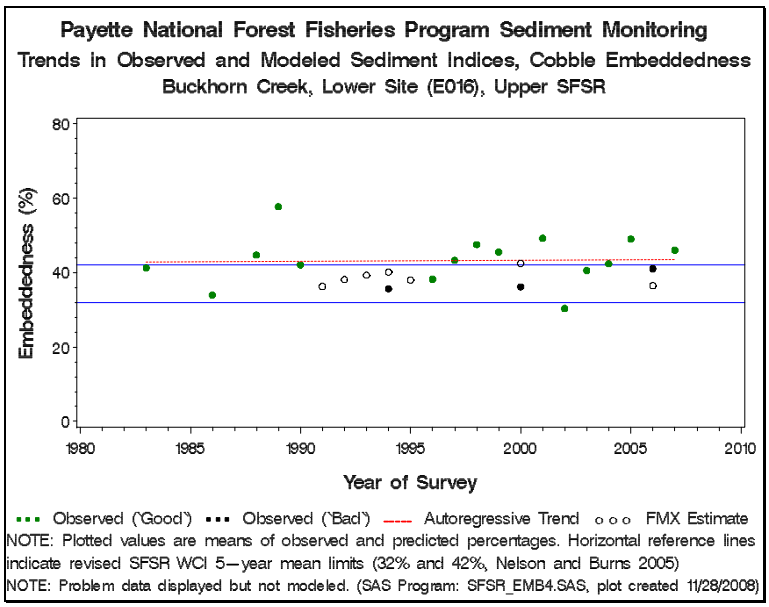

Figure 7.—Time trends in percent cobble embeddedness, Buckhorn Creek, Lower site (E016), 1983-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

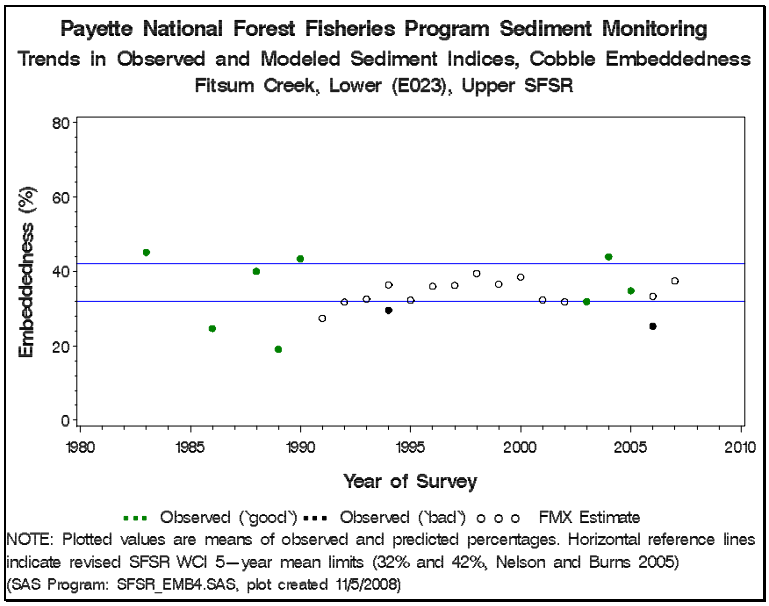

Figure 8.—Time trends in percent cobble embeddedness, Fitsum Creek, Lower site (E023), 1991-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

Surface Fines

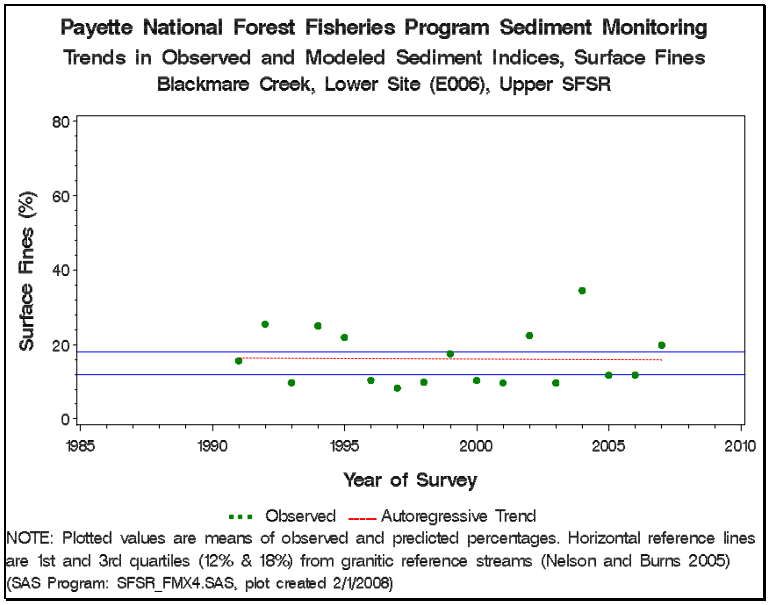

Figure 9.—Time trends in percent surface fines, Blackmare Creek, Lower site (E006), 1991-2007.

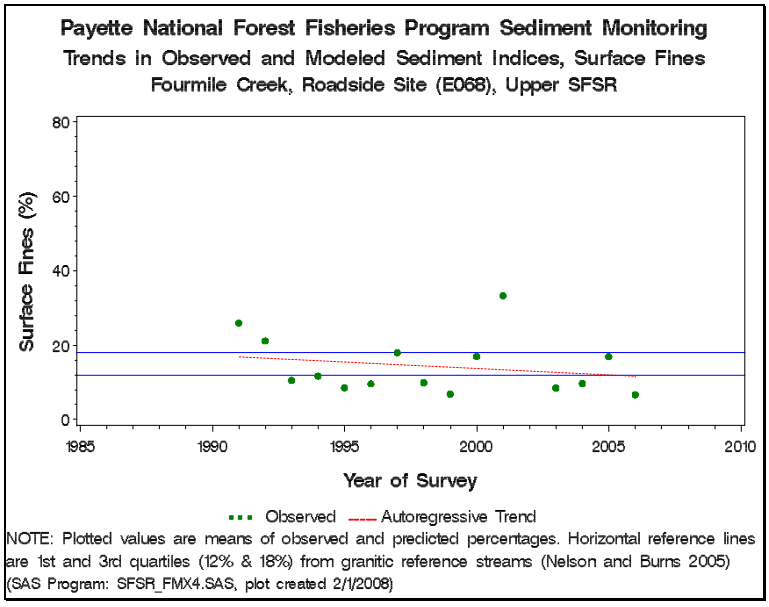

Figure 10.—Time trends in percent surface fines, Fourmile Creek, Roadside site (E068), 1991-2007.

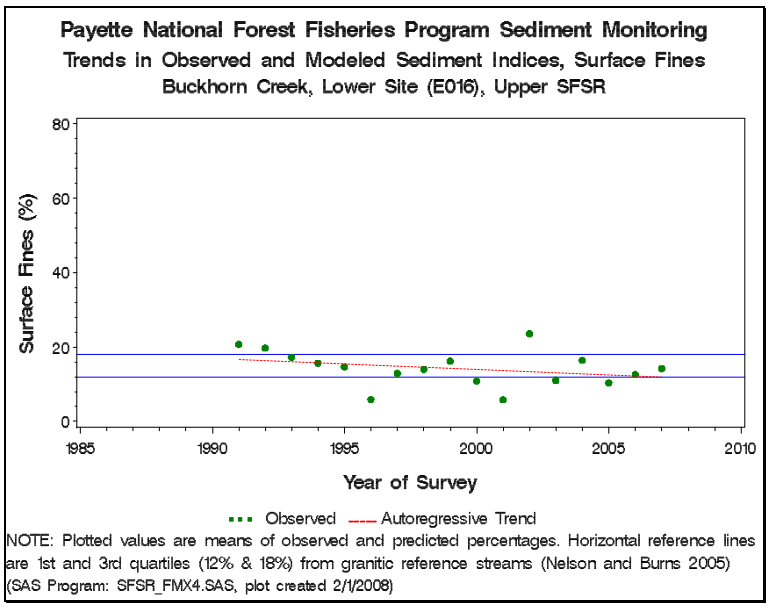

Figure 11.—Time trends in percent surface fines, Buckhorn Creek, Lower site (E016), 1991-2007.

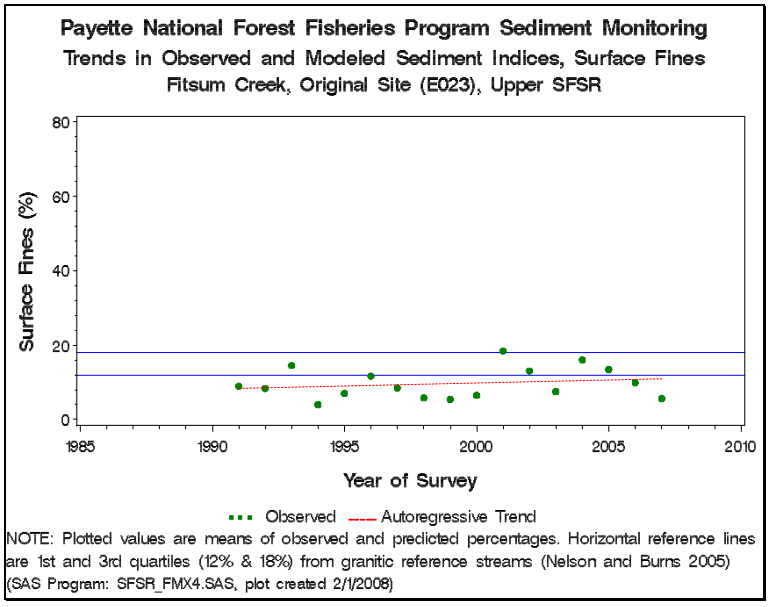

Figure 12.—Time trends in percent surface fines, Fitsum Creek, Lower site (E023), 1991-2007.

SFSR Road Sites

30-Hoop Free Matrix

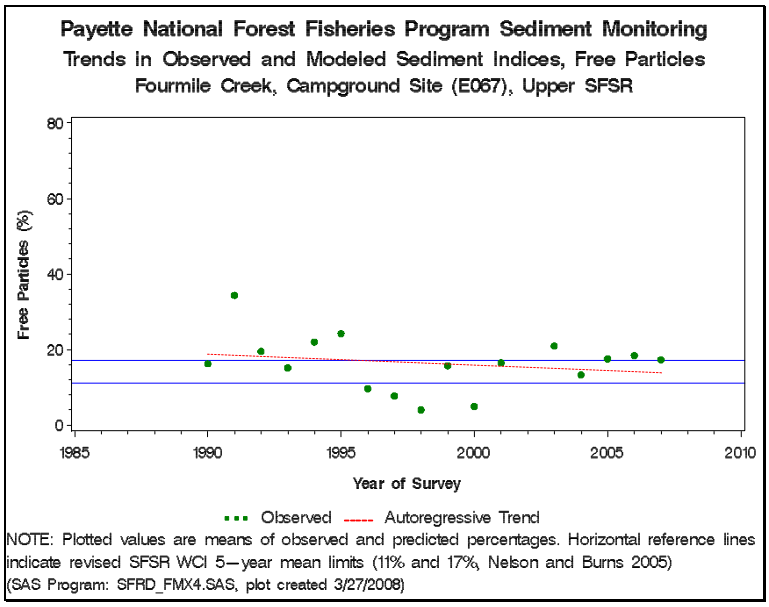

Figure 13.—Time trends in percent free matrix, Fourmile Creek, Campground site (E067), 1990-2007.

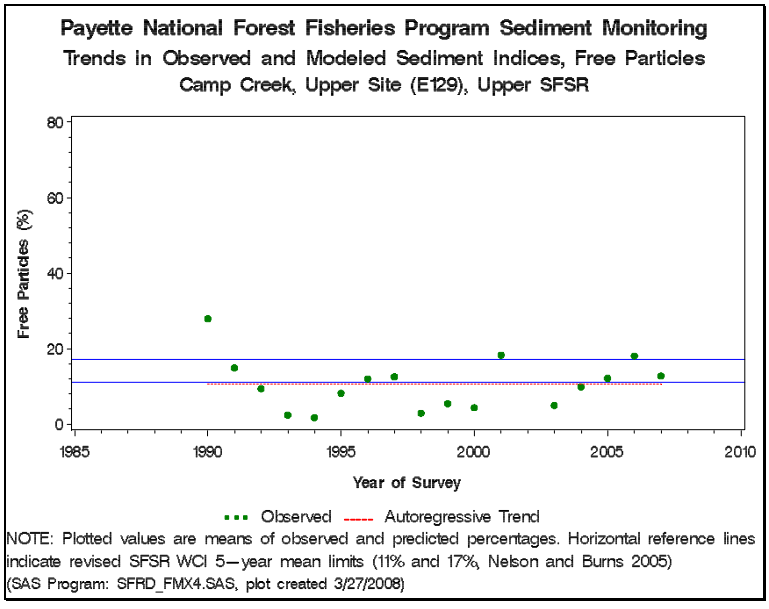

Figure 14.—Time trends in percent free matrix, Camp Creek, Upper site (E129), 1990-2007.

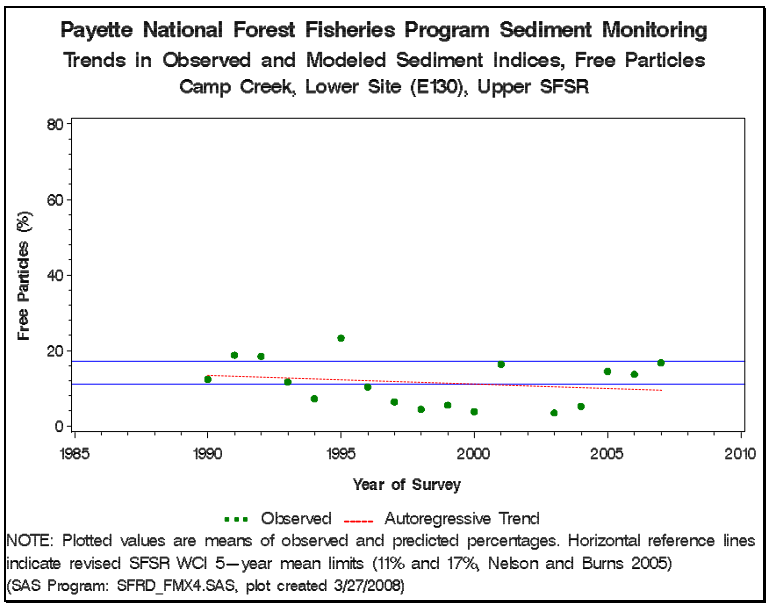

Figure 15.—Time trends in percent free matrix, Camp Creek, Lower site (E130), 1990-2007.

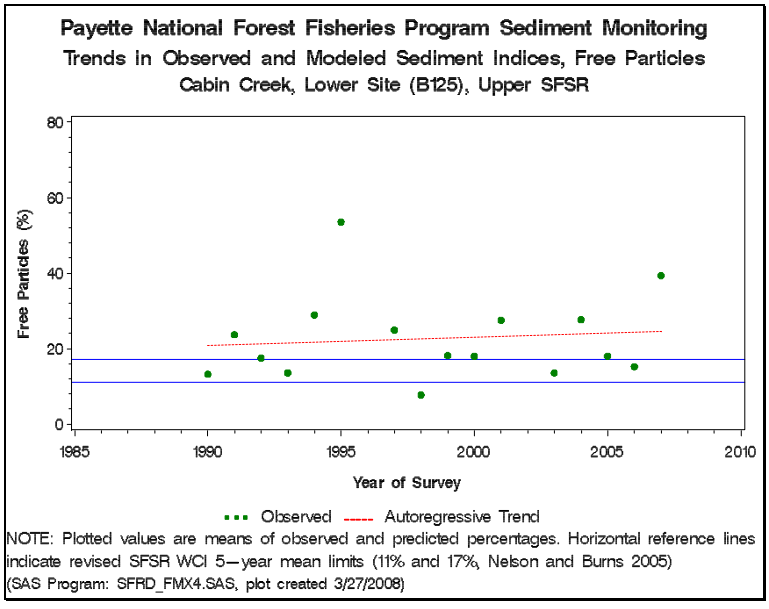

Figure 16.—Time trends in percent free matrix, Cabin Creek, Upper site (B125), 1990-2007.

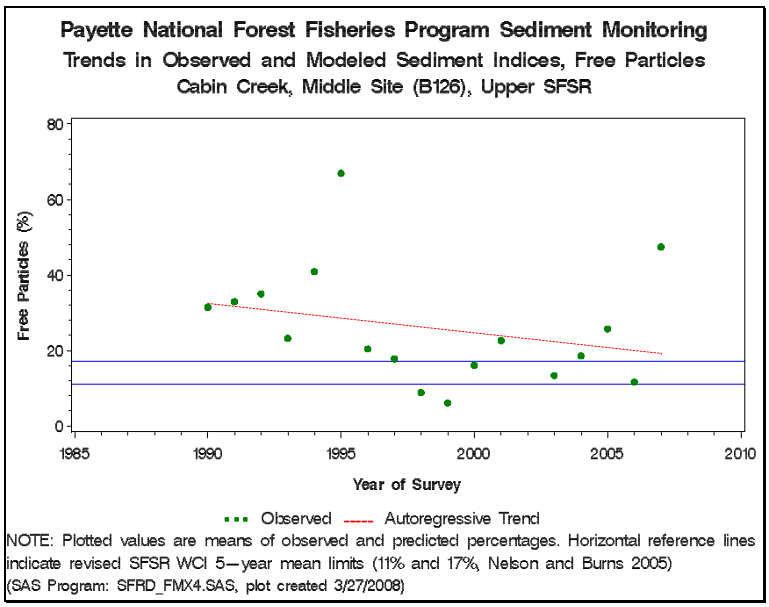

Figure 18.—Time trends in percent free matrix, Cabin Creek, Lower site (B126), 1990-2007.

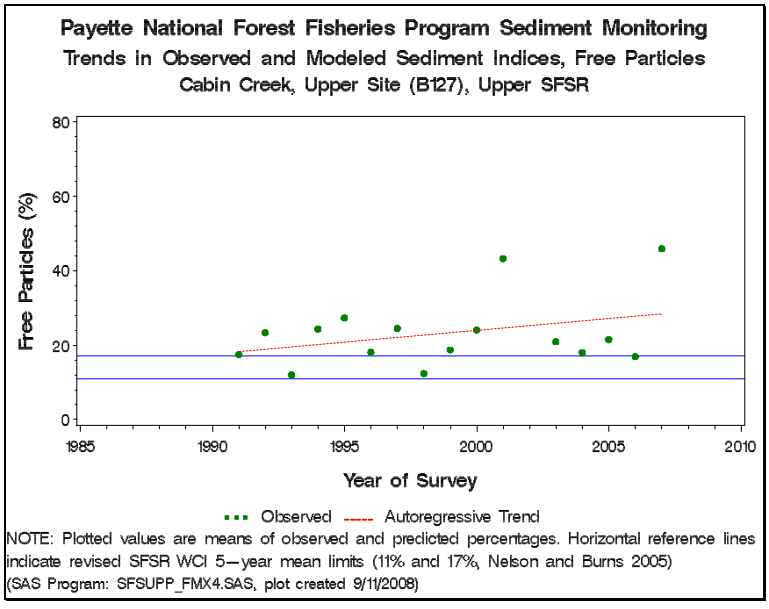

Figure 17.—Time trends in percent free matrix, Cabin Creek, Upper site (B127), 1991-2006.

Cobble Embeddedness

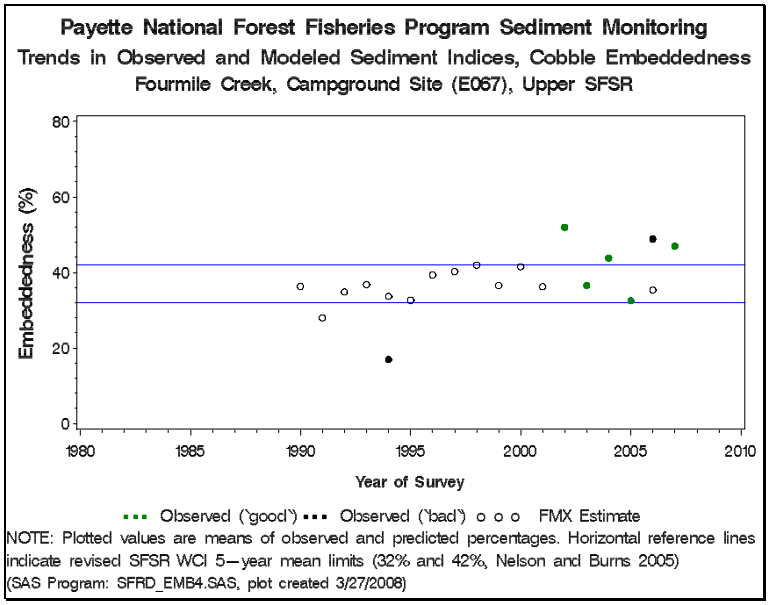

Figure 19.—Time trends in percent cobble embeddedness, Fourmile Creek, Campground site (E067), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

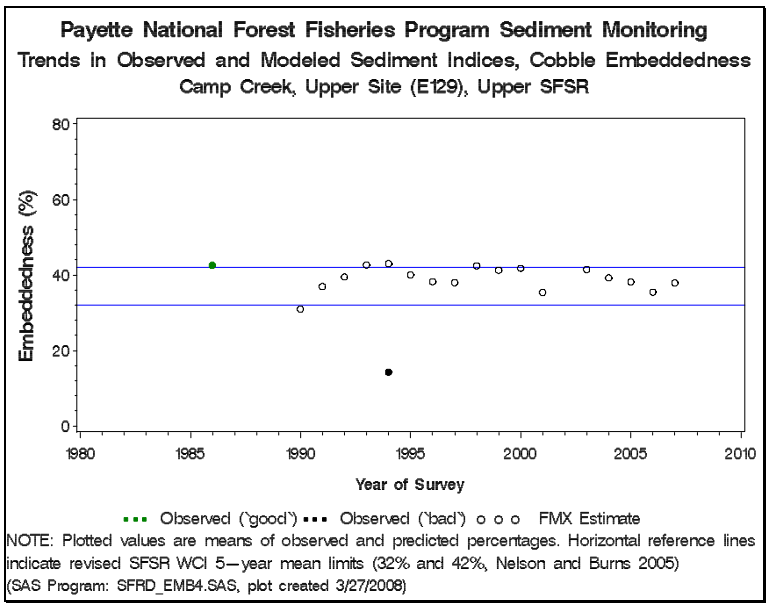

Figure 20.—Time trends in percent cobble embeddedness, Camp Creek, Upper site (E129), 1987-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

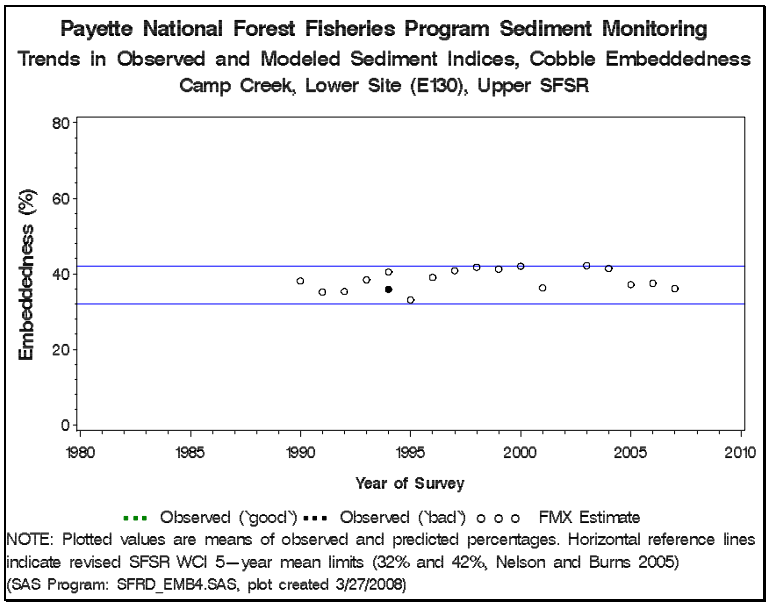

Figure 21.—Time trends in percent cobble embeddedness, Camp Creek, Lower site (E130), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

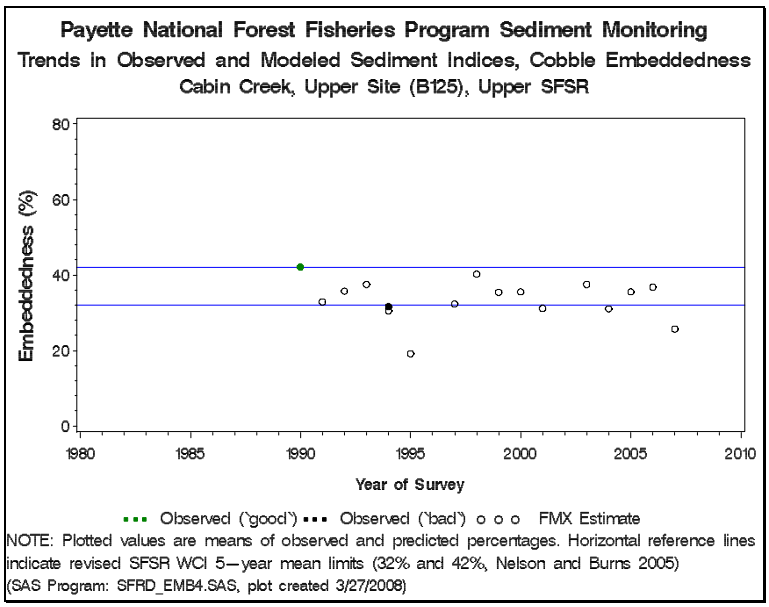

Figure 22.—Time trends percent cobble embeddedness, Cabin Creek, Upper site (B125), 1990-2006 (estimate is CE = 44.24506 - 0.48520 • FMX).

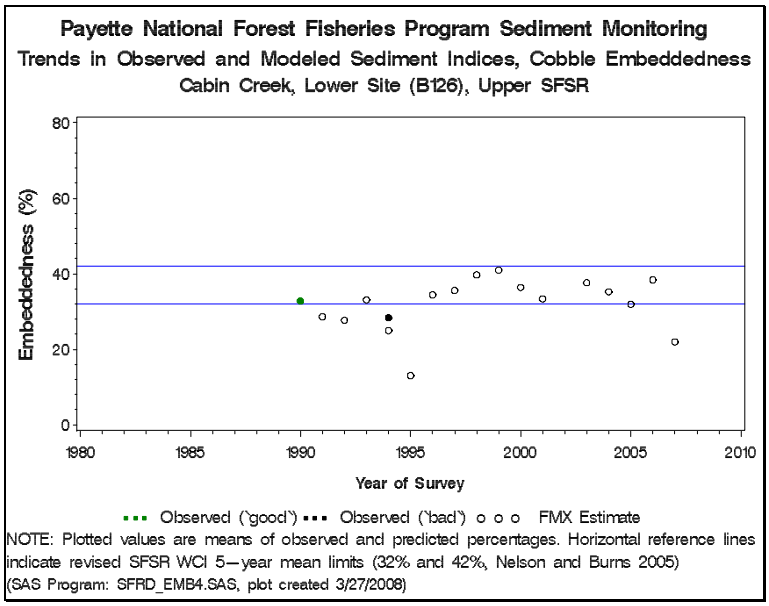

Figure 23.—Time trends in percent cobble embeddedness, Cabin Creek, Lower site (B126), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

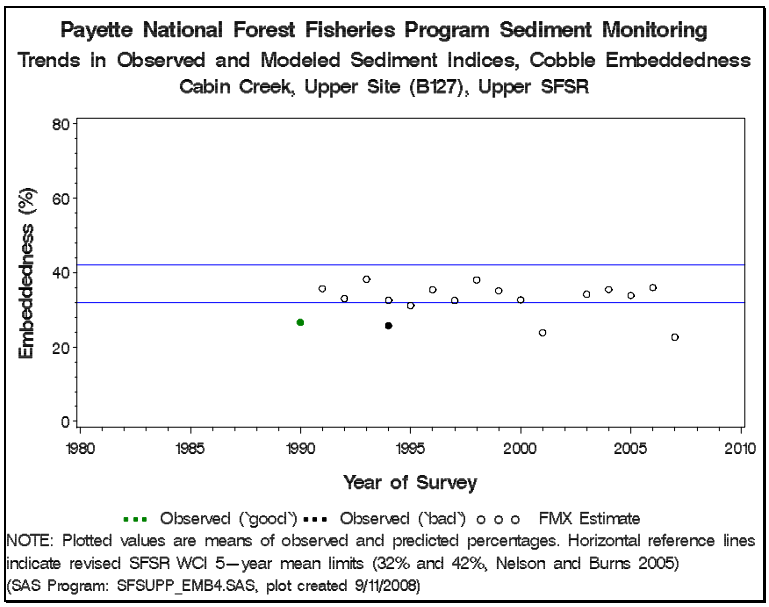

Figure 24.—Time trends in percent cobble embeddedness, Cabin Creek, Upper site (B127), 1991-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

Surface Fines

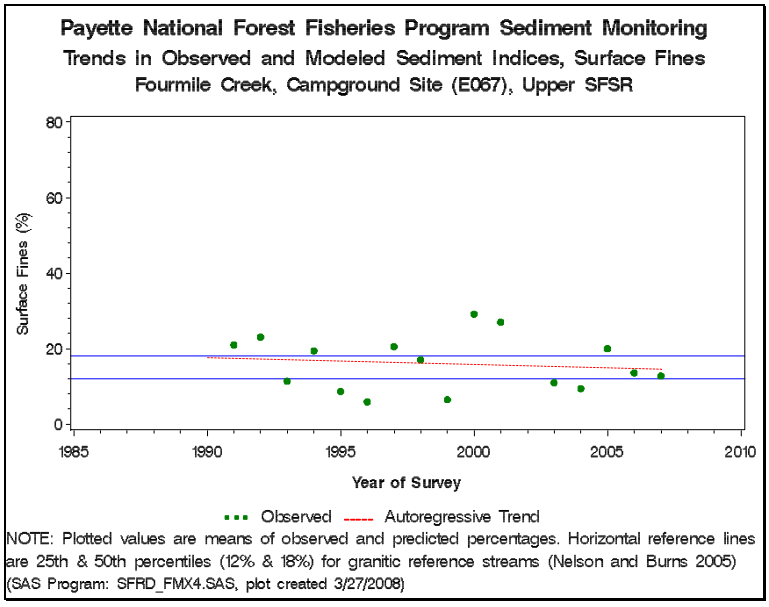

Figure 25.—Time trends in percent surface fines, Fourmile Creek, Campground site (E067), 1991-2007.

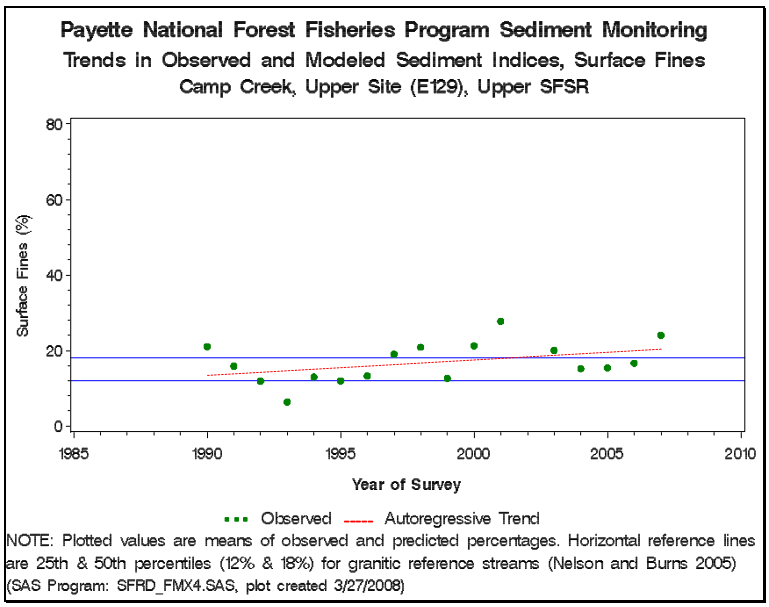

Figure 26.—Time trends in percent surface fines, Camp Creek, Upper site (E129), 1990-2007.

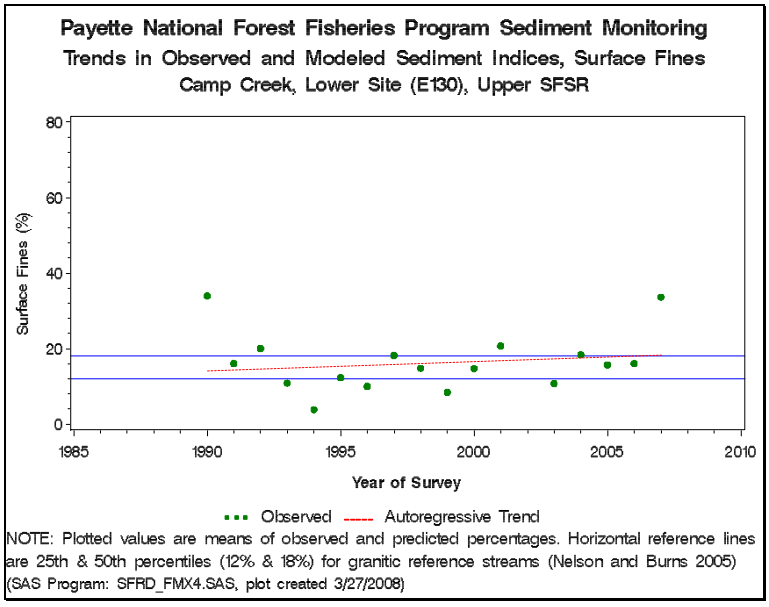

Figure 27.—Time trends in the percent surface fines, Camp Creek, Lower site (E130), 1990-2007.

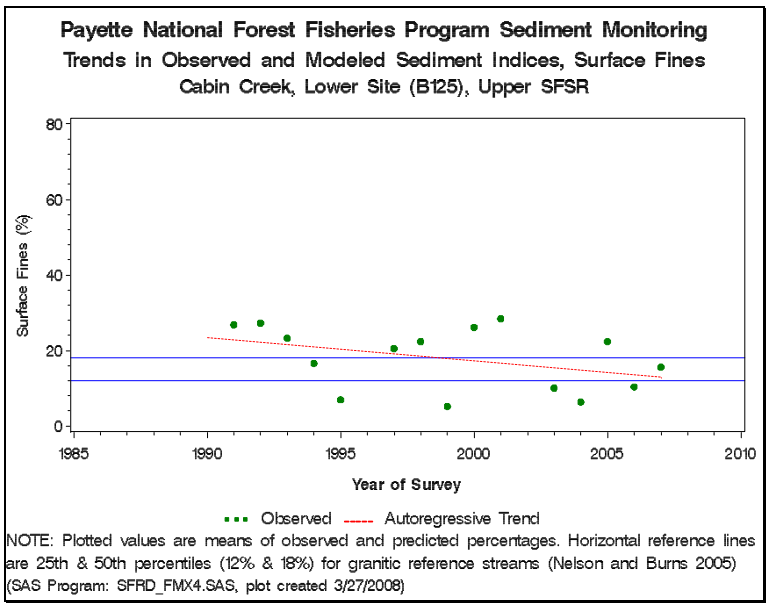

Figure 28.—Time trends in percent surface fines, Cabin Creek, Upper site (B125), 1991-2007.

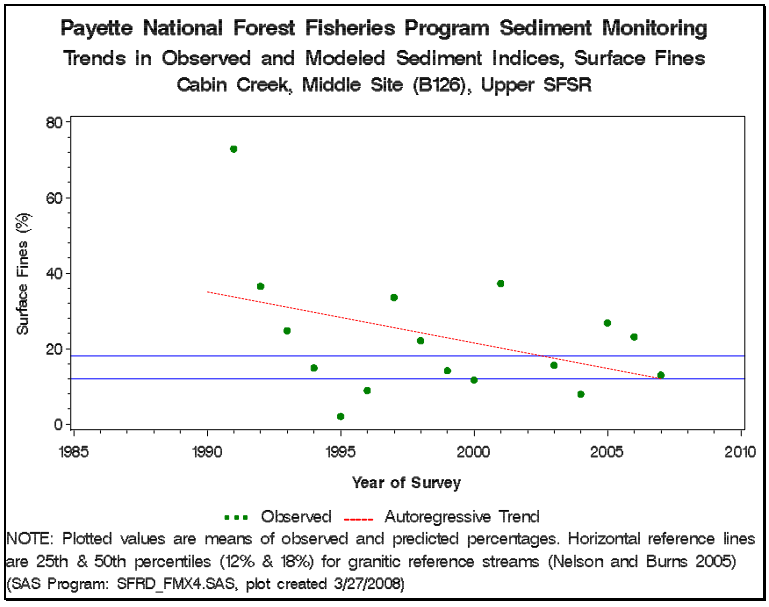

Figure 29.—Time trends in percent surface fines, Cabin Creek, Lower site (B126), 1990-2007.

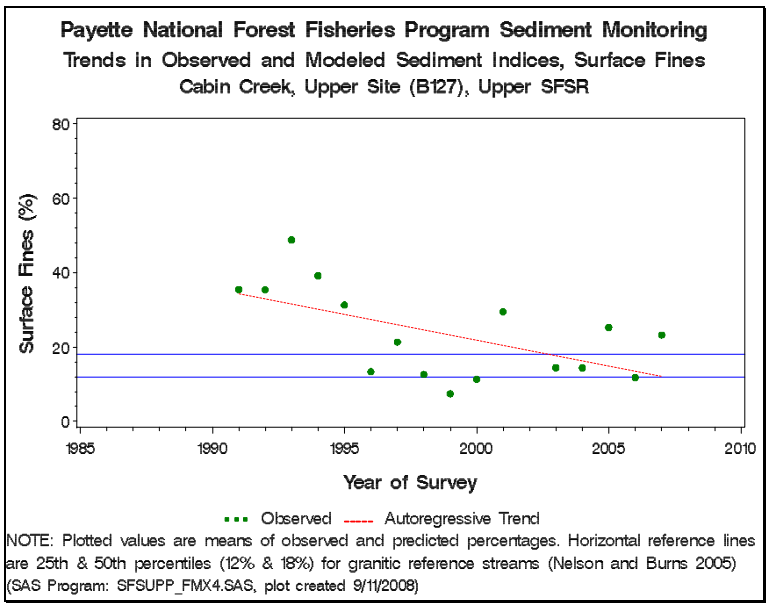

Figure 30.—Time trends in percent surface fines, Cabin Creek, Upper site (B127), 1991-2007.

Supplemental Sites

30-Hoop Free Matrix

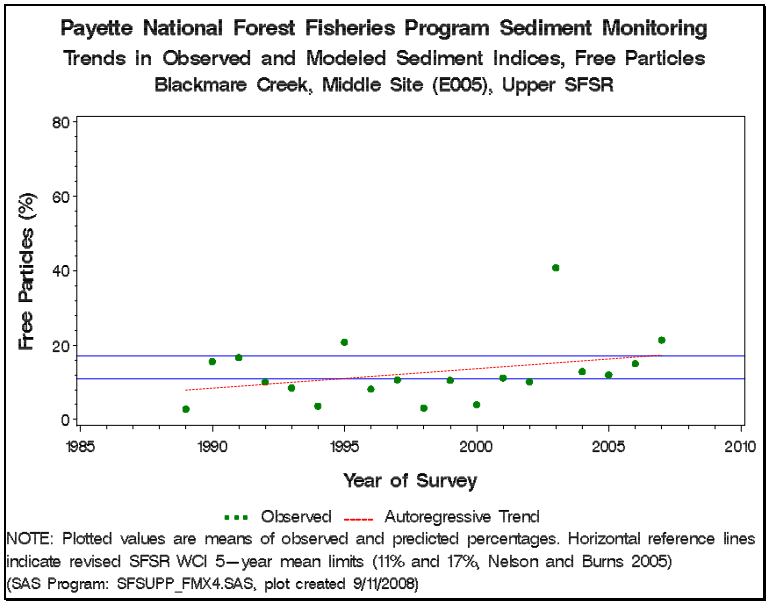

Figure 31.—Time trends in percent free matrix, Blackmare Creek, Middle site (E005), 1988-2007.

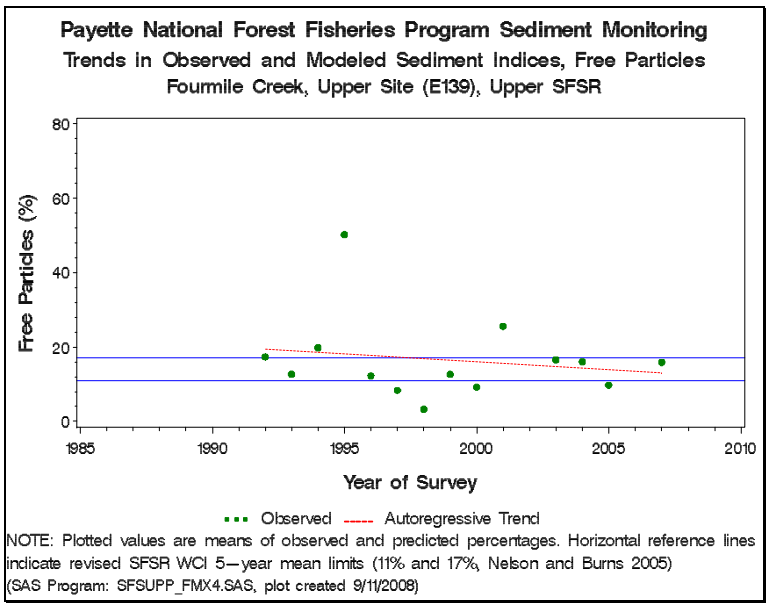

Figure 32.—Time trends in percent free matrix, Fourmile Creek, Upper site (E139), 1991-2007.

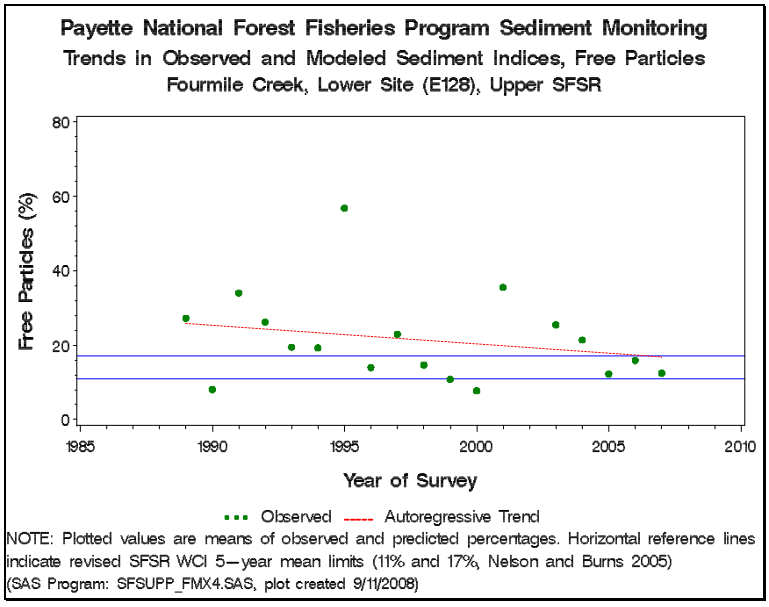

Figure 33.—Time trends in percent free matrix, Fourmile Creek, Lower site (E128), 1989-2007.

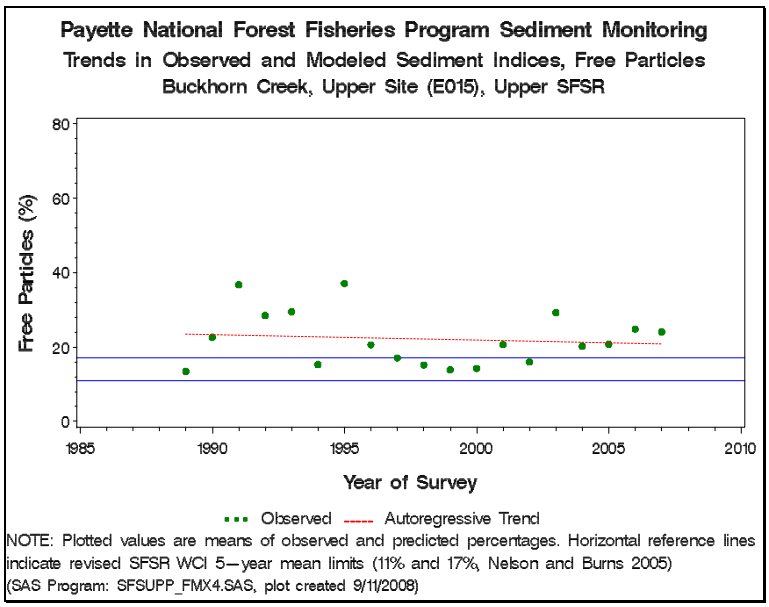

Figure 34.—Time trends in percent free matrix, Buckhorn Creek, Upper site (E015), 1989-2007.

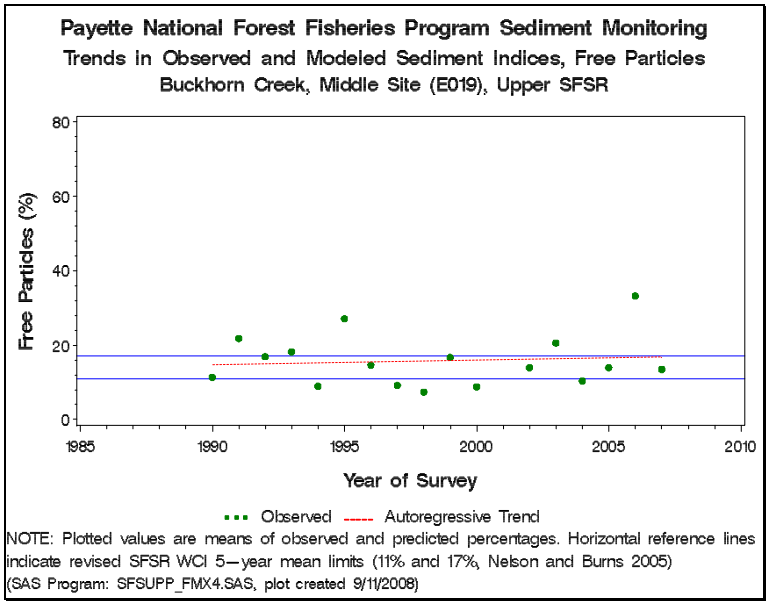

Figure 35.—Time trends in percent free matrix, Buckhorn Creek, Middle site (E019), 1989-2007.

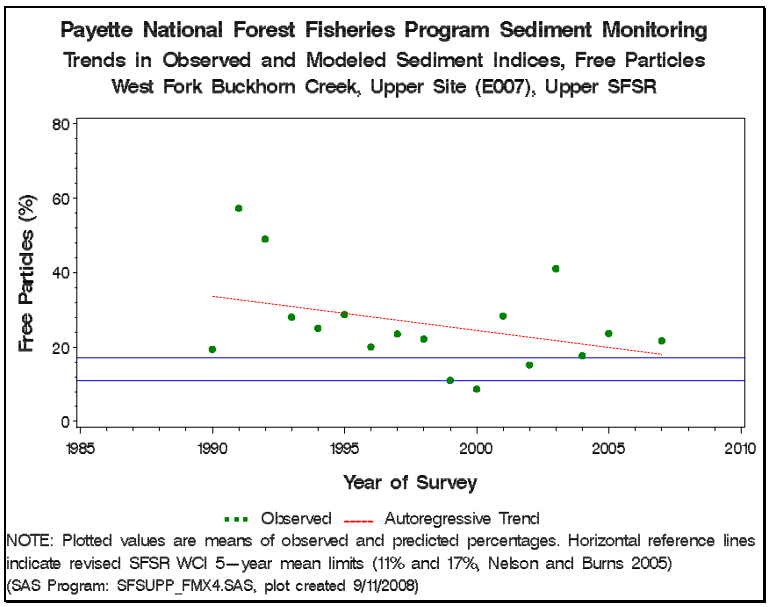

Figure 36.—Time trends in percent free matrix, West Fork Buckhorn Creek, Upper site (E007), 1989-2007.

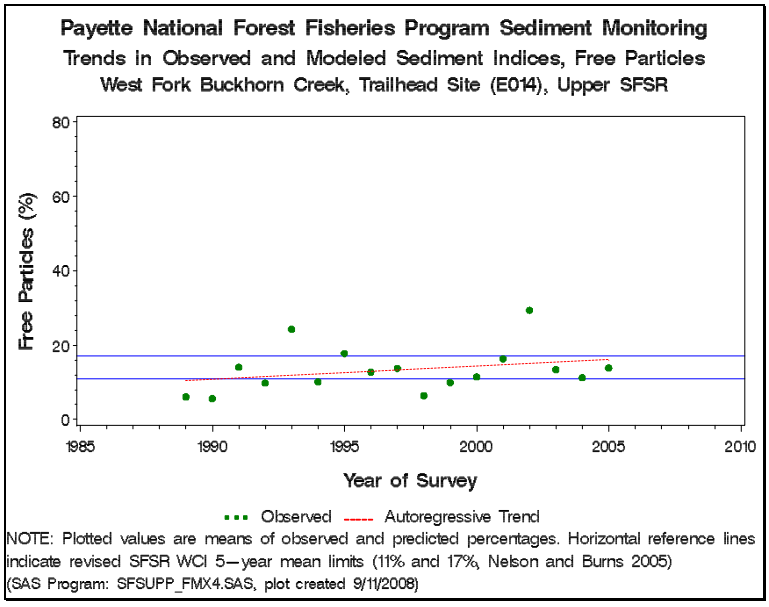

Figure 37.—Time trends in percent free matrix, West Fork Buckhorn Creek, Trailhead site (E014), 1989-2007.

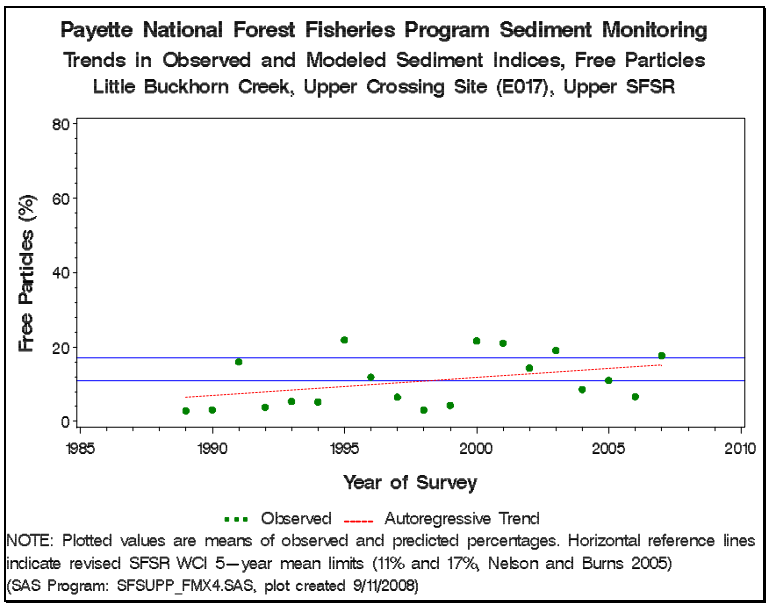

Figure 38.—Time trends in percent free matrix, Little Buckhorn Creek, Upper Crossing site (E017), 1989-2007.

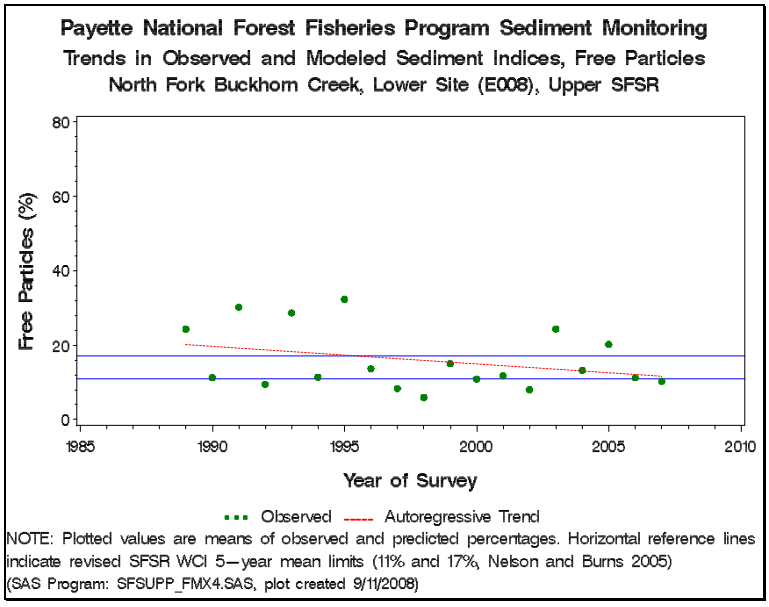

Figure 39.—Time trends in percent free matrix, North Fork Buckhorn Creek, Lower site (E008), 1989-2006.

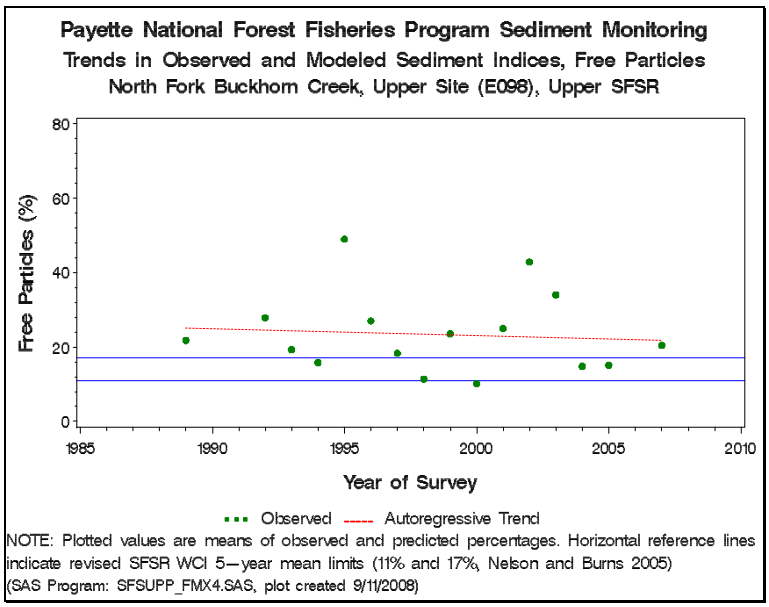

Figure 40.—Time trends in percent free matrix, North Fork Buckhorn Creek, Upper site (E098), 1989-2007.

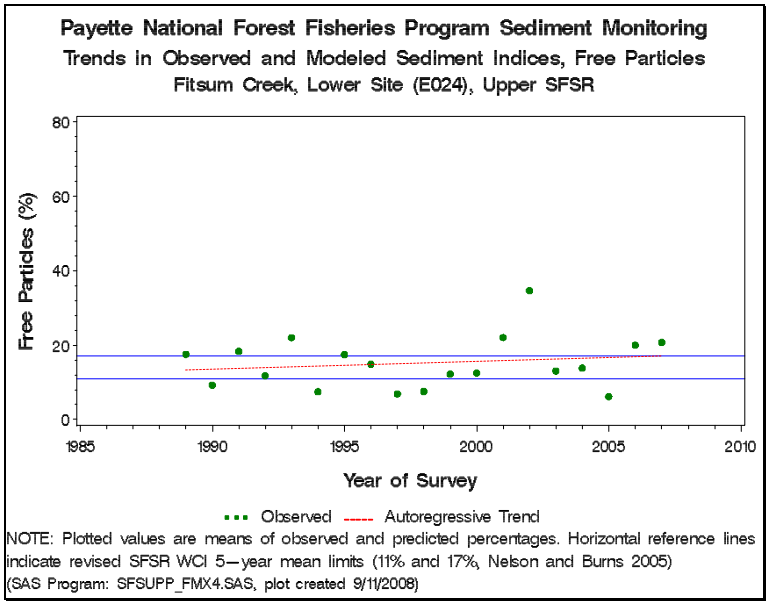

Figure 41.—Time trends in percent free matrix, Fitsum Creek, Lower site (E024), 1989-2007.

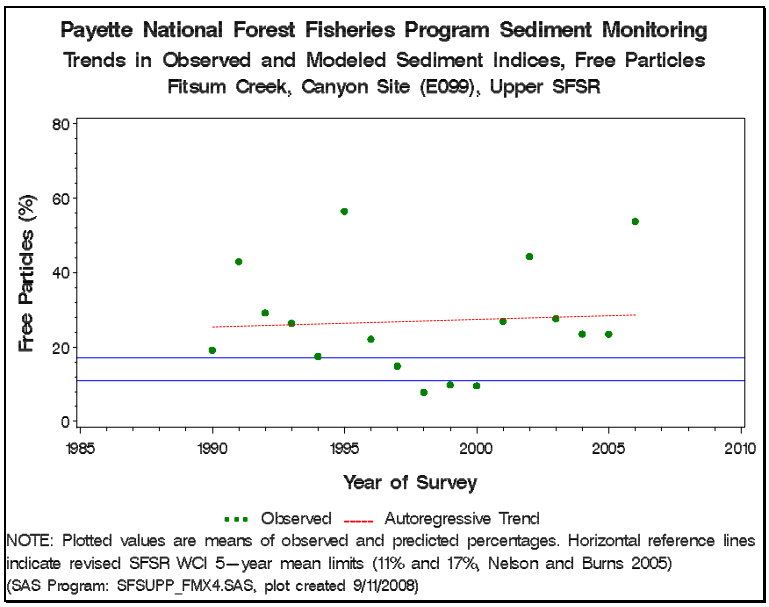

Figure 42.—Time trends in percent free matrix, Fitsum Creek, Canyon site (E099), 1990-2007.

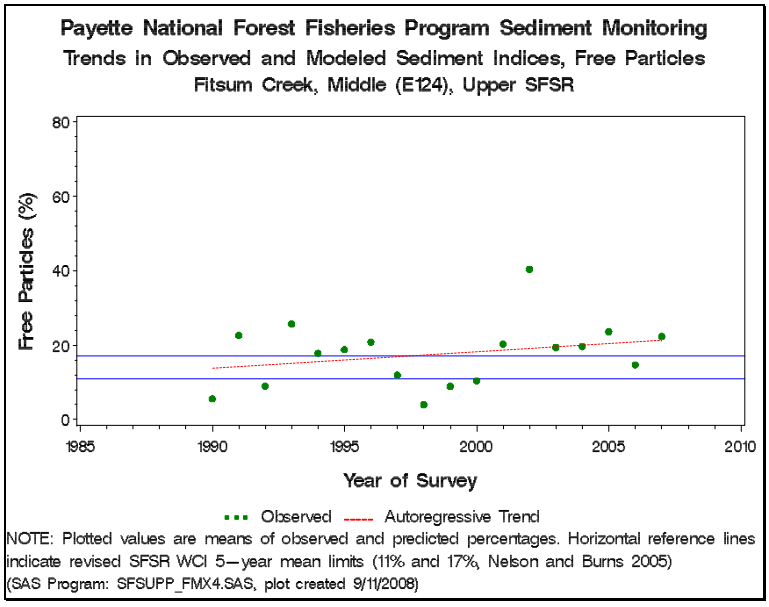

Figure 43.—Time trends in percent free matrix, Fitsum Creek, Middle site (E124), 1990-2007.

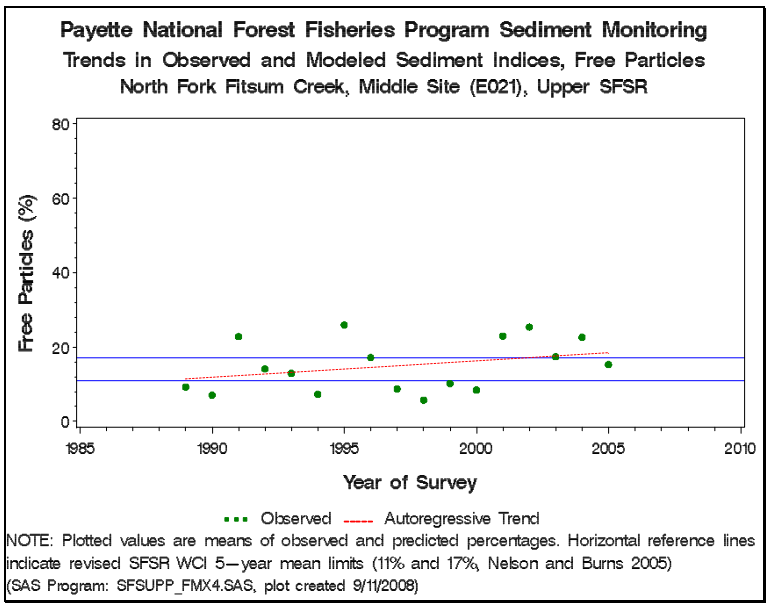

Figure 44.—Time trends in percent free matrix, North Fork Fitsum Creek, Middle site (E021), 1989-2005.

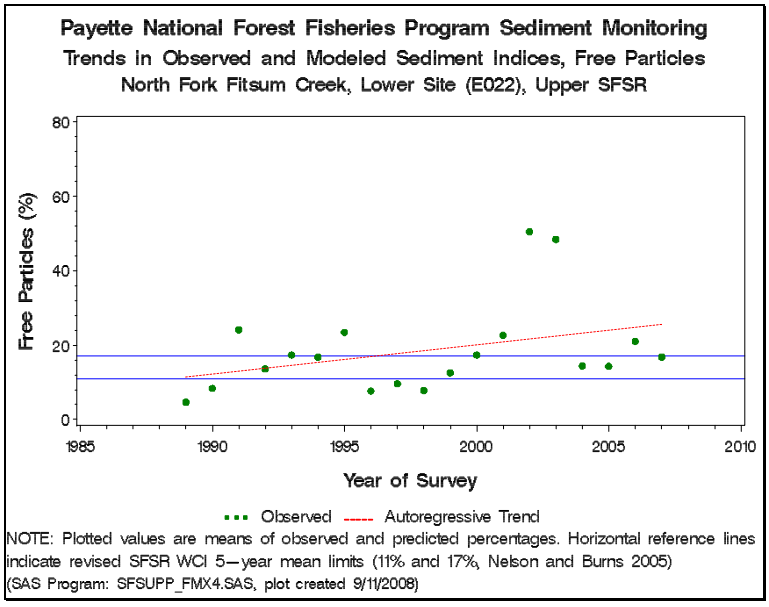

Figure 45.—Time trends in percent free matrix, North Fork Fitsum Creek, Lower site (E022), 1989-2007.

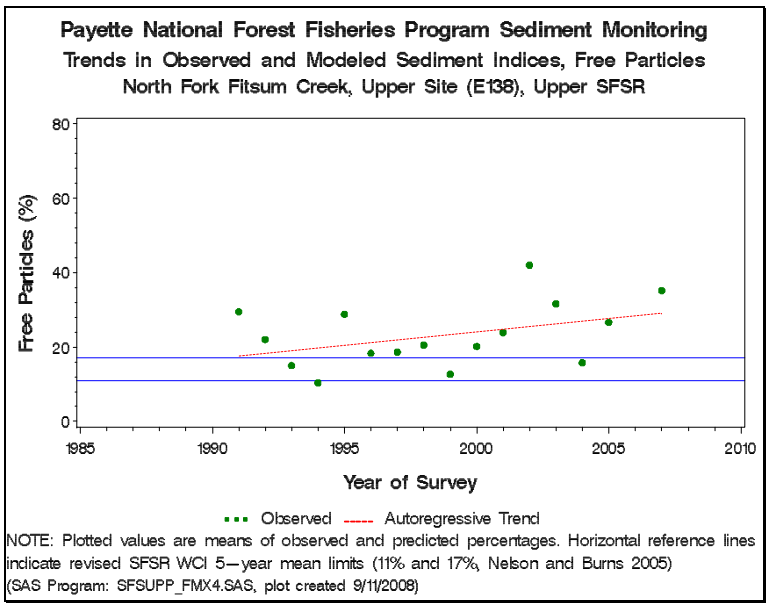

Figure 46.—Time trends in percent free matrix, North Fork Fitsum Creek, Upper site (E138), 1990-2007.

Cobble Embeddedness

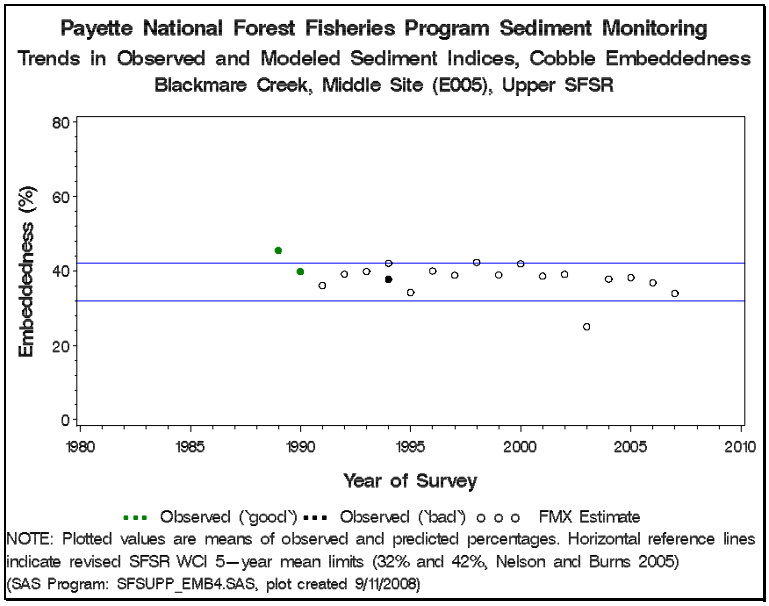

Figure 47.—Time trends in percent cobble embeddedness, Blackmare Creek, Middle site (E005), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

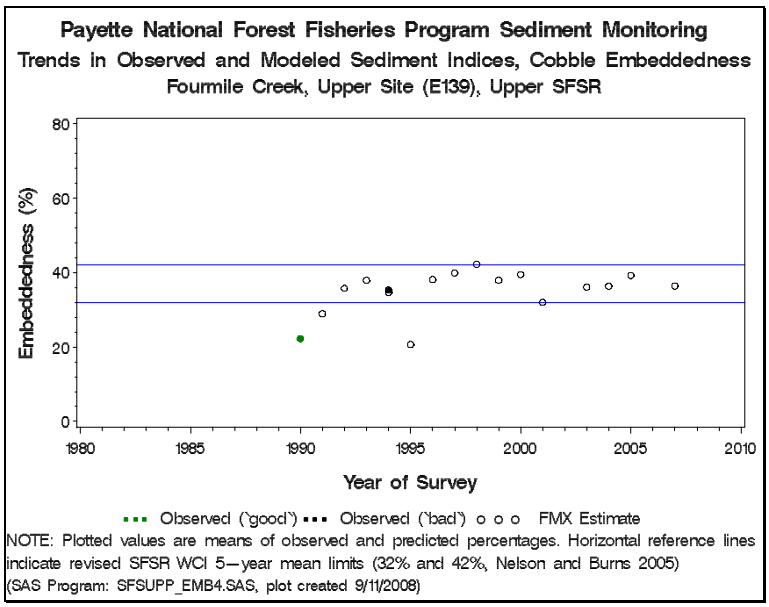

Figure 48.—Time trends in percent cobble embeddedness, Fourmile Creek, Upper site (E139), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

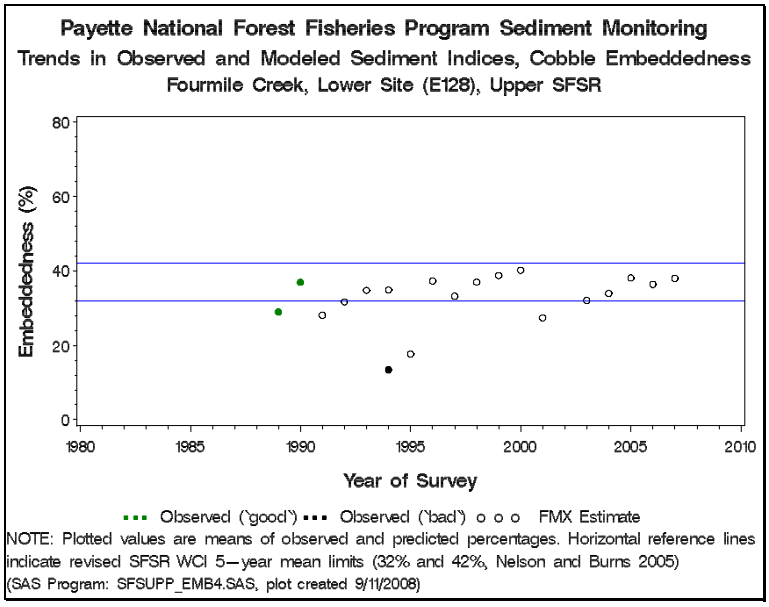

Figure 49.—Time trends in percent cobble embeddedness, Fourmile Creek, Lower site (E128), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

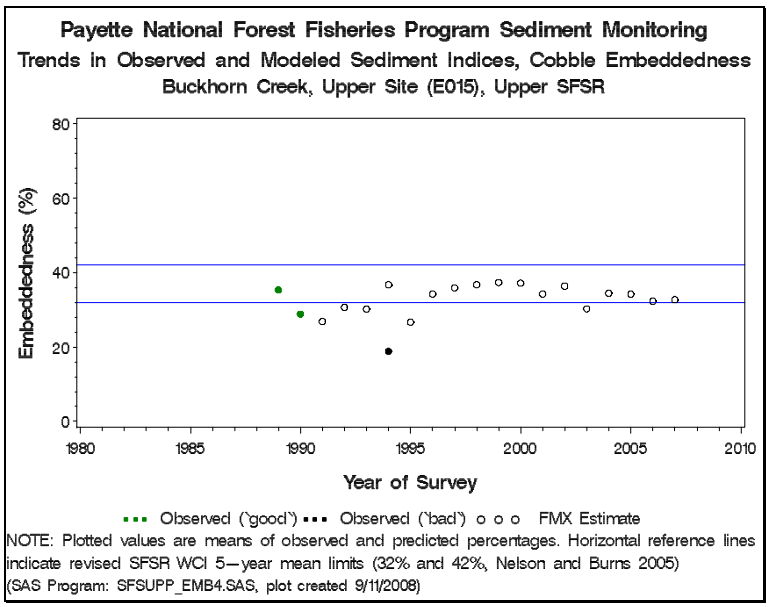

Figure 50.—Time trends in percent cobble embeddedness, Buckhorn Creek, Upper site (E015), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

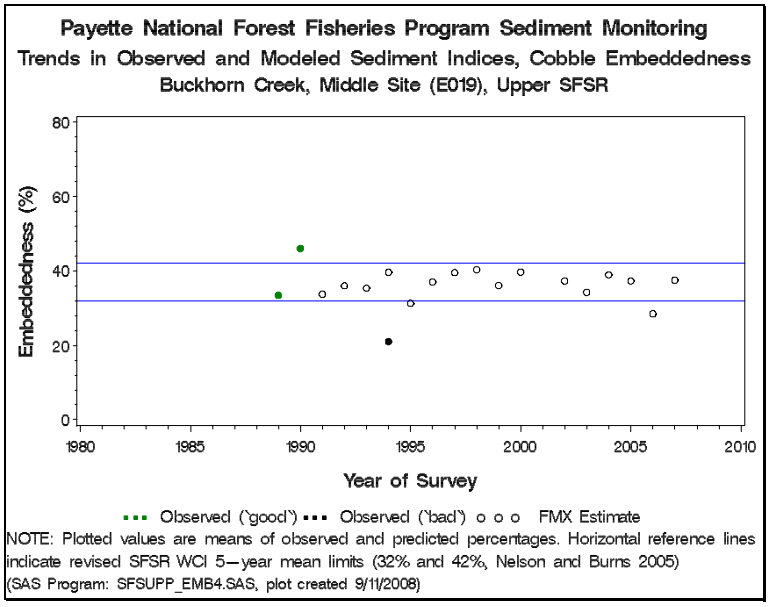

Figure 51.—Time trends in percent cobble embeddedness, Buckhorn Creek, Middle site (E019), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

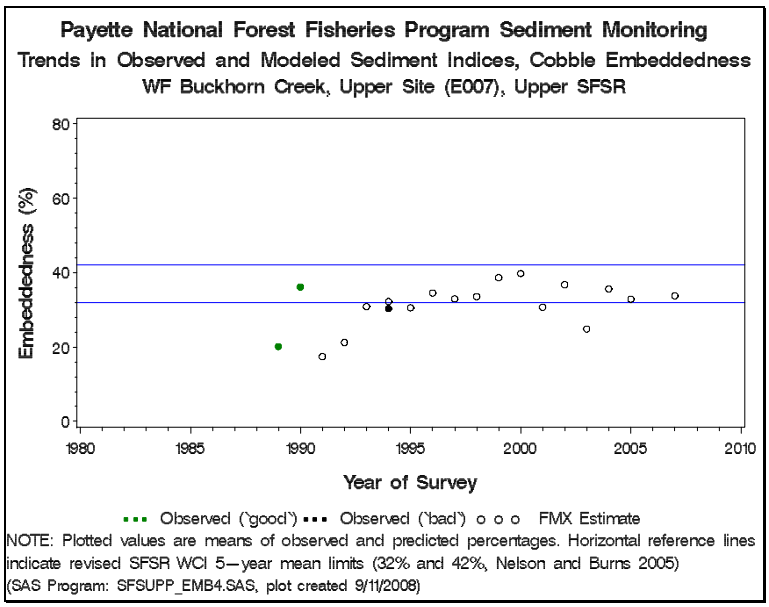

Figure 52.—Time trends in percent cobble embeddedness, West Fork Buckhorn Creek, Upper site (E007), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

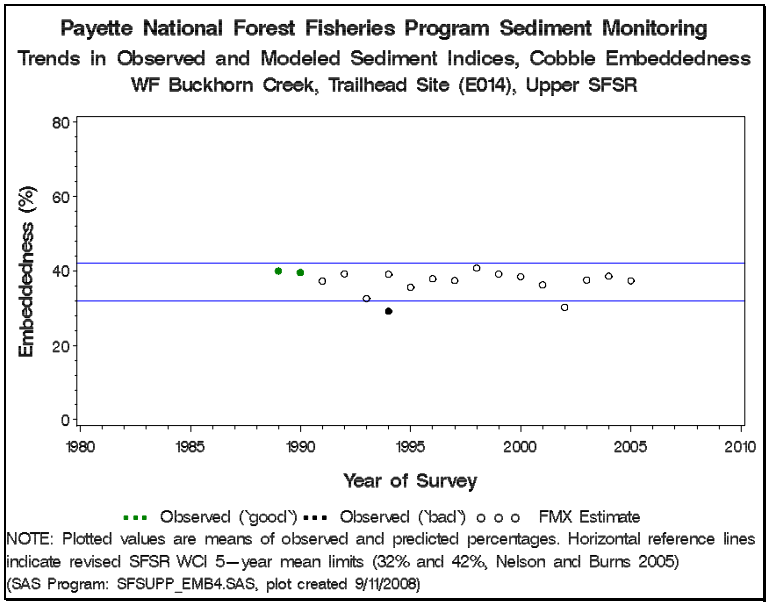

Figure 53.—Time trends in percent cobble embeddedness, West Fork Buckhorn Creek, Trailhead site (E014), 1989-2005 (estimate is CE = 43.81680 - 0.45964 • FMX).

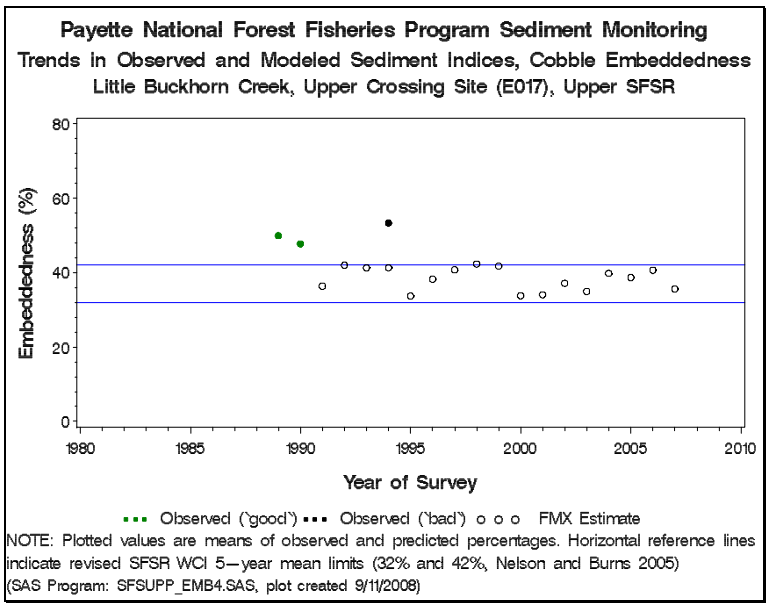

Figure 54.—Time trends in percent cobble embeddedness, Little Buckhorn Creek, Upper Crossing site (E017), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

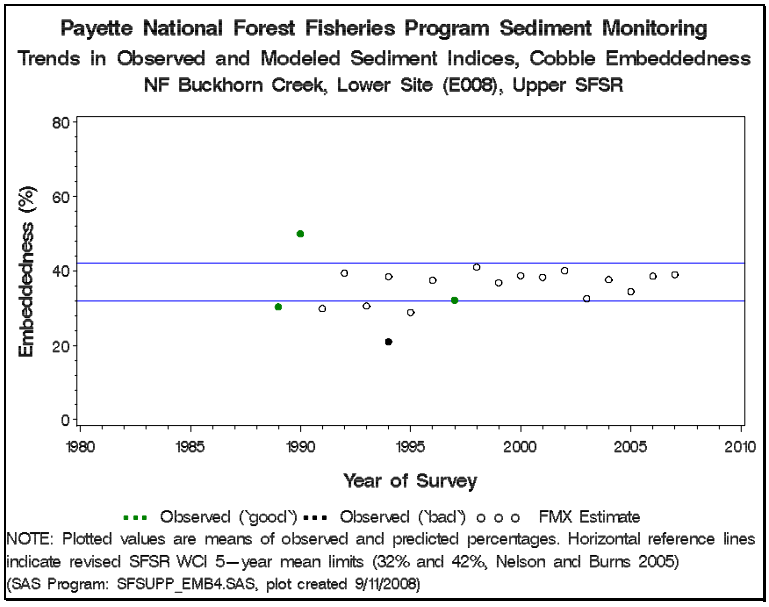

Figure 55.—Time trends in percent cobble embeddedness, North Fork Buckhorn Creek, Lower site (E008), 1989-2007 (estimate is CE = 443.81680 - 0.45964 • FMX).

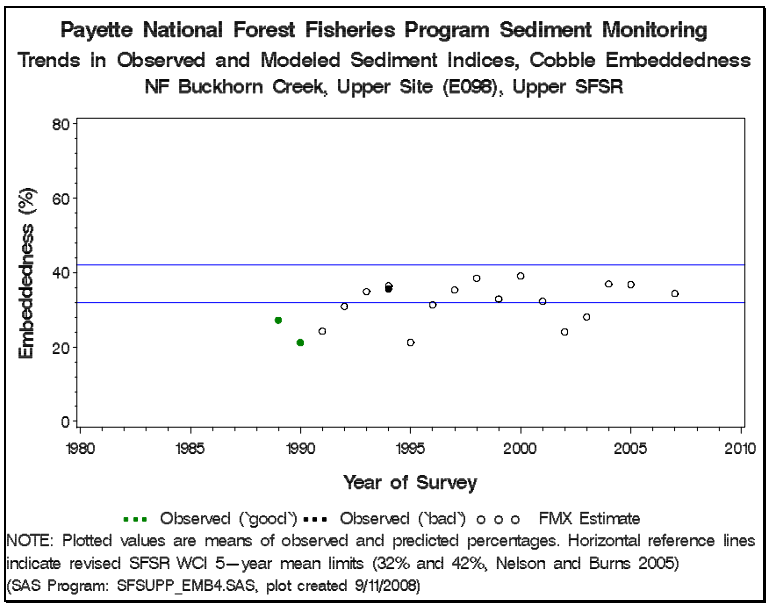

Figure 56.—Time trends in percent cobble embeddedness, North Fork Buckhorn Creek, Upper site (E098), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

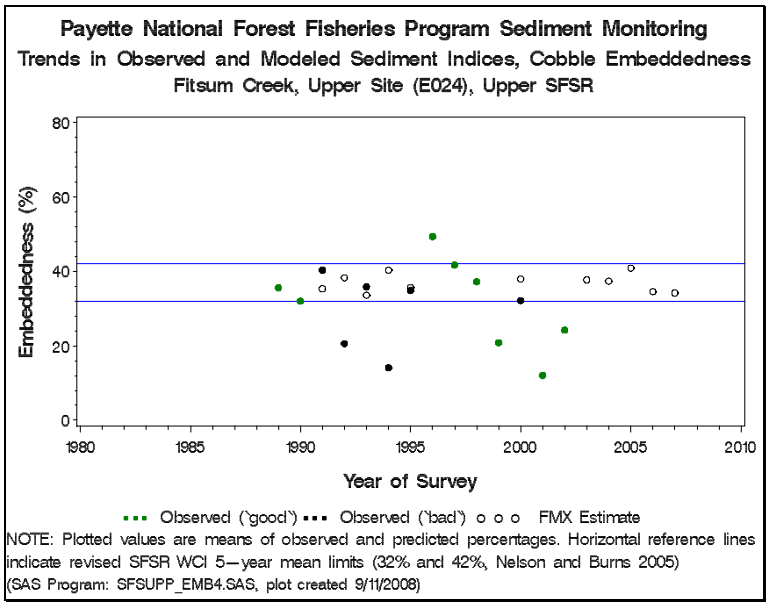

Figure 57.—Time trends in percent cobble embeddedness, Fitsum Creek, Lower site (E024), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

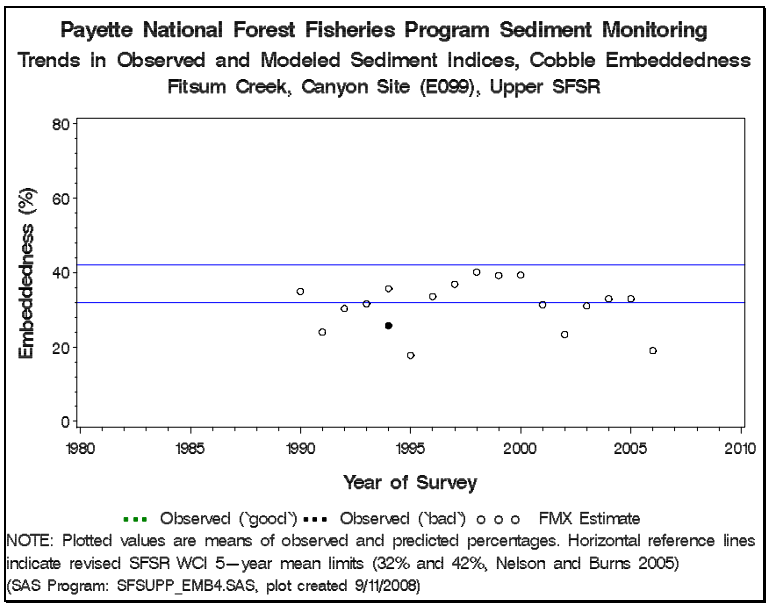

Figure 58.—Time trends in percent cobble embeddedness, Fitsum Creek, Canyon site (E099), 1990-2006 (estimate is CE = 43.81680 - 0.45964 • FMX).

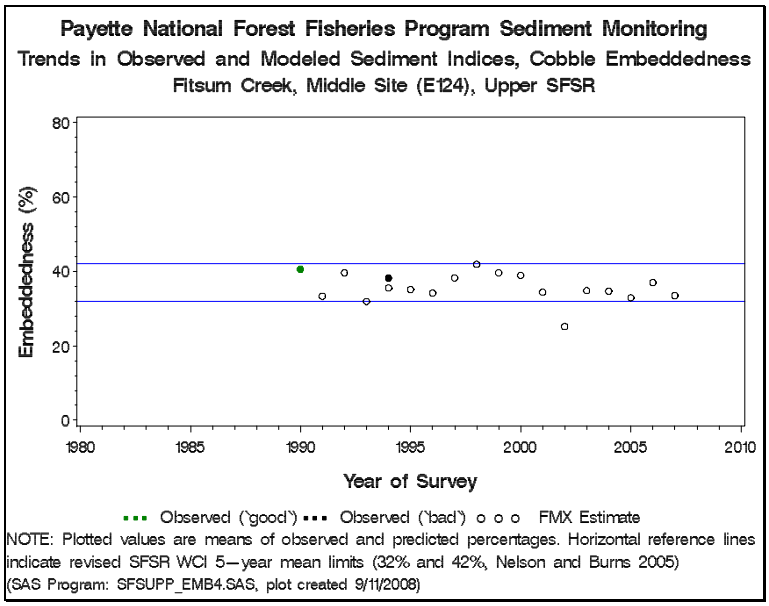

Figure 59.—Time trends in percent cobble embeddedness, Fitsum Creek, Middle site (E124), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

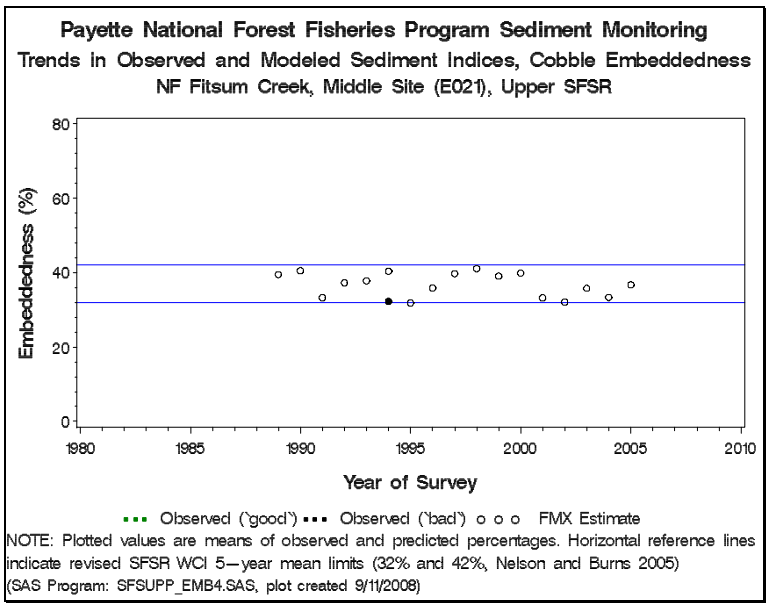

Figure 60.—Time trends in percent cobble embeddedness, North Fork Fitsum Creek, Middle site (E021), 1989-2005 (estimate is CE = 43.81680 - 0.45964 • FMX).

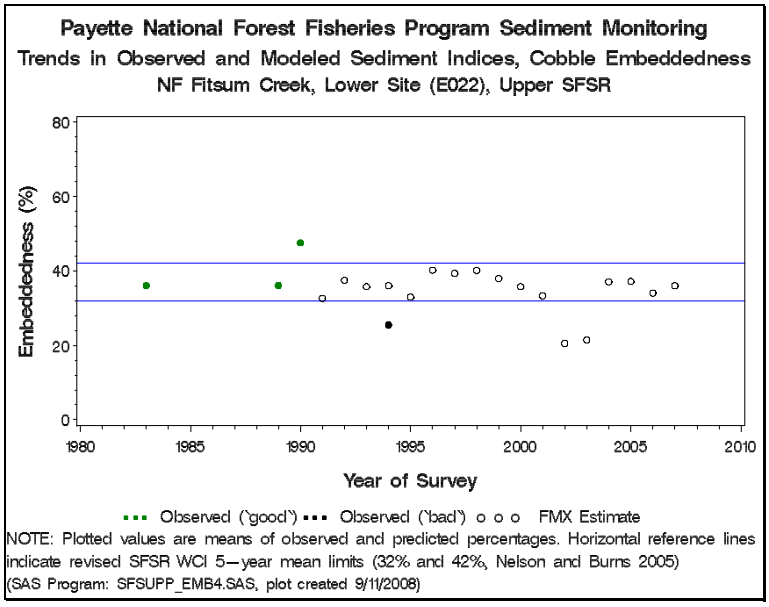

Figure 61.—Time trends in percent cobble embeddedness, North Fork Fitsum Creek, Lower site (E022), 1983-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

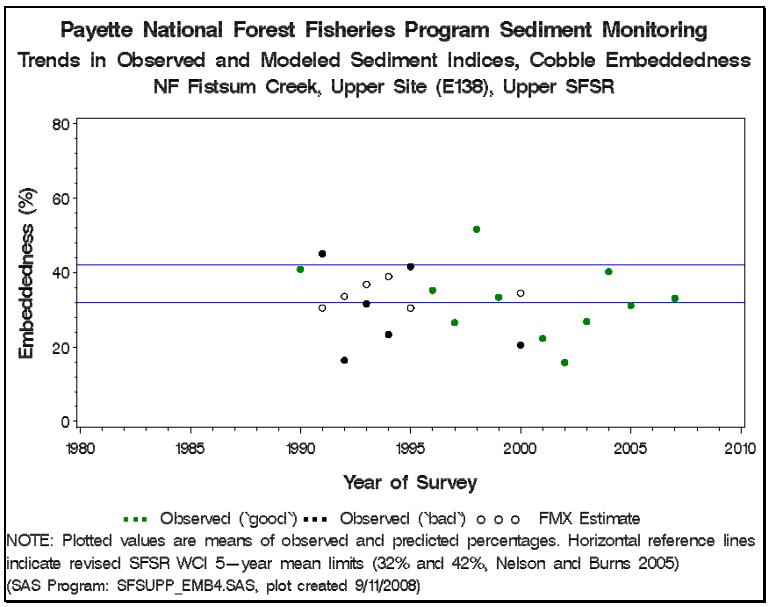

Figure 62.—Time trends in percent cobble embeddedness, North Fork Fitsum Creek, Upper site (E138), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

Surface Fines

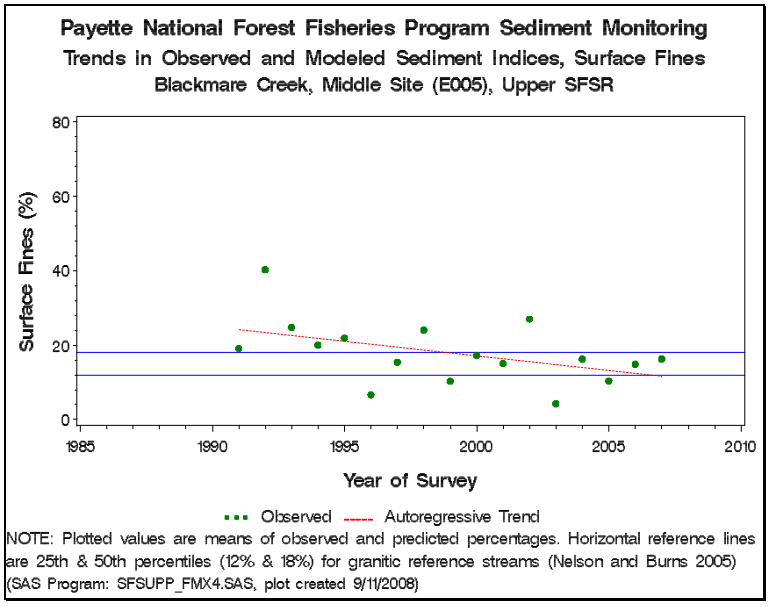

Figure 63.—Time trends in percent surface fines, Blackmare Creek, Middle site (E005), 1991-2007.

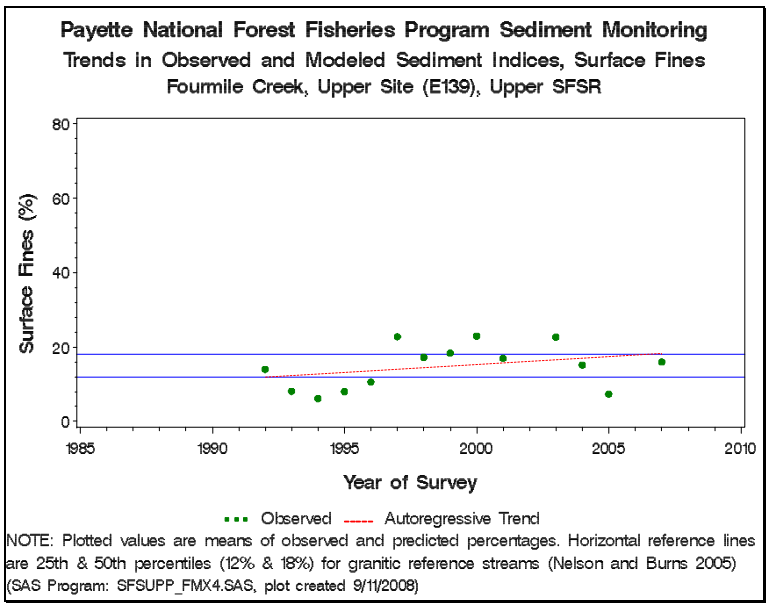

Figure 64.—Time trends in percent surface fines, Fourmile Creek, Upper site (E139), 1991-2007.

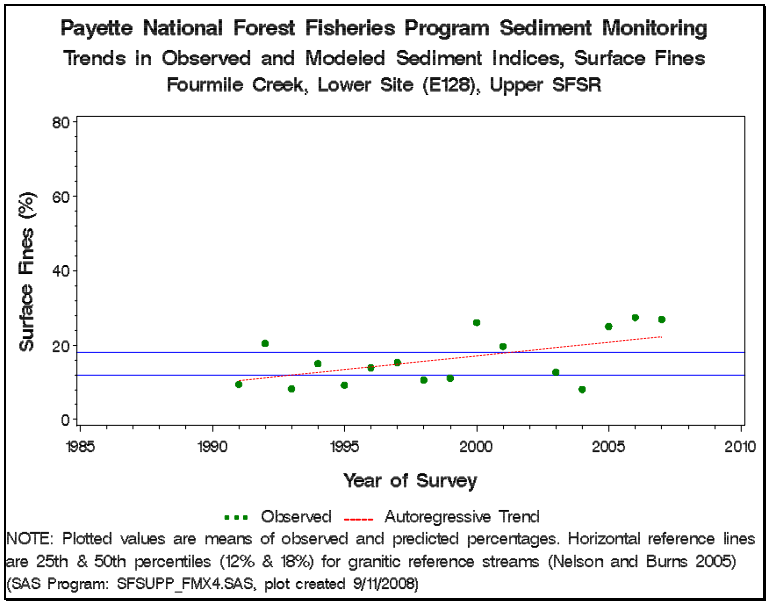

Figure 65.—Time trends in percent surface fines, Fourmile Creek, Lower site (E128), 1991-2007.

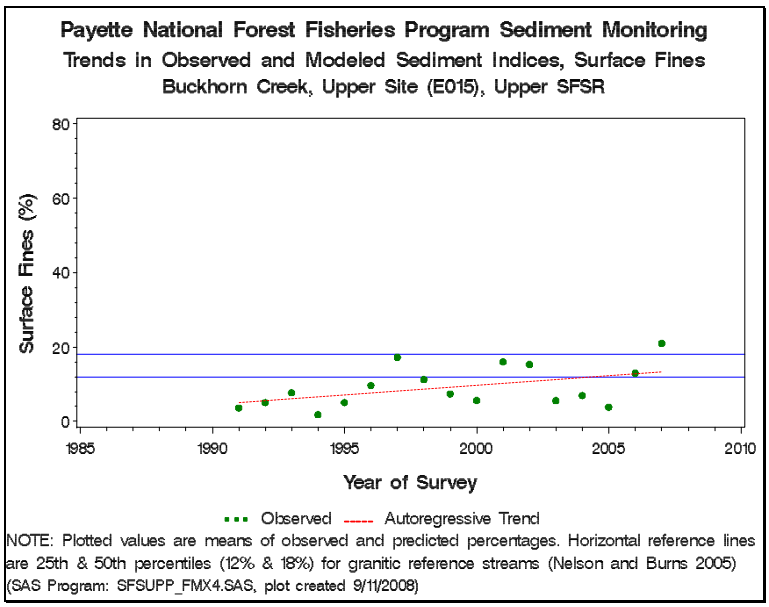

Figure 66.—Time trends in percent surface fines, Buckhorn Creek, Upper site (E015), 1991-2007.

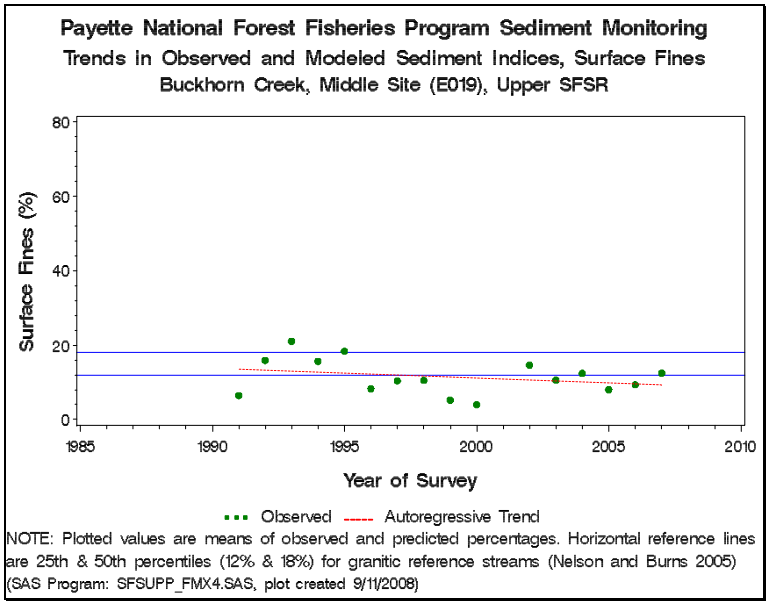

Figure 67.—Time trends in percent surface fines, Buckhorn Creek, Middle site (E019), 1991-2007.

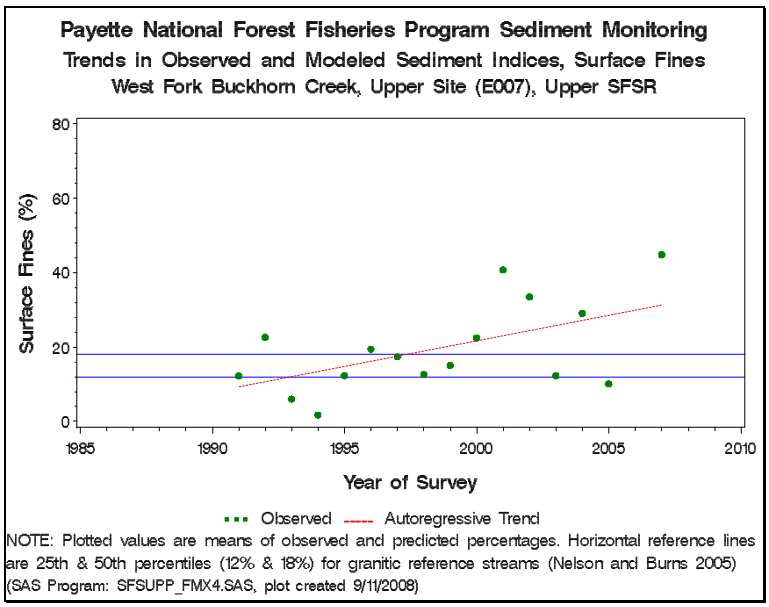

Figure 68.—Time trends in percent surface fines, West Fork Buckhorn Creek, Upper site (E007), 1991-2007.

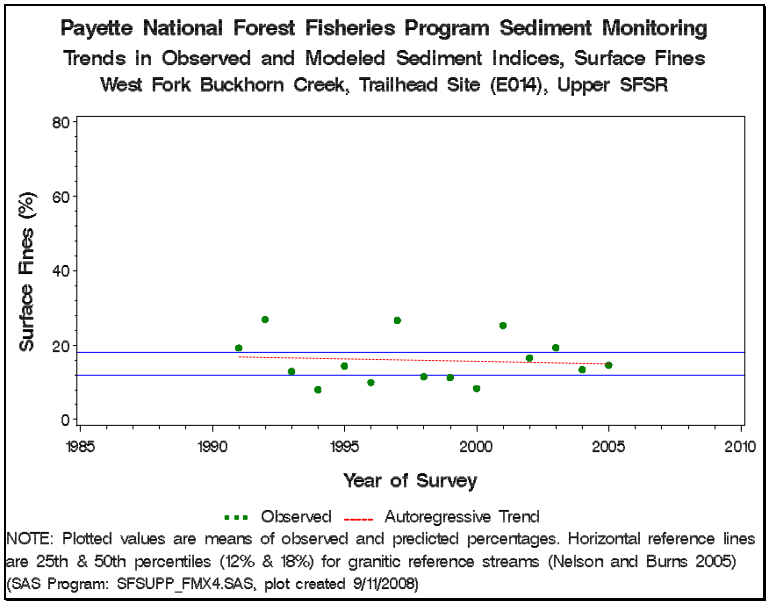

Figure 69.—Time trends in percent surface fines, West Fork Buckhorn Creek, Trailhead site (E014), 1991-2005.

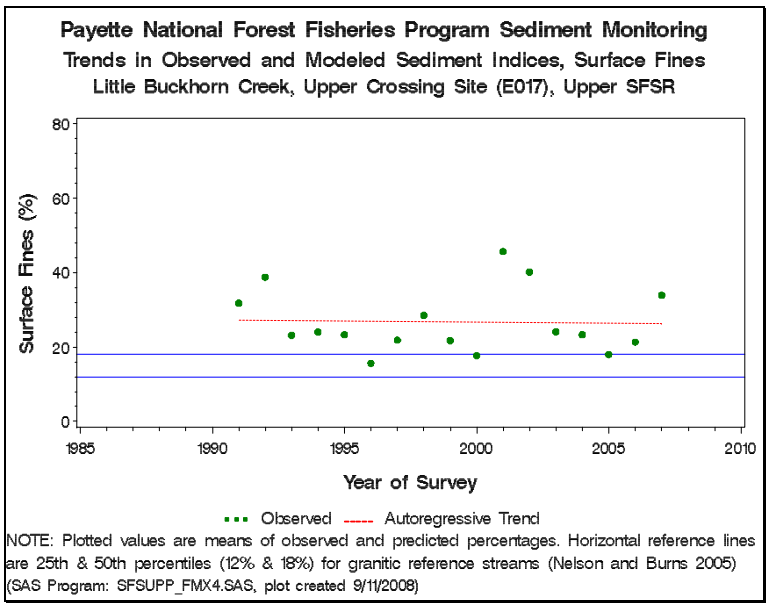

Figure 70.—Time trends in percent surface fines, Little Buckhorn Creek, Upper Crossing site (E017), 1991-2007.

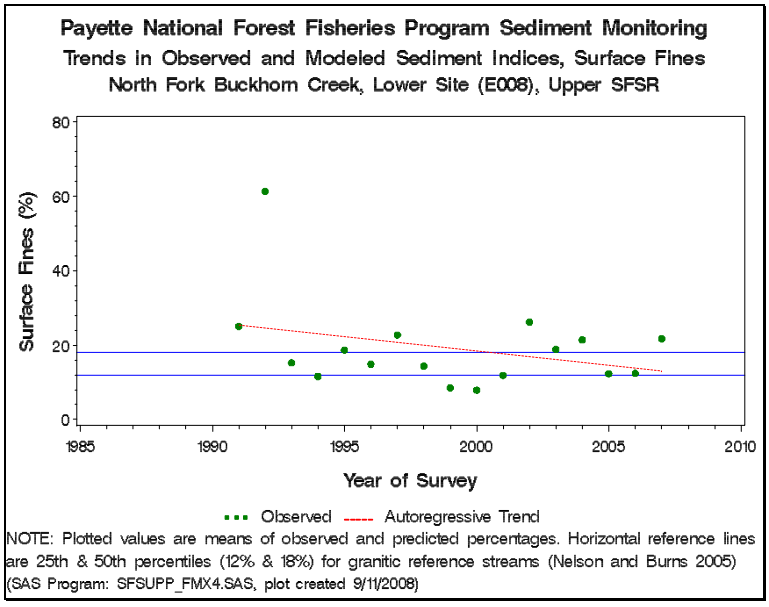

Figure 71.—Time trends in percent surface fines, North Fork Buckhorn Creek, Lower site (E008), 1991-2007.

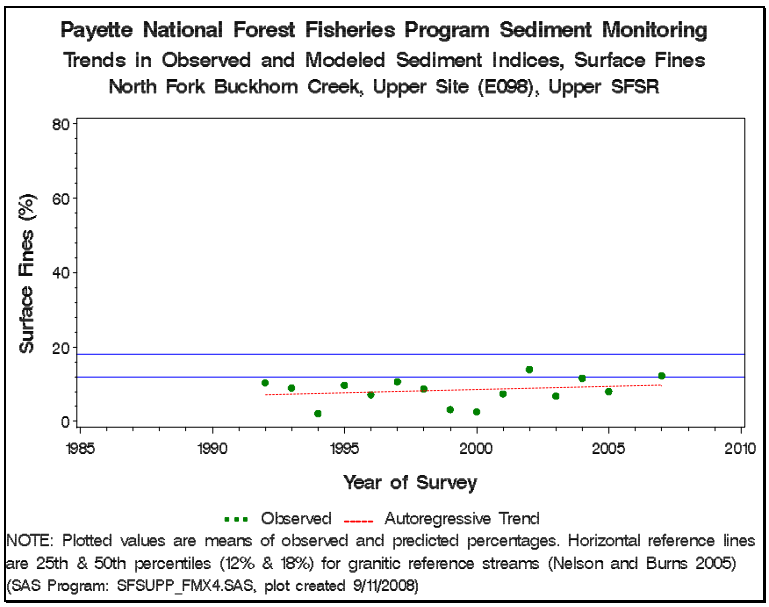

Figure 72.—Time trends in percent surface fines, North Fork Buckhorn Creek, Upper site (E098), 1991-2007.

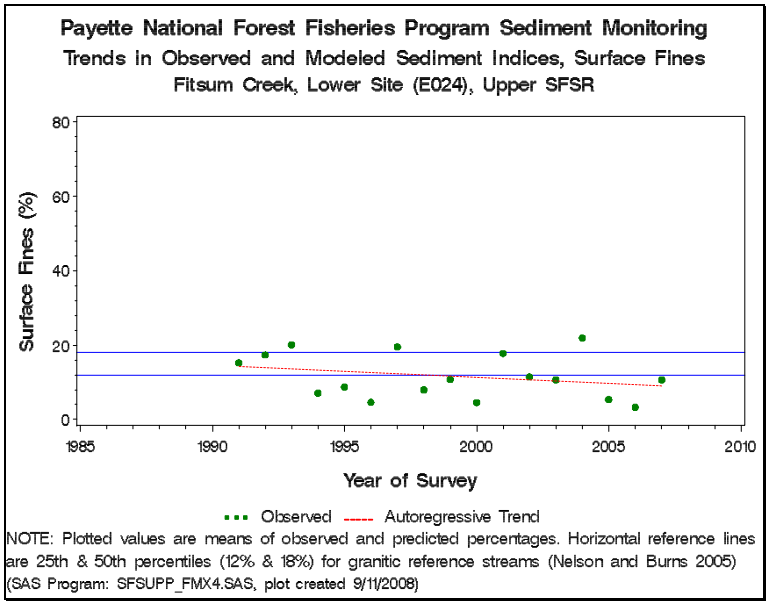

Figure 73.—Time trends in percent surface fines, Fitsum Creek, Lower site (E024), 1991-2007.

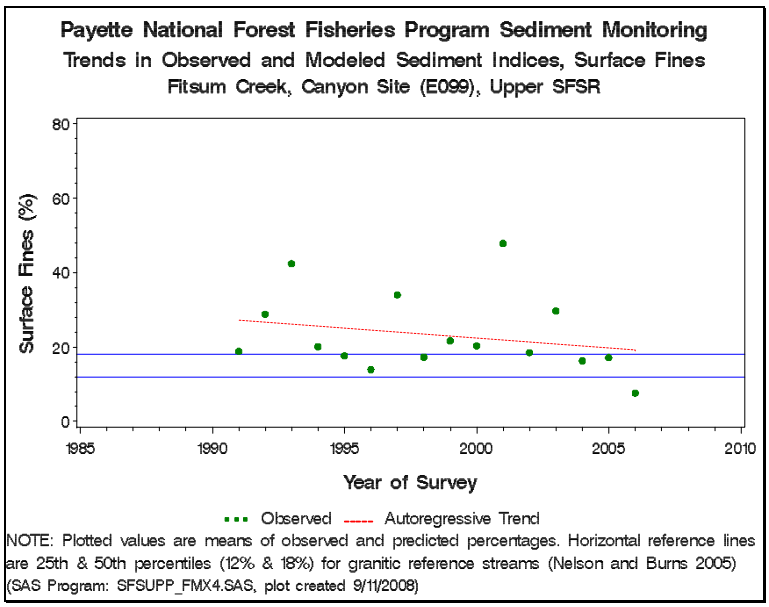

Figure 74.—Time trends in percent surface fines, Fitsum Creek, Canyon site (E099), 1991-2006.

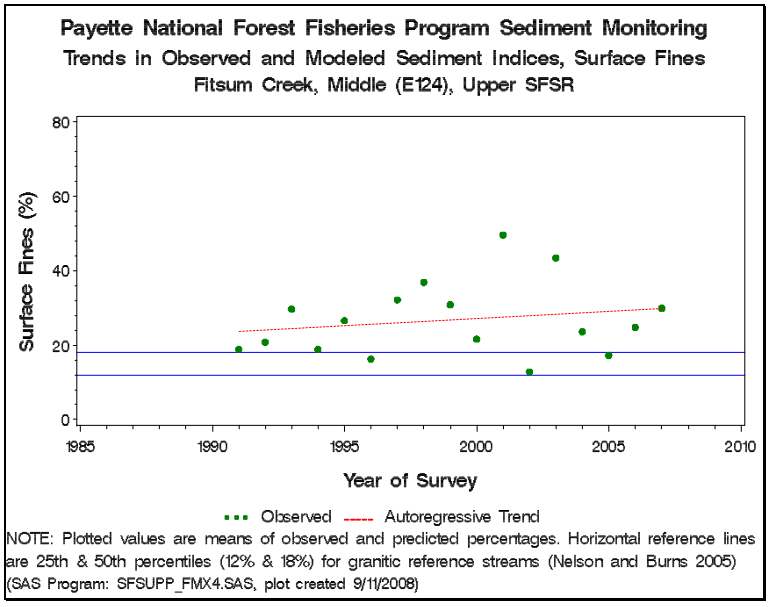

Figure 75.—Time trends in percent surface fines, Fitsum Creek, Middle site (E124), 1991-2007.

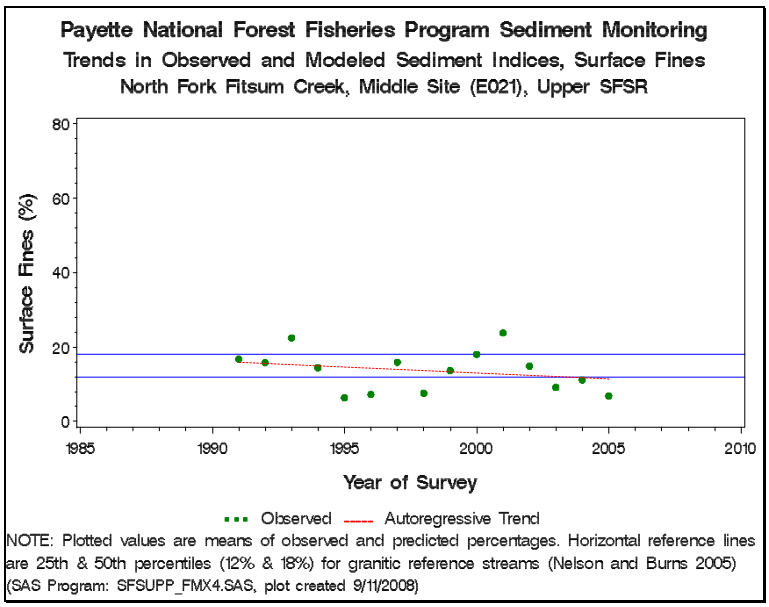

Figure 76.—Time trends in percent surface fines, North Fork Fitsum Creek, Middle site (E021), 1991-2005.

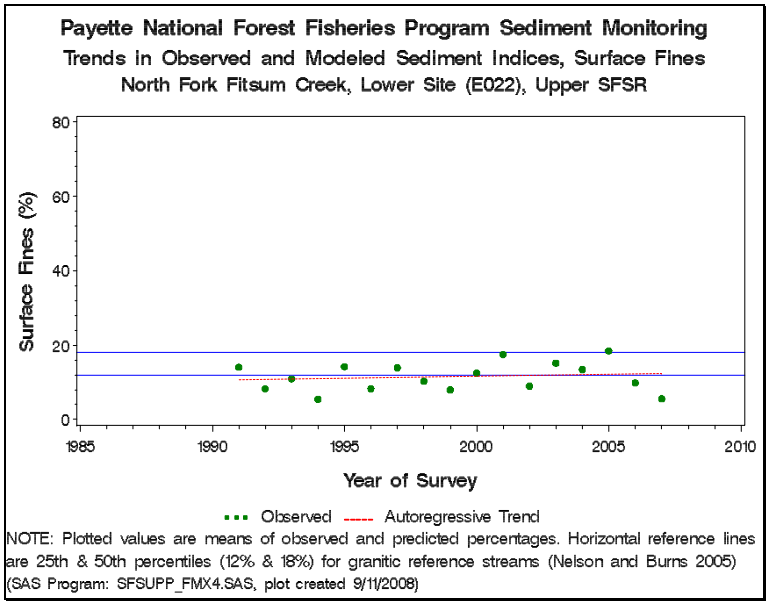

Figure 77.—Time trends in percent surface fines, North Fork Fitsum Creek, Lower site (E022), 1991-2007.

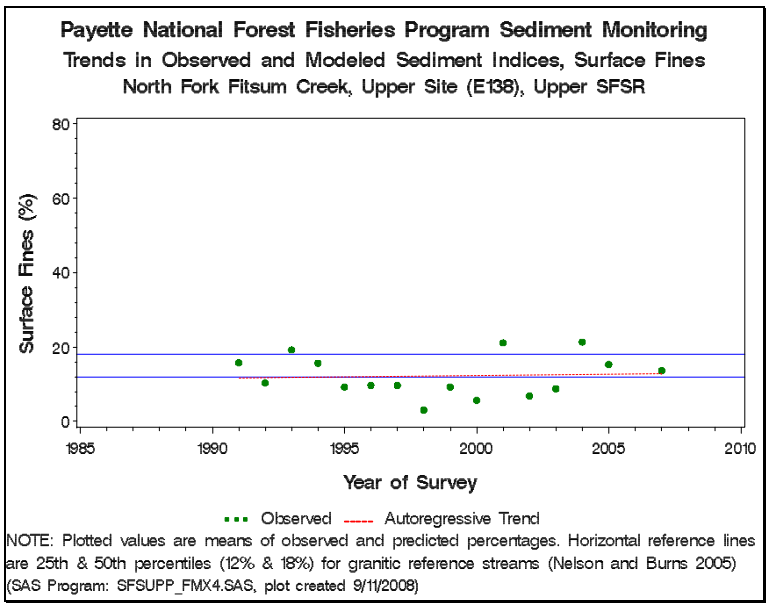

Figure 78.—Time trends in percent surface fines, North Fork Fitsum Creek, Upper site (E138), 1991-2007.

Miscellaneous Sites

30-Hoop Free Matrix

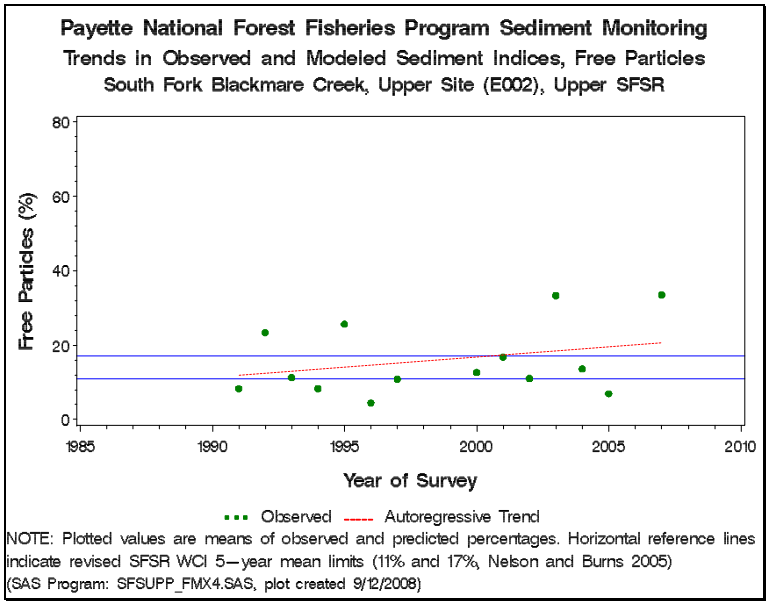

Figure 79.—Time trends in percent free matrix, South Fork Blackmare Creek, Upper site (E002), 1990-2005.

Cobble Embeddedness

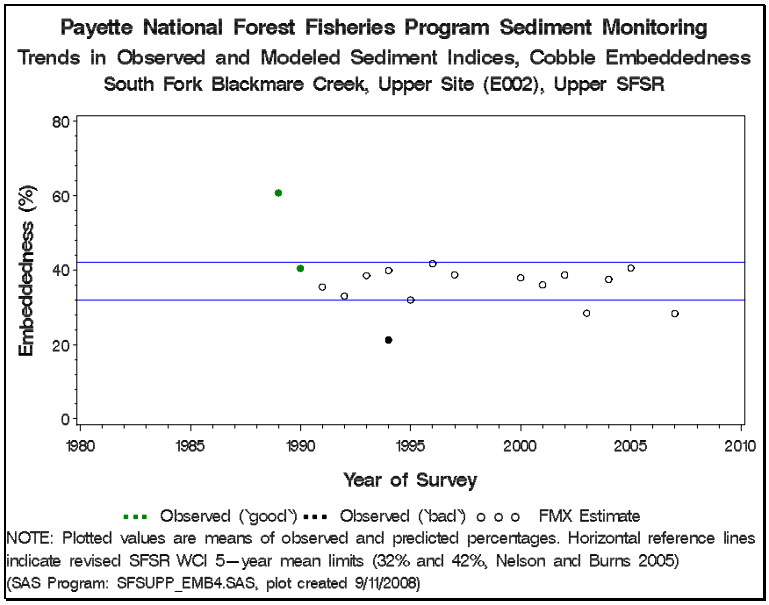

Figure 80.—Time trends in percent cobble embeddedness, South Fork Blackmare Creek, Upper site (E002), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

Surface Fines

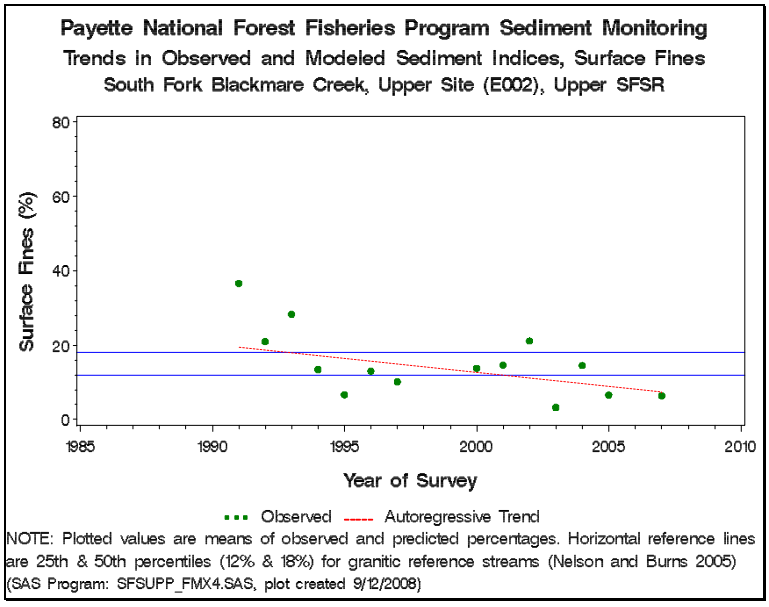

Figure 81.—Time trends in percent surface fines, South Fork Blackmare Creek, Upper site (E002), 1991-2007.

Secesh River

Primary Sites

30-Hoop Free Matrix

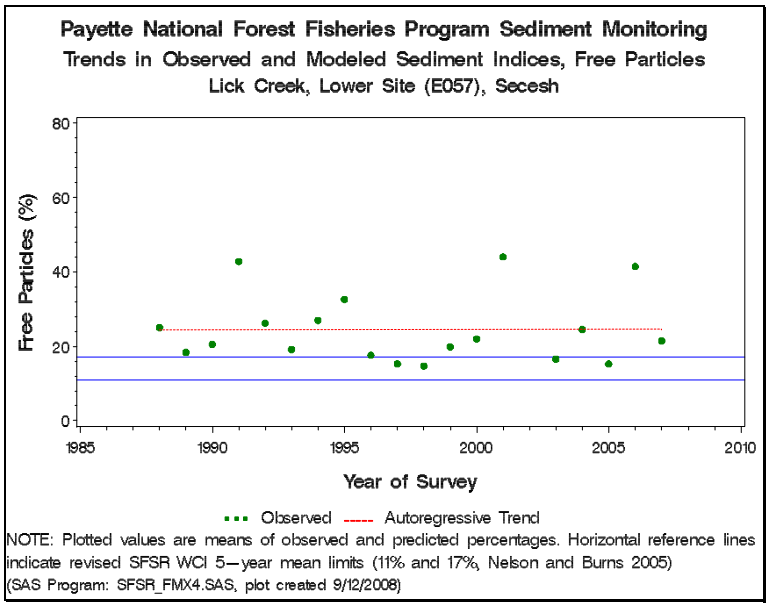

Figure 82.—Time trends in percent free matrix, Lick Creek, Lower site (E057), 1988-2007.

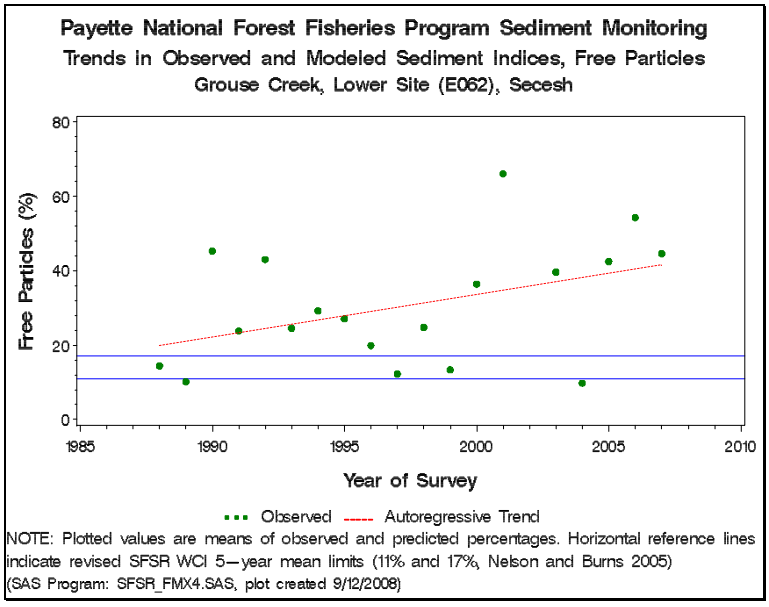

Figure 83.—Time trends in percent free matrix, Grouse Creek, Lower site (E062), 1988-2007.

Cobble Embeddedness

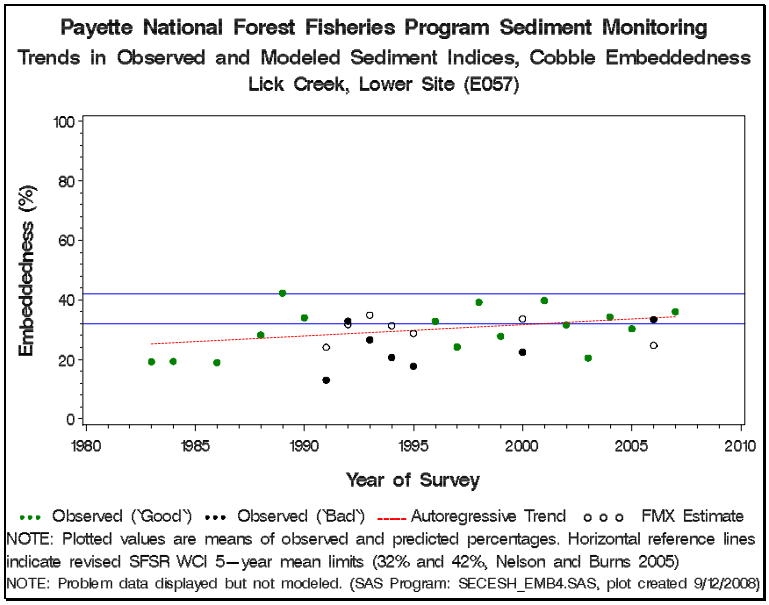

Figure 84.—Time trends in percent cobble embeddedness, Lick Creek, Lower site (E057), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

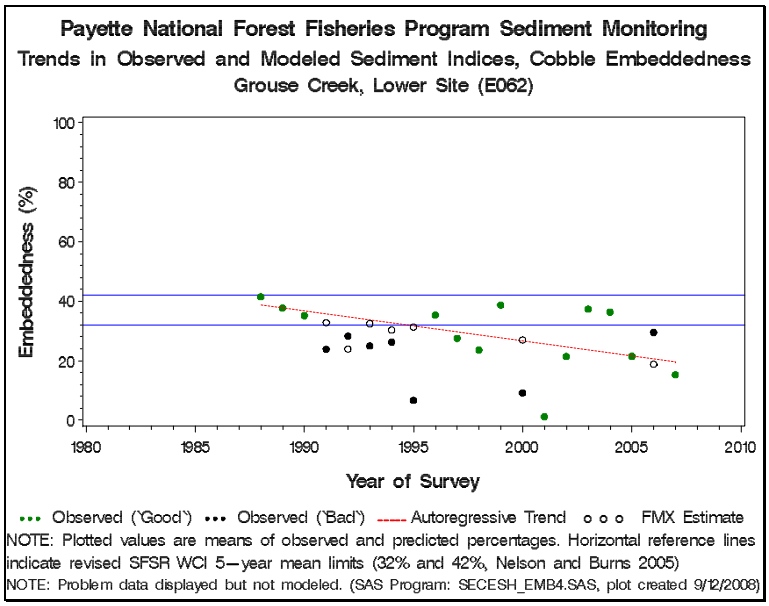

Figure 85.—Time trends in percent cobble embeddedness, Grouse Creek, Lower site (E062), 1989-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

Surface Fines

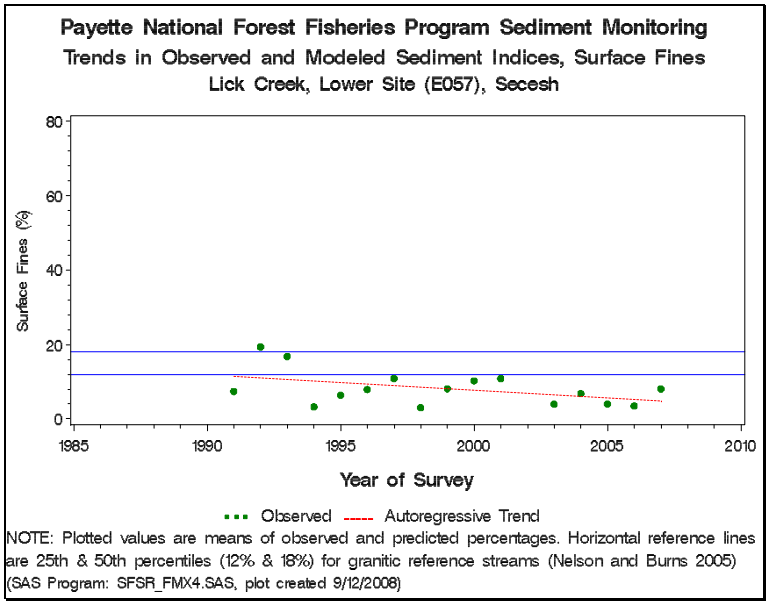

Figure 86.—Time trends in percent surface fines, Lick Creek, Lower site (E057), 1991-2007.

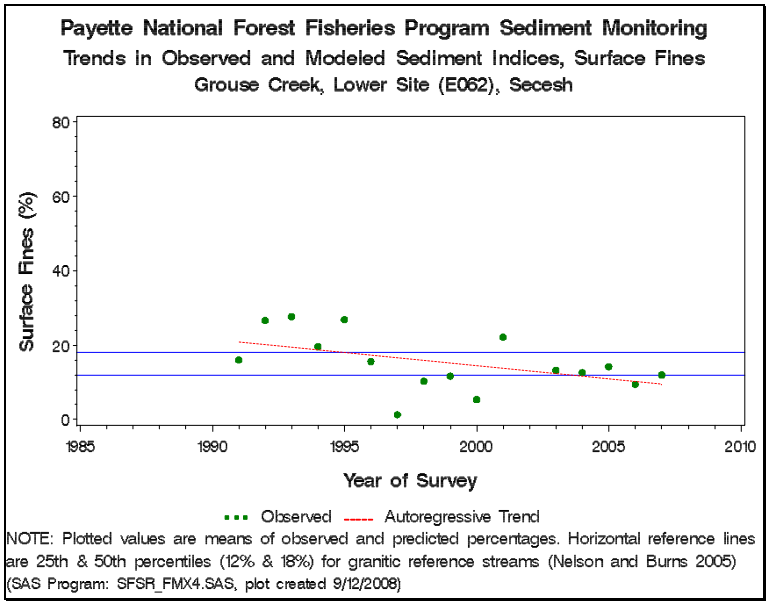

Figure 87.—Time trends in percent surface fines, Grouse Creek, Lower site (E062), 1991-2007.

Supplemental Sites

30-Hoop Free Matrix

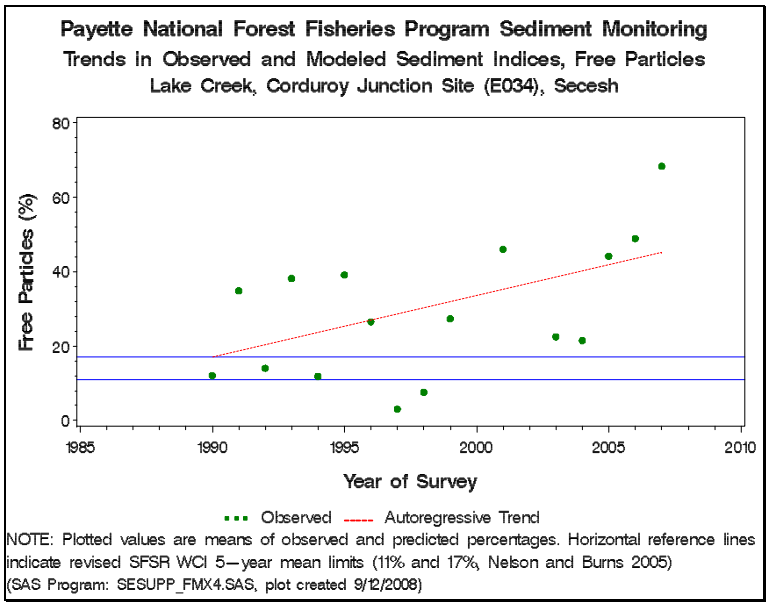

Figure 88.—Time trends in percent free matrix, Lake Creek, Corduroy Junction site (E034), 1990-2007.

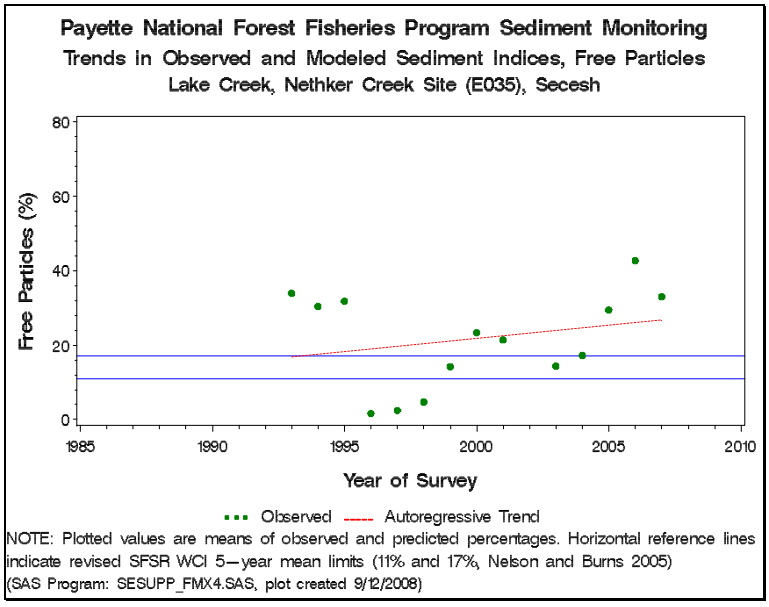

Figure 89.—Time trends in percent free matrix, Lake Creek, Nethker Creek site (E035), 1993-2007.

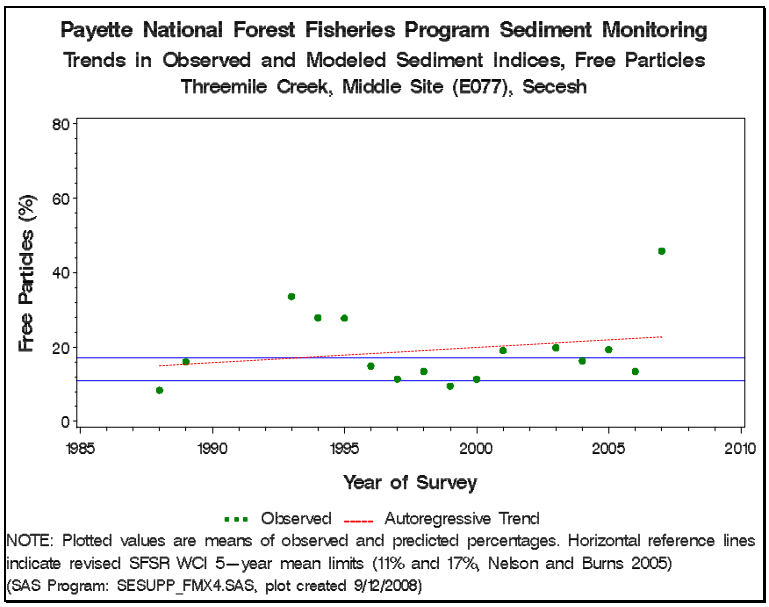

Figure 90.—Time trends in percent free matrix, Threemile Creek, Middle site (E077), 1988-2007.

Cobble Embeddedness

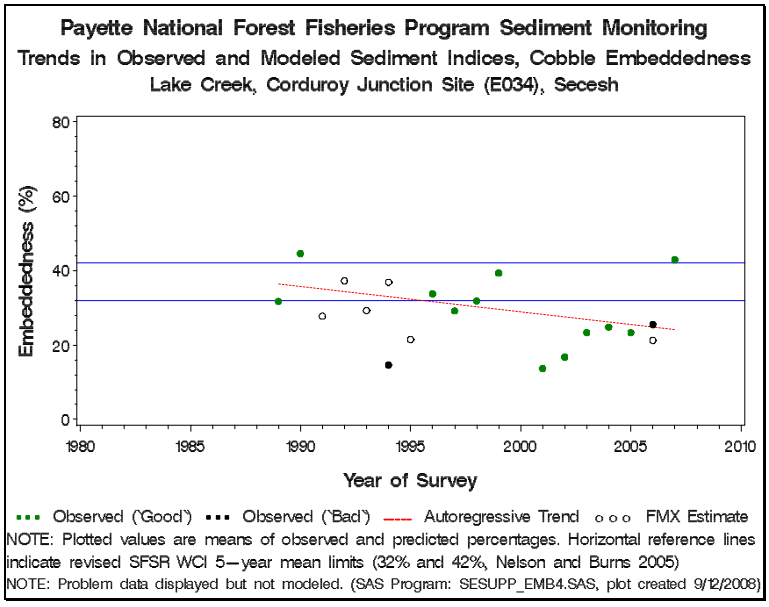

Figure 91.—Time trends in percent cobble embeddedness, Lake Creek, Corduroy Junction site (E034), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX; 1993-1995 data from range monitoring subsites excluded).

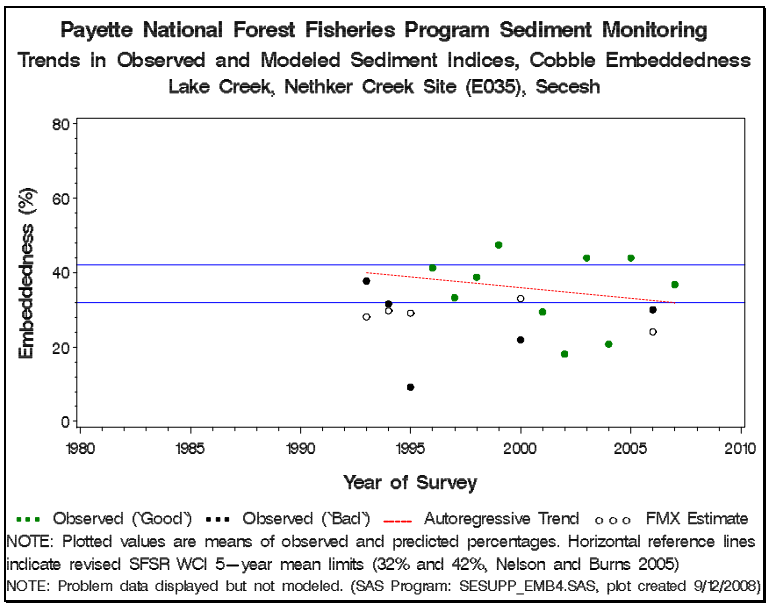

Figure 92.—Time trends in percent cobble embeddedness, Lake Creek, Nethker Creek site (E035), 1993-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

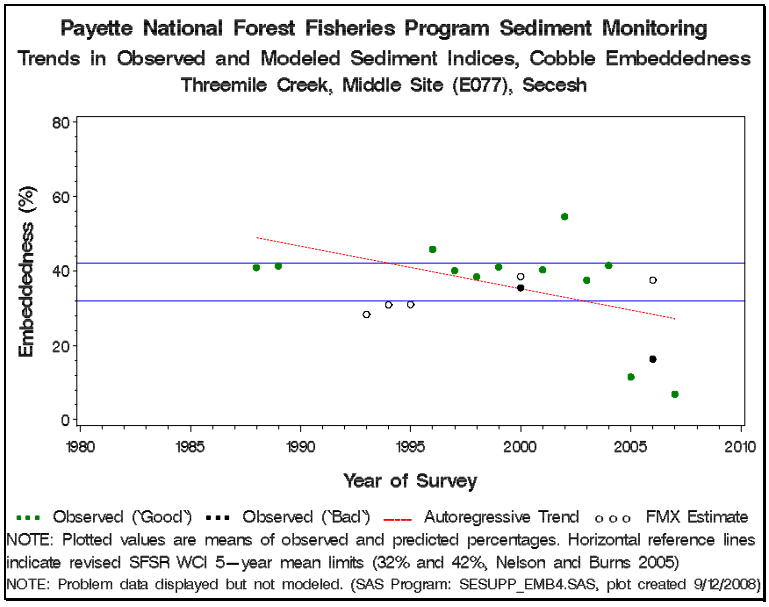

Figure 93.—Time trends in percent free matrix, Threemile Creek, Middle site (E077), 1993-2007 (estimate is CE = 43.81680 - 0.45964 • FMX; 1993-1995 data from range monitoring subsites excluded).

Surface Fines

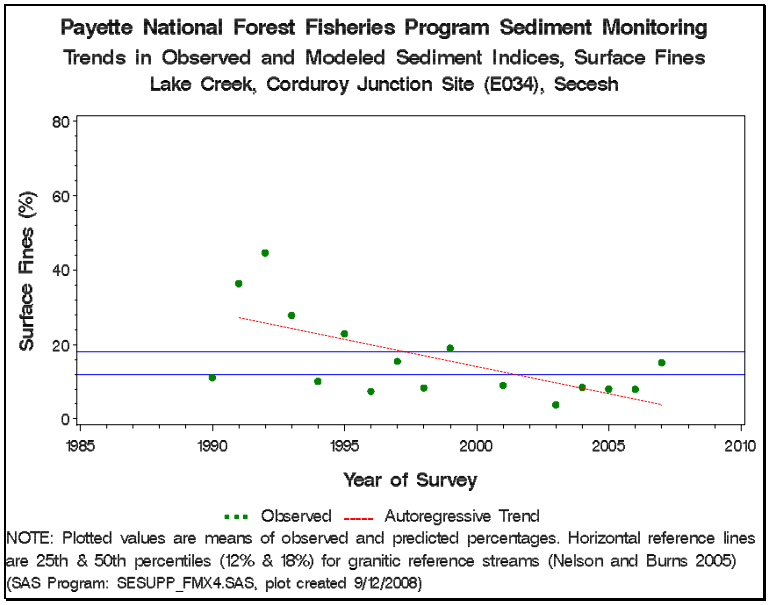

Figure 94.—Time trends in percent surface fines, Lake Creek, Corduroy Junction site (E034), 1990-2007.

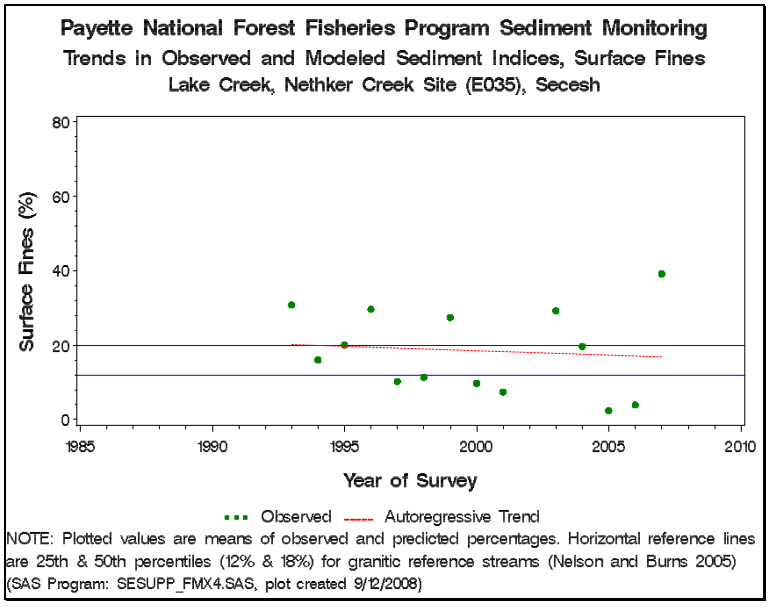

Figure 95.—Time trends in percent surface fines, Lake Creek, Nethker Creek site (E035), 1993-2007.

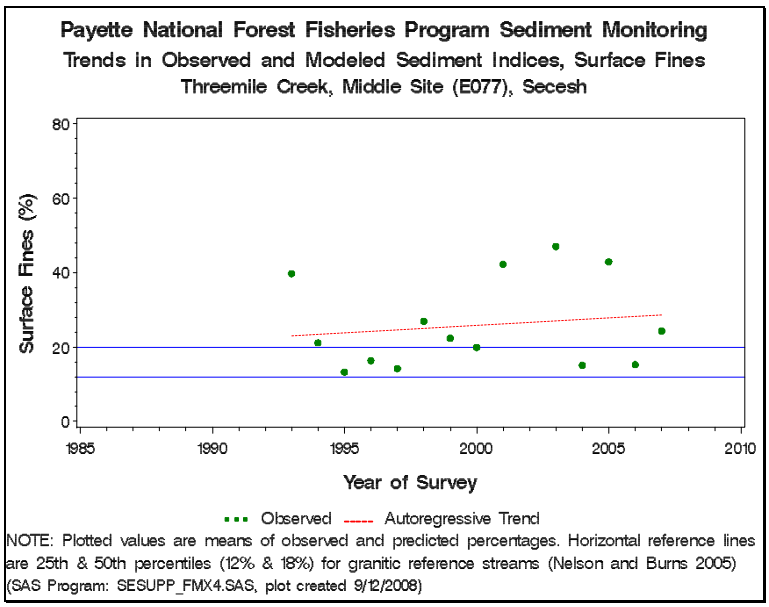

Figure 96.—Time trends in percent surface fines, Threemile Creek, Middle site (E077), 1993-2007.

Miscellaneous Sites

30-Hoop Free Matrix

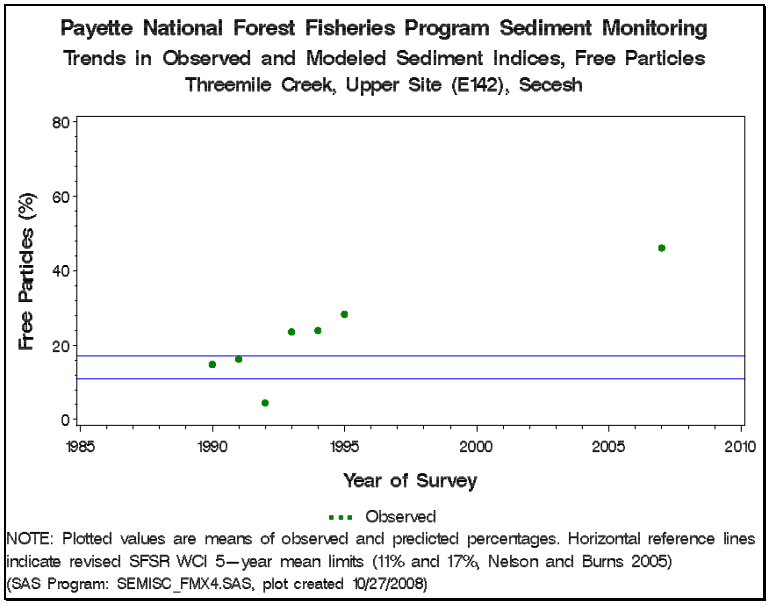

Figure 97.—Time trends in percent free matrix, Threemile Creek, Upper site (E142), 1991-2007.

Cobble Embeddedness

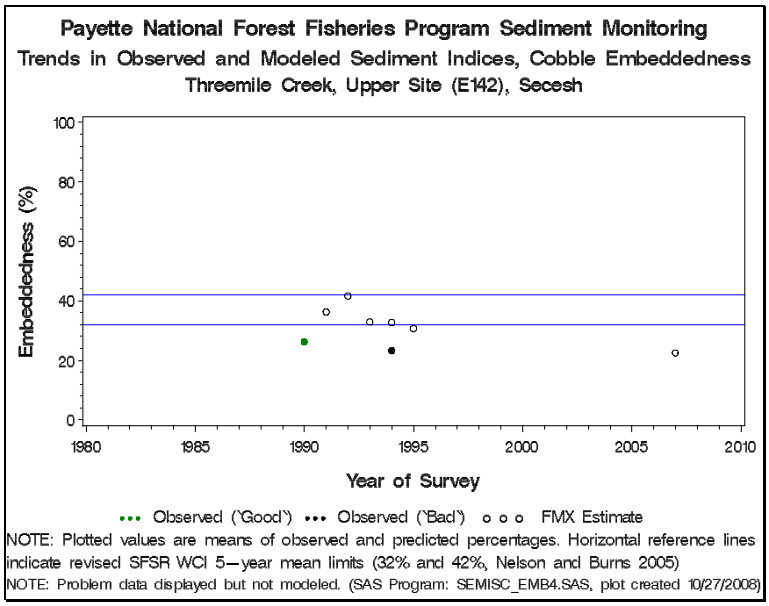

Figure 98.—Time trends in percent cobble embeddedness, Threemile Creek, Upper site (E142), 1991-2007 (estimate is CE = 43.81680 - 0.45964 • FMX.

Surface Fines

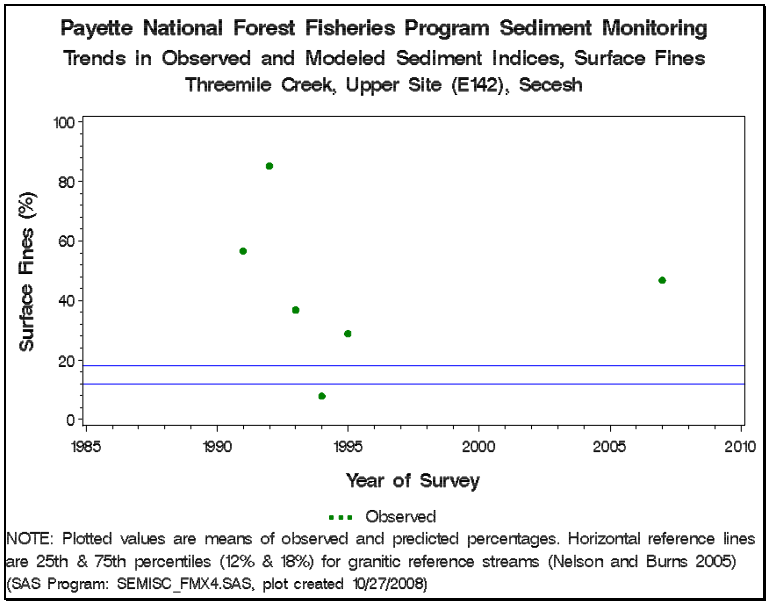

Figure 99.—Time trends in percent surface fines, Threemile Creek, Upper site (E142), 1991-2007.

East Fork South Fork Salmon River

Primary Sites

30-Hoop Free Matrix

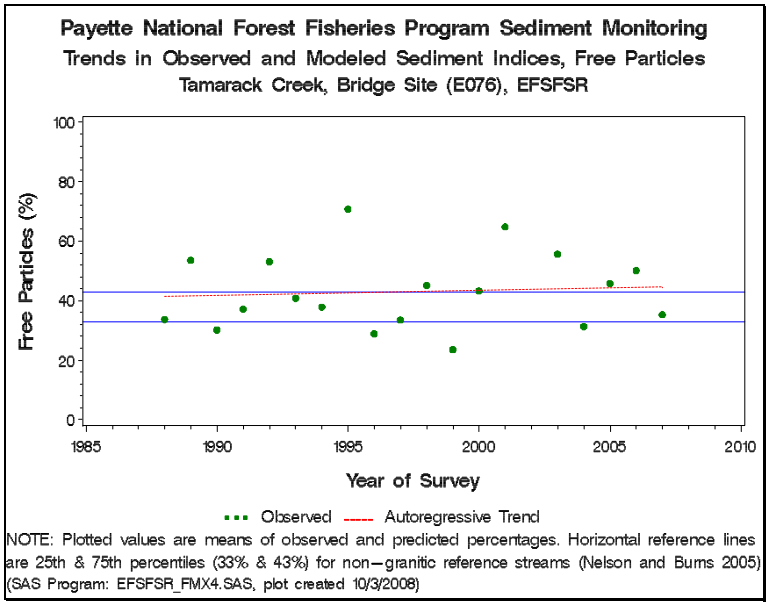

Figure 100.—Time trends in percent free matrix, Tamarack Creek, Bridge site (E076), 1988-2007.

Cobble Embeddedness

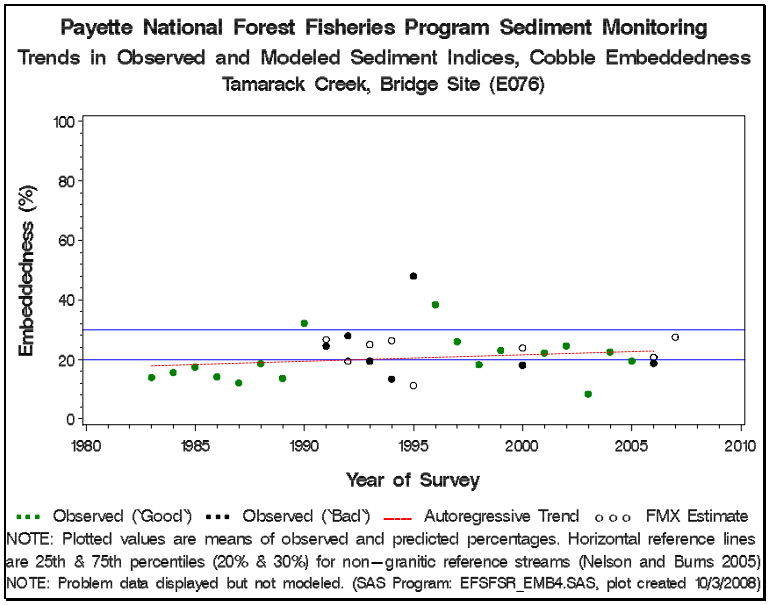

Figure 101.—Time trends in percent cobble embeddedness, Tamarack Creek, Bridge site (E076), 1983-2007 (43.81680 - 0.45964 • FMX).

Surface Fines

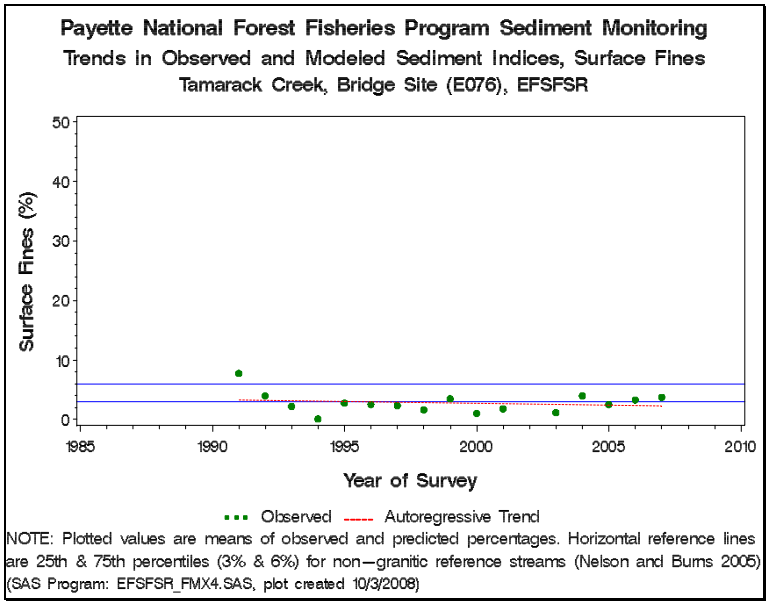

Figure 102.—Time trends in percent surface fines, Tamarack Creek, Bridge site (E076), 1991-2007.

Lower South Fork Salmon River

Primary Sites

30-Hoop Free Matrix

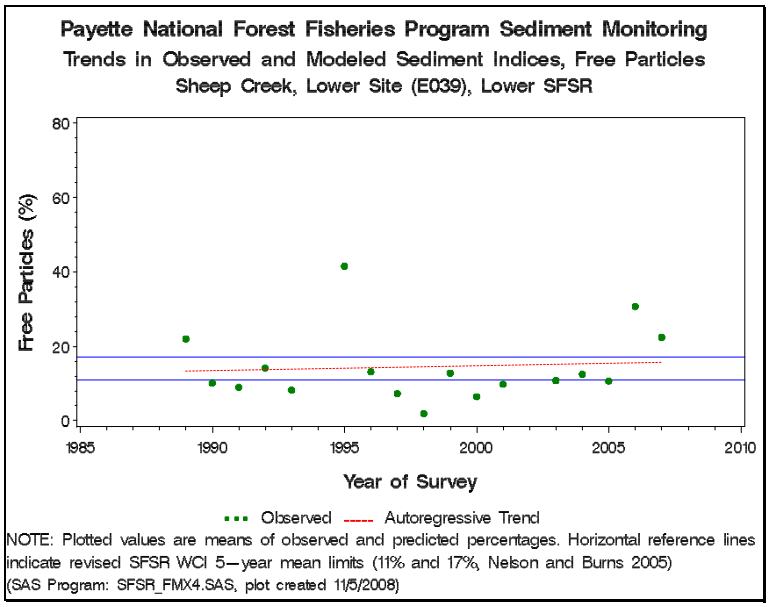

Figure 103.—Time trends in percent free matrix, Sheep Creek, Lower site (E039), 1989-2007.

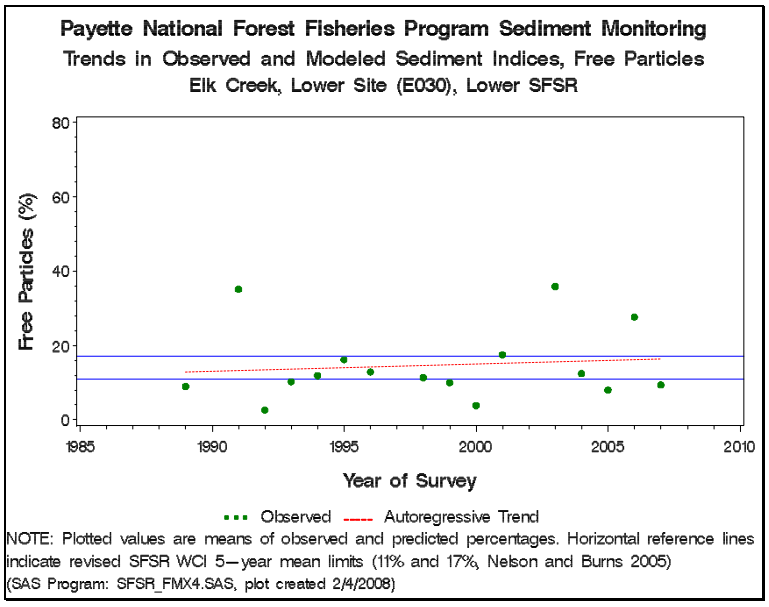

Figure 104.—Time trends in percent free matrix, Elk Creek, Lower site (E030), 1989-2007.

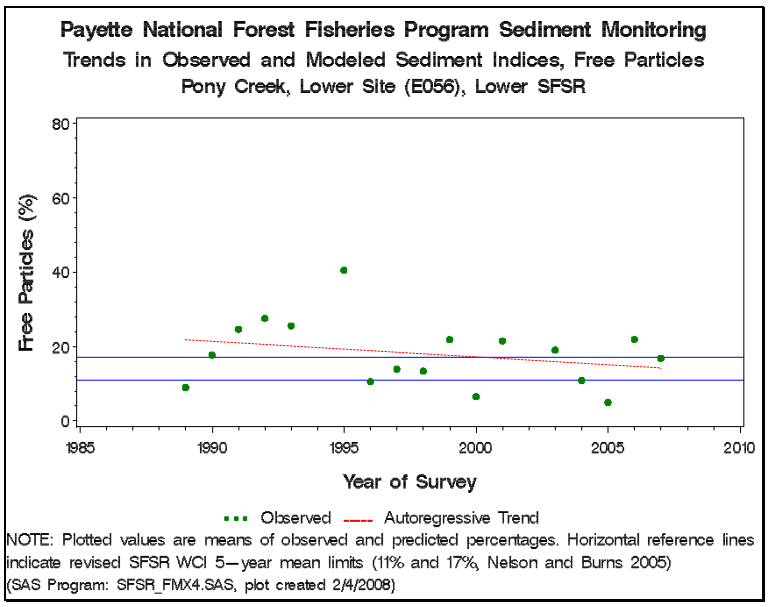

Figure 105.—Time trends in percent free matrix, Pony Creek, Lower site (E056), 1989-2007.

Cobble Embeddedness

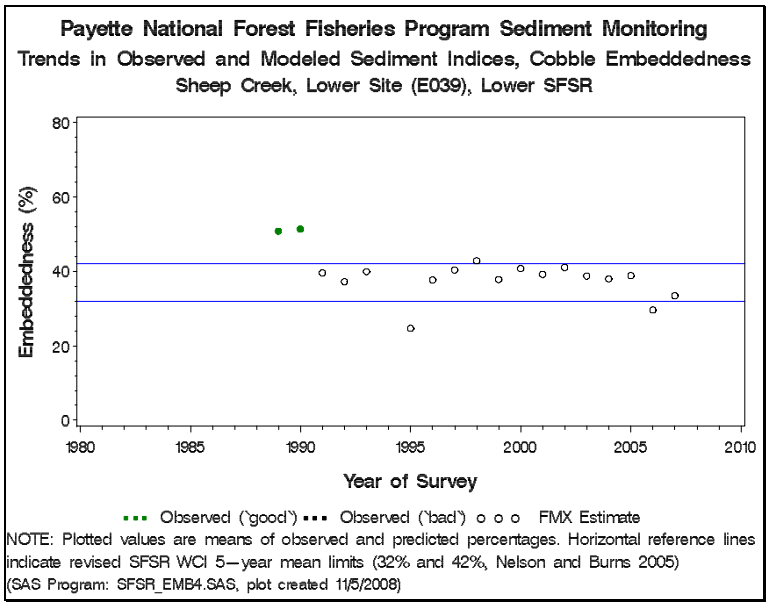

Figure 106.—Time trends in percent cobble embeddedness, Sheep Creek, Lower site (E039), 1983-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

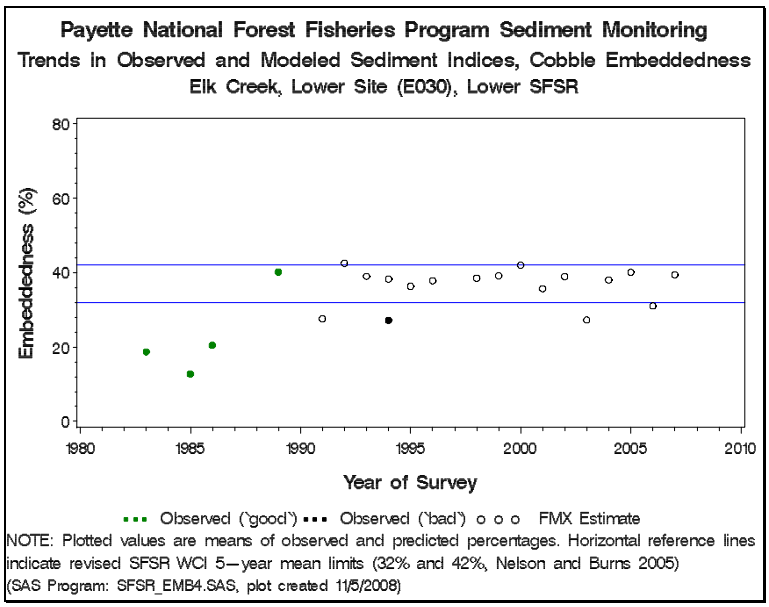

Figure 107.—Time trends in percent cobble embeddedness, Elk Creek, Lower site (E030), 1983-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

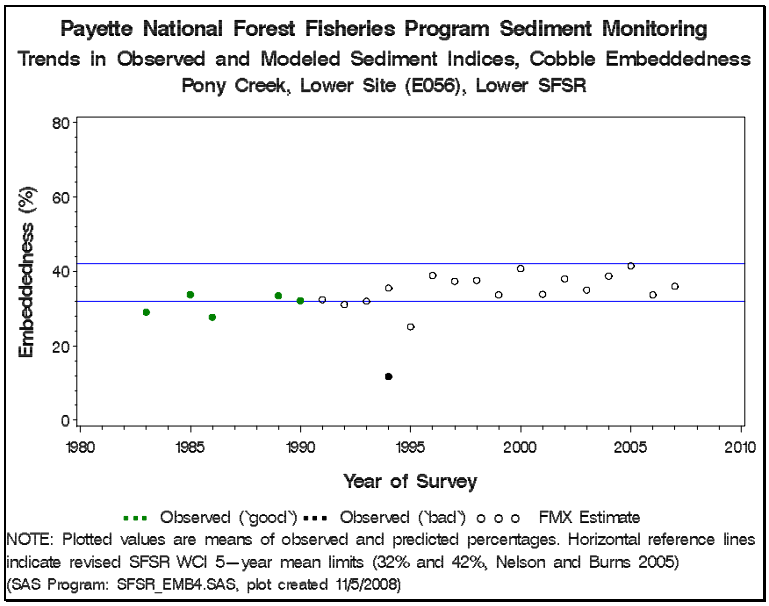

Figure 108.—Time trends in percent cobble embeddedness, Pony Creek, Lower site (E056), 1983-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

Surface Fines

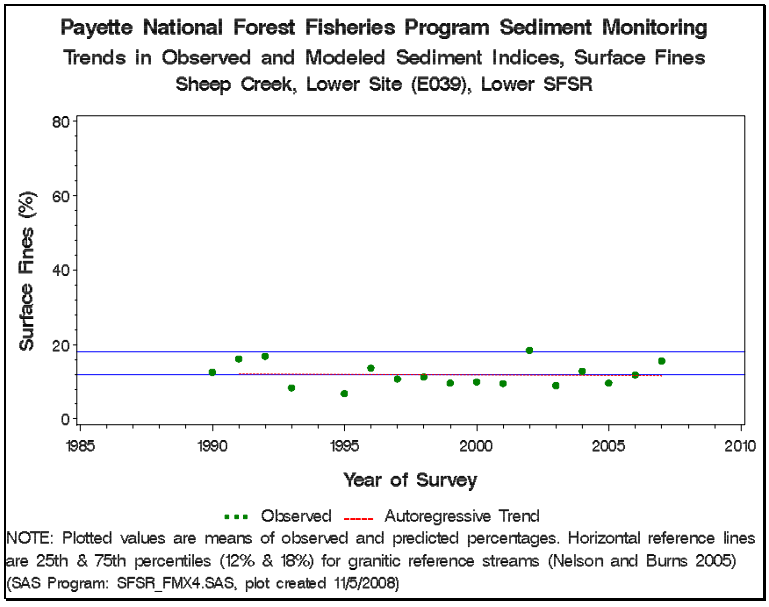

Figure 109.—Time trends in percent surface fines, Sheep Creek, Lower site (E039), 1991-2007.

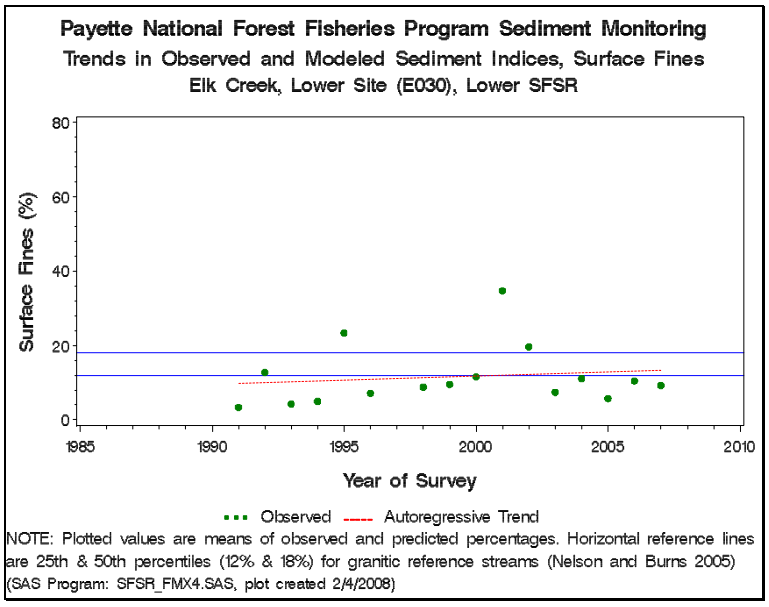

Figure 110.—Time trends in percent surface fines, Elk Creek, Lower site (E030), 1991-2007.

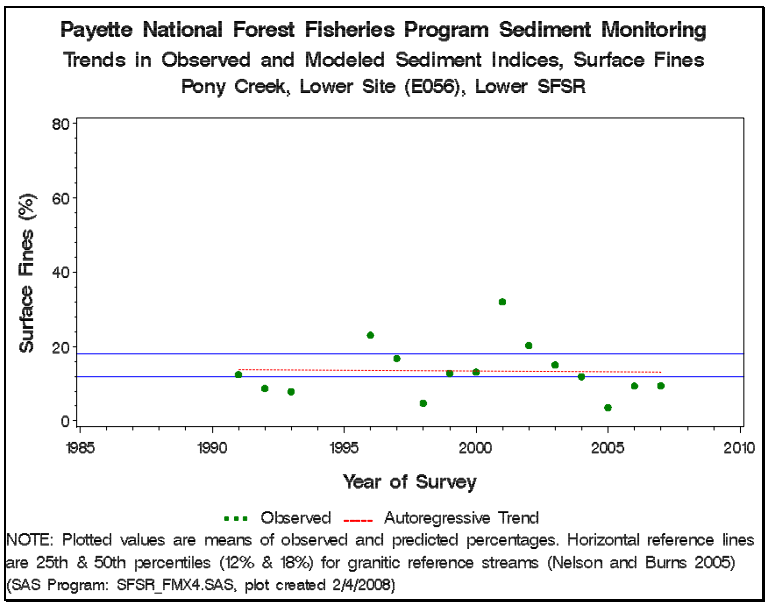

Figure 111.—Time trends in percent free matrix, Pony Creek, Lower site (E056), 1991-2007.

Supplemental Sites

30-Hoop Free Matrix

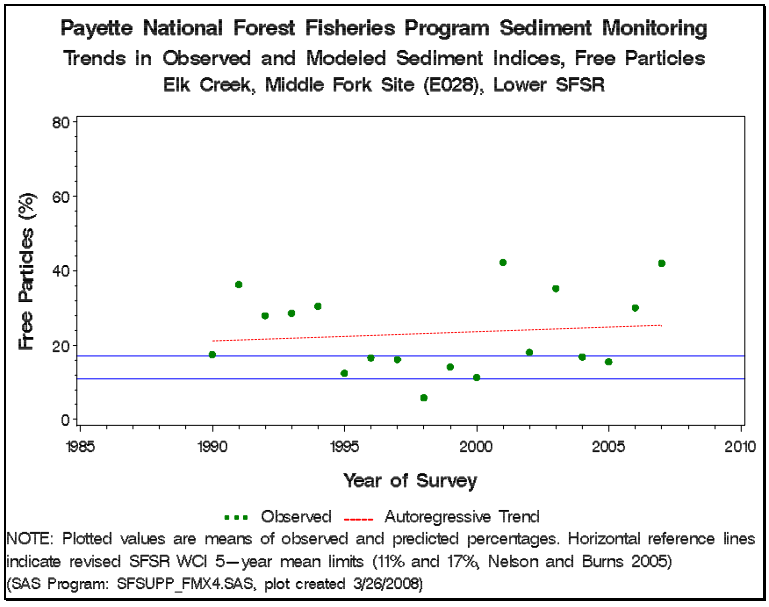

Figure 112.—Time trends in percent free matrix, Elk Creek, Middle Fork site (E028), 1990-2007.

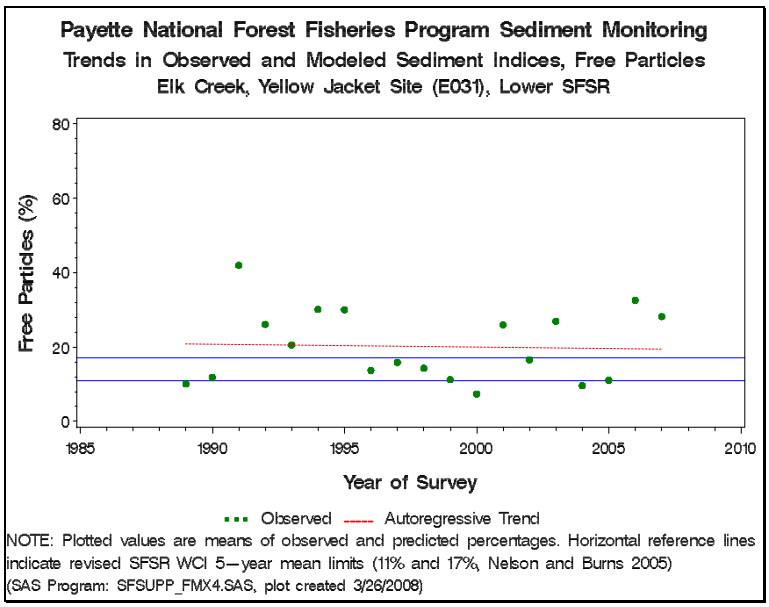

Figure 113.—Time trends in percent free matrix, Elk Creek, Yellow Jacket site (E031), 1989-2007.

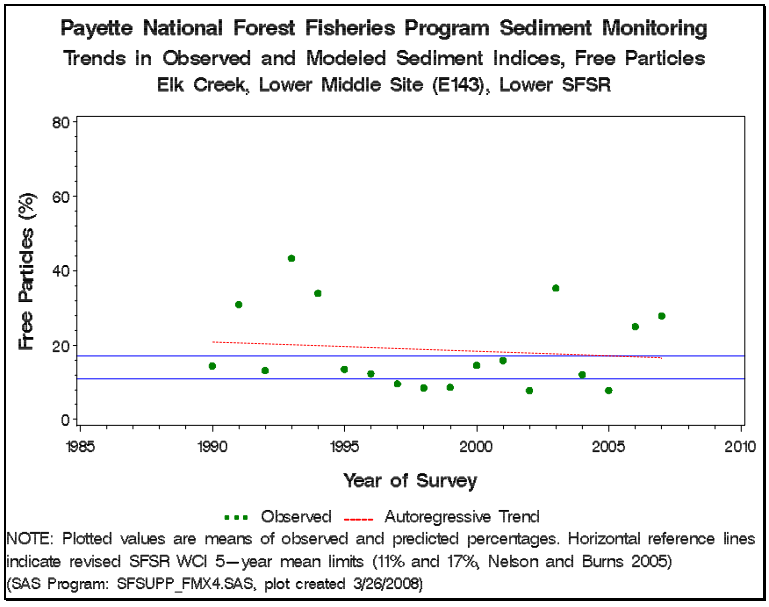

Figure 114.—Time trends in percent free matrix, Elk Creek, Lower Middle site (E143), 1990-2007.

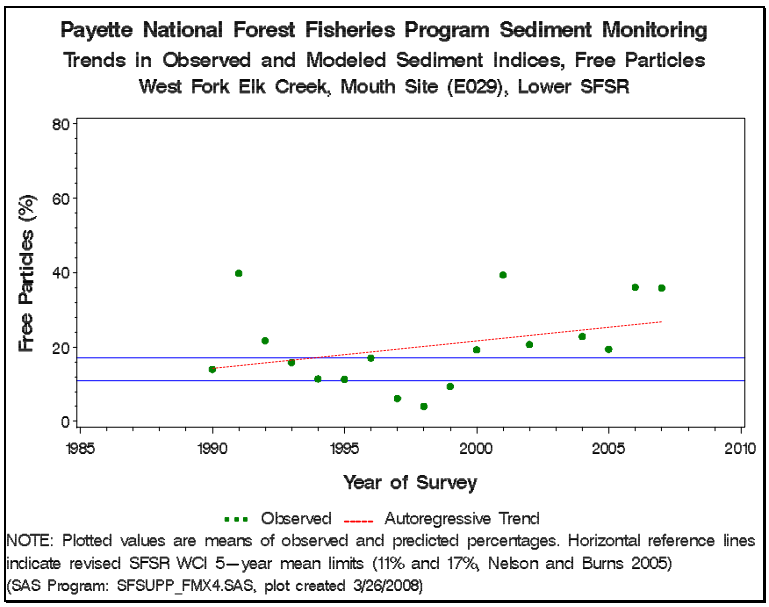

Figure 115.—Time trends in percent free matrix, West Fork Elk Creek, Mouth site (E029), 1990-2007.

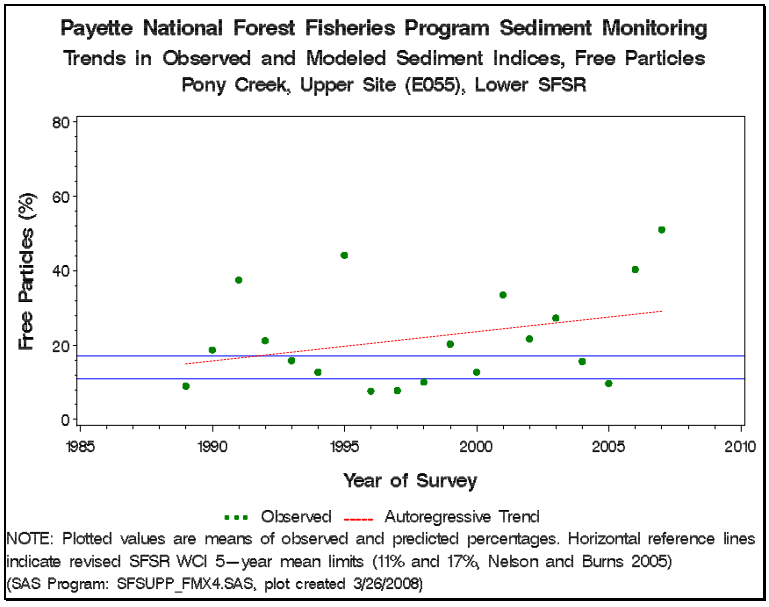

Figure 116.—Time trends in percent free matrix, Pony Creek, Upper site (E055), 1989-2007.

Cobble Embeddedness

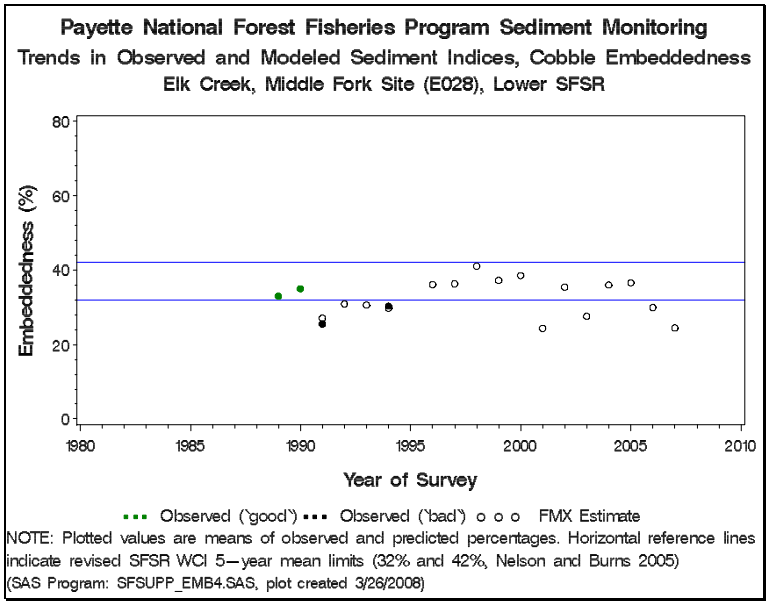

Figure 117.—Time trends in percent cobble embeddedness, Elk Creek, Middle Fork site (E028), 1990-2007 (estimate is CE = 43.81680 - 0.45964 • FMX).

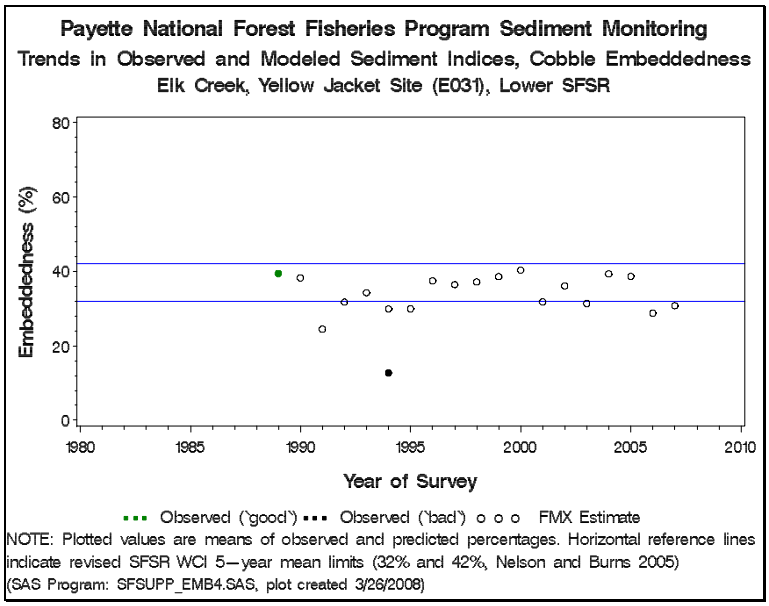

Figure 118.—Time trends in percent cobble embeddedness, Elk Creek, Yellow Jacket site (E031), 1989-2007 (estimate is 43.81680 - 0.45964 • FMX).

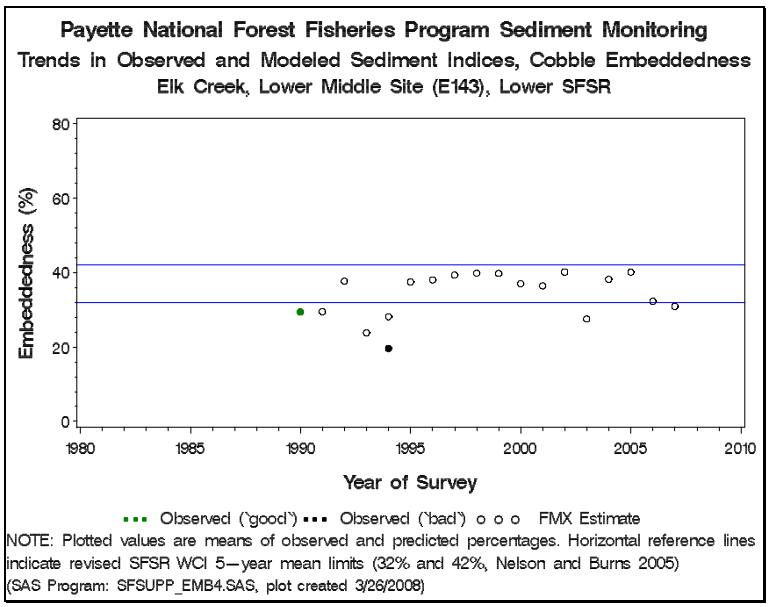

Figure 119.—Time trends in percent cobble embeddedness, Elk Creek, Lower Middle site (E143), 1990-2007 (estimate is estimate is 43.81680 - 0.45964 • FMX).

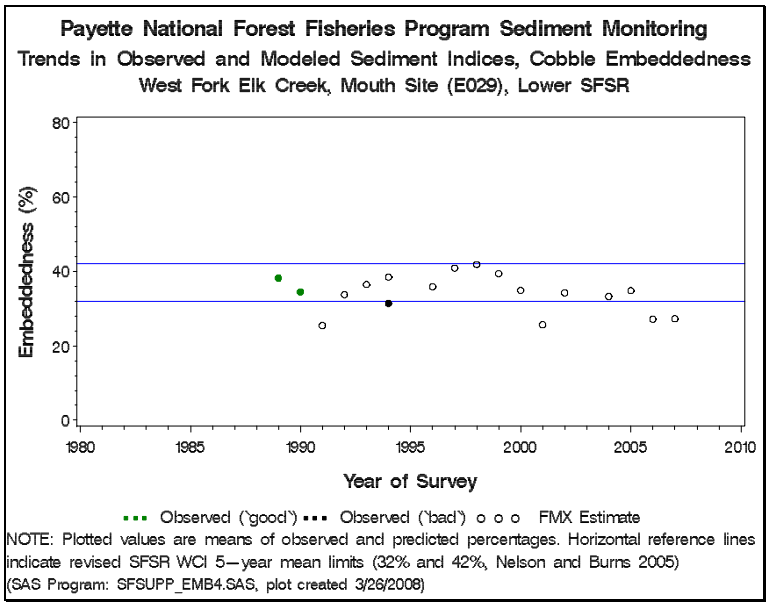

Figure 120.—Time trends in percent cobble embeddedness, West Fork Elk Creek, Mouth site (E029), 1989-2007 (estimate is 43.81680 - 0.45964 • FMX).

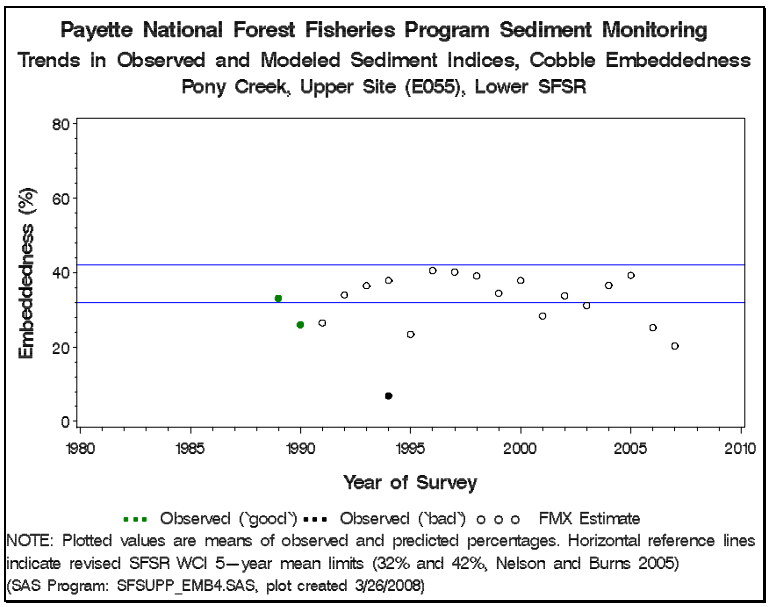

Figure 121.—Time trends in percent cobble embeddedness, Pony Creek, Upper site (E055), 1989-2007 (estimate is 43.81680 - 0.45964 • FMX).

Surface Fines

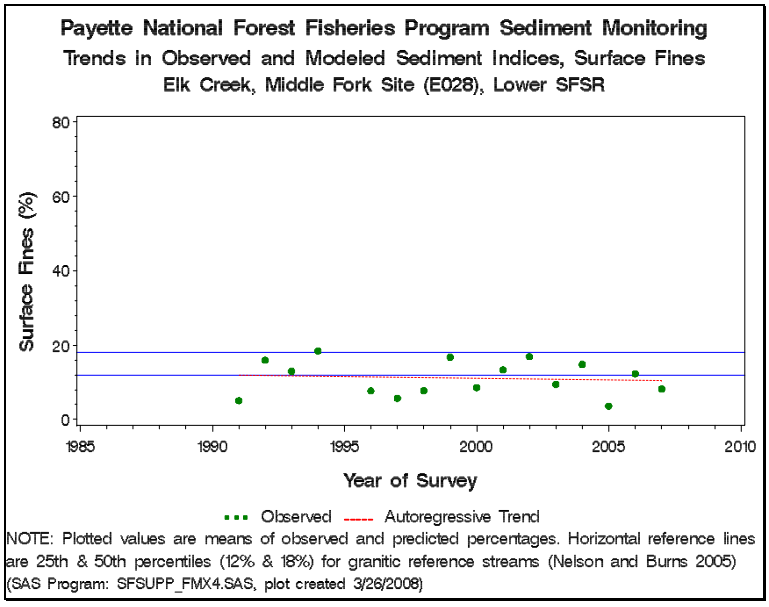

Figure 122.—Time trends in percent surface fines, Elk Creek, Middle Fork site (E028), 1991-2007.

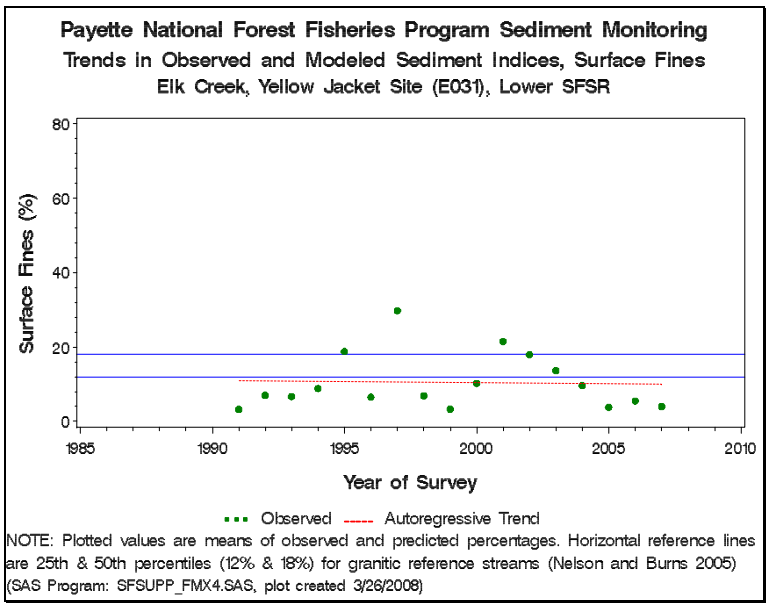

Figure 123.—Time trends in percent surface fines, Elk Creek, Yellow Jacket site (E031), 1991-2007.

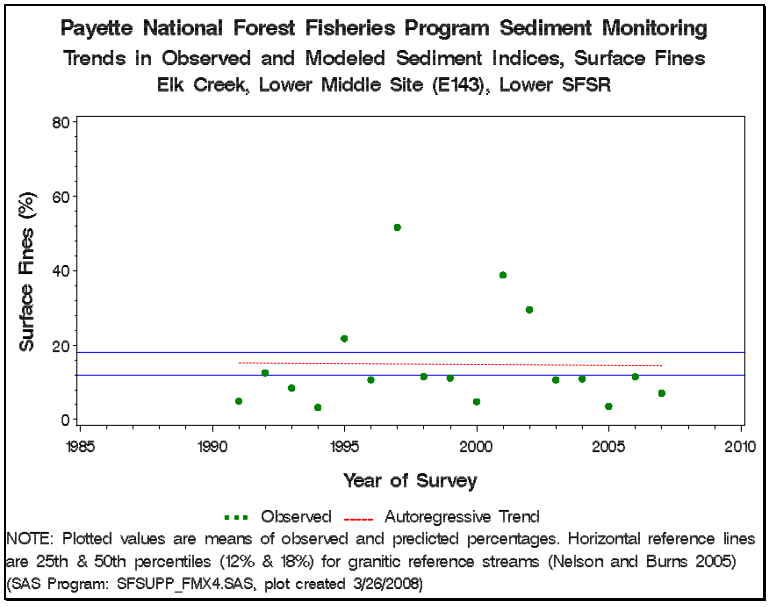

Figure 124.—Time trends in percent surface fines, Elk Creek, Lower Middle site (E143), 1991-2007.

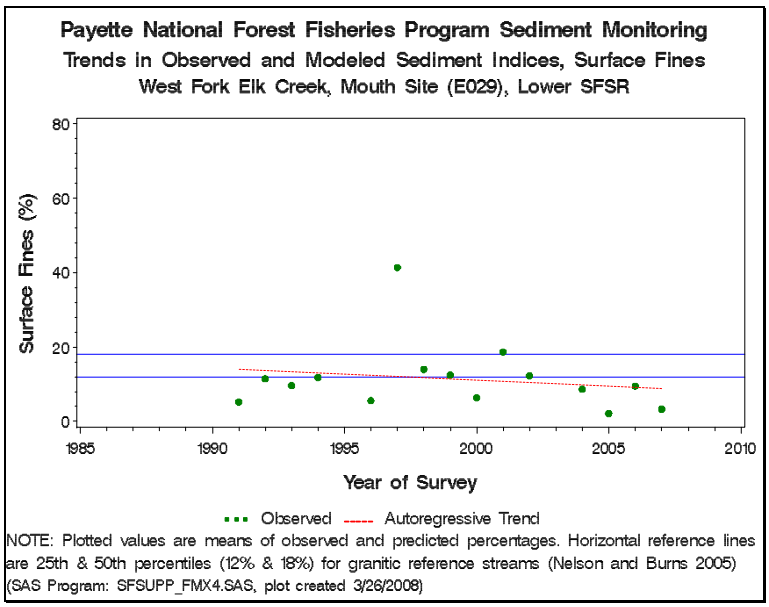

Figure 125.—Time trends in percent surface fines, West Fork Elk Creek, Mouth site (E029), 1991-2006.

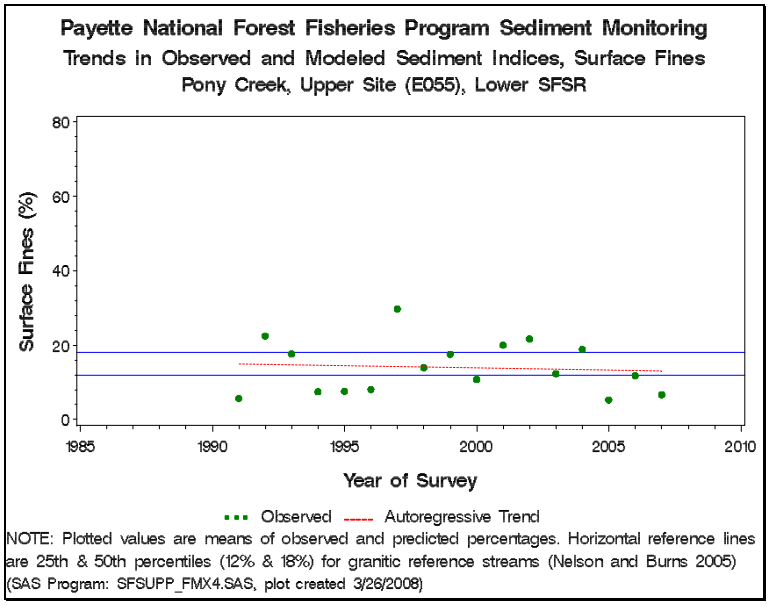

Figure 126.—Time trends in percent surface fines, Pony Creek, Upper site (E055), 1991-2007.

Miscellaneous Sites

No miscellaneous sites for this area have recent data.

Chamberlain Creek

Primary Sites

30-Hoop Free Matrix

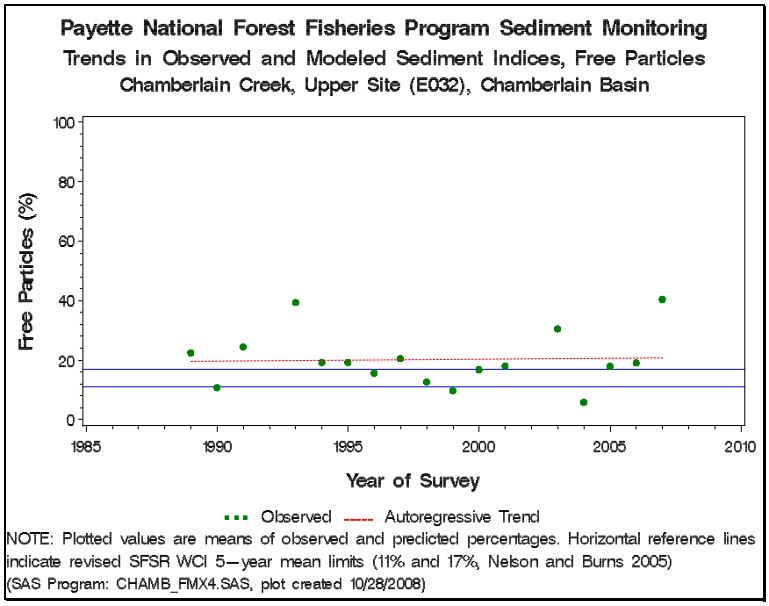

Figure 127.—Time trends in percent free matrix, Chamberlain Creek, Upper site (E032), 1989-2007.

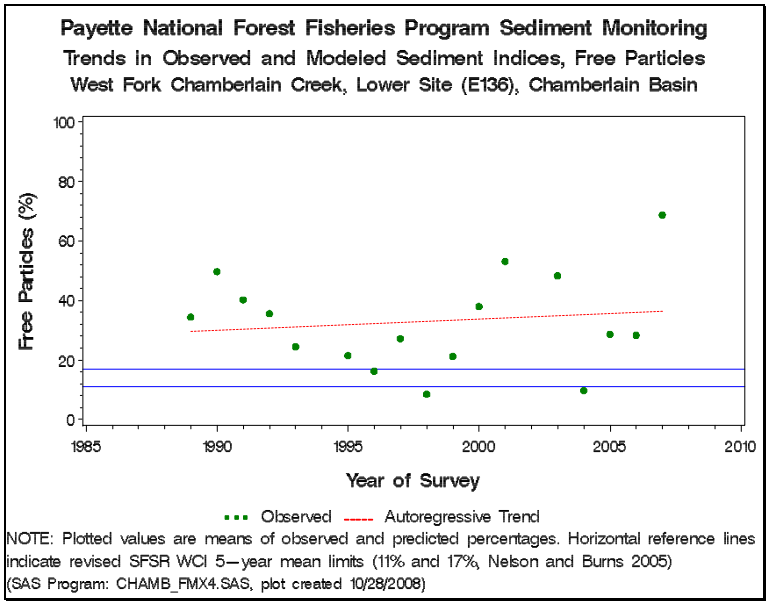

Figure 128.—Time trends in percent free matrix, West Fork Chamberlain Creek, Lower site (E136), 1989-2007.

Cobble Embeddedness

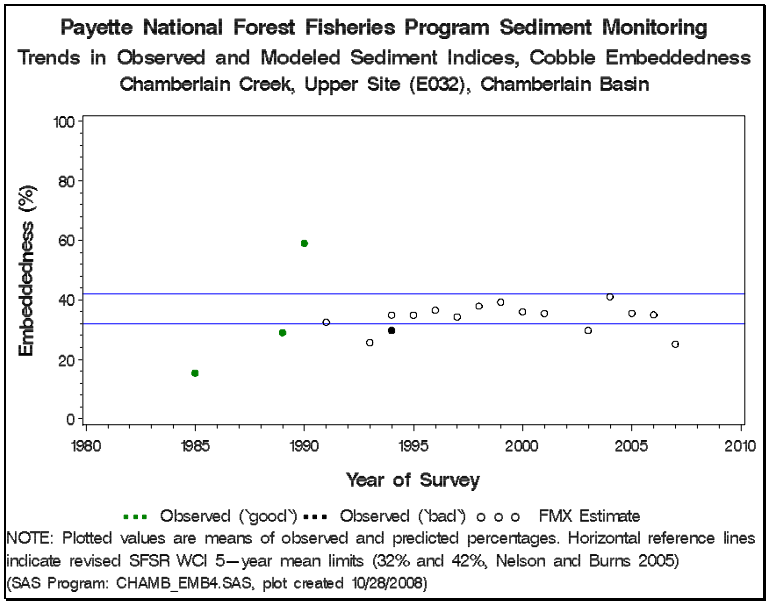

Figure 129.—Time trends in percent cobble embeddedness, Chamberlain Creek, Upper site (E032), 1989-2007 (estimate is 43.81680 - 0.45964 • FMX).

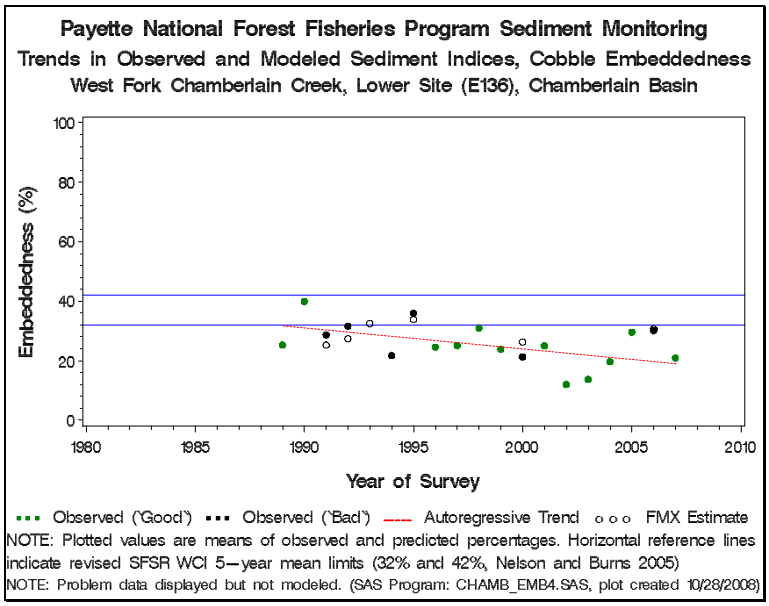

Figure 130.—Time trends in percent surface fines, West Fork Chamberlain Creek, Lower site (E136), 1991-2007 (estimate is 43.81680 - 0.45964 • FMX).

Surface Fines

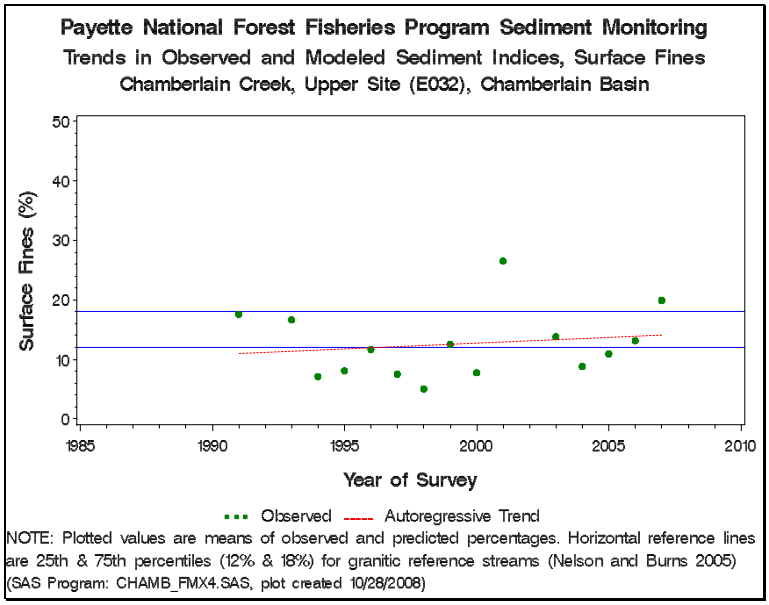

Figure 131.—Time trends in percent surface fines, Chamberlain Creek, Upper site (E032), 1991-2007.

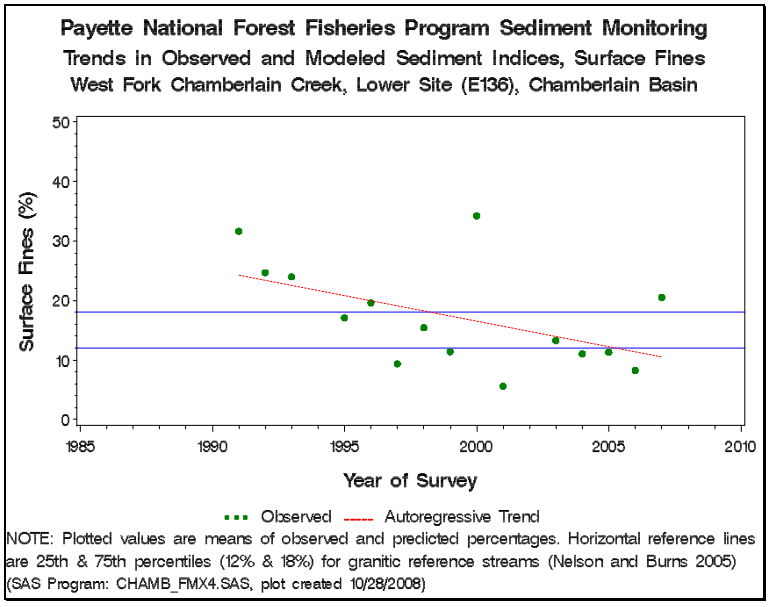

Figure 132.—Time trends in percent surface fines, West Fork Chamberlain Creek, Lower site (E136), 1991-2007.

Supplemental Sites

30-Hoop Free Matrix

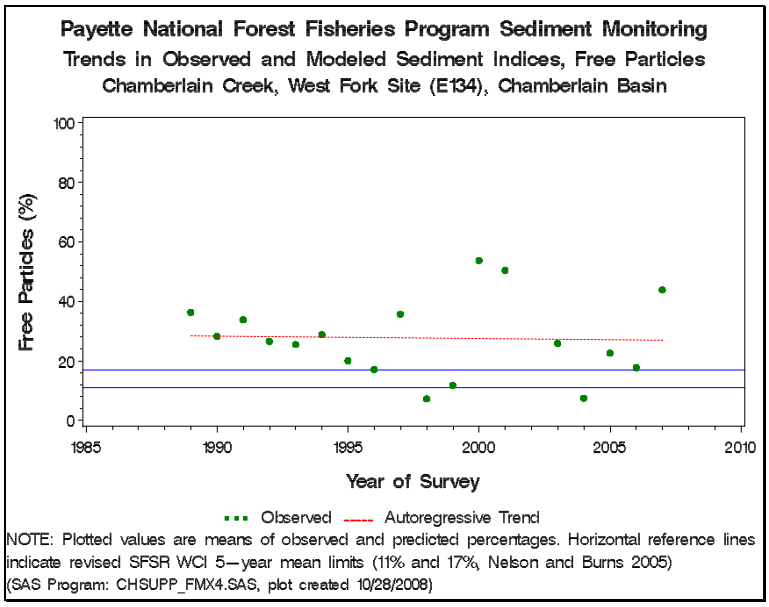

Figure 133.—Time trends in percent free matrix, Chamberlain Creek, West Fork site (E134), 1989-2007.

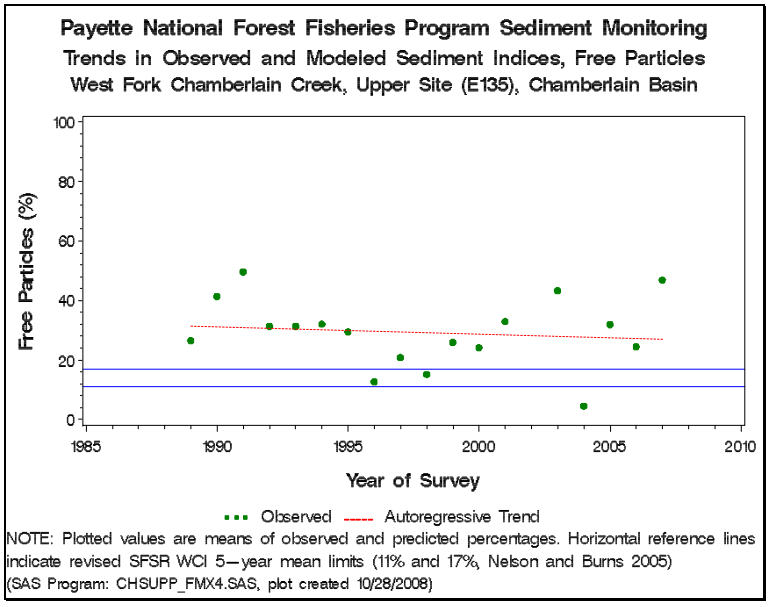

Figure 134.—Time trends in percent free matrix, West Fork Chamberlain Creek, Upper site (E135), 1989-2007.

Cobble Embeddedness

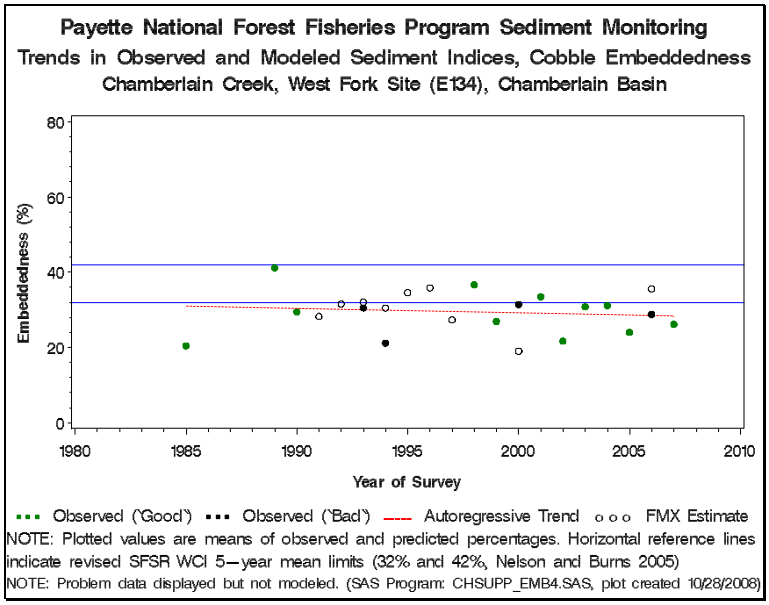

Figure 135.—Time trends in percent cobble embeddedness, Chamberlain Creek, West Fork site (E134), 1985-2007 (estimate is 43.81680 - 0.45964 • FMX).

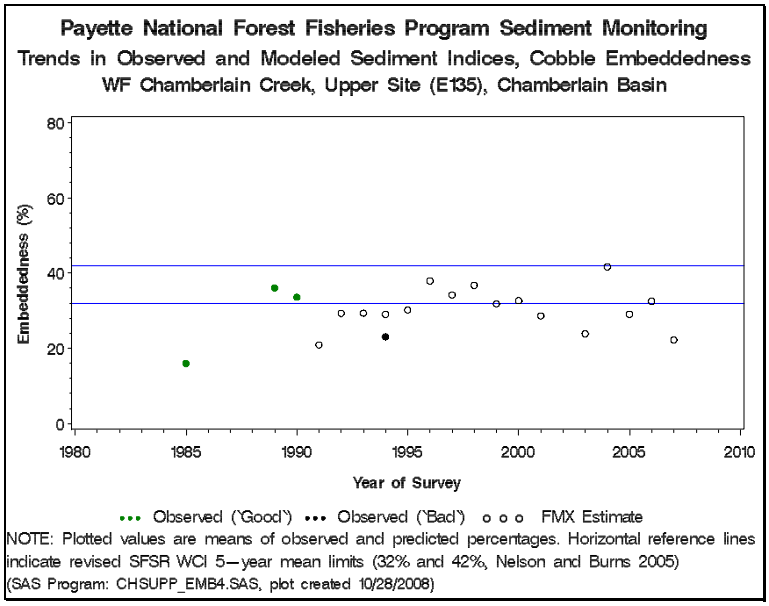

Figure 136.—Time trends in percent cobble embeddedness, West Fork Chamberlain Creek, Upper site (E135), 1985-2007 (estimate is 43.81680 - 0.45964 • FMX).

Surface Fines

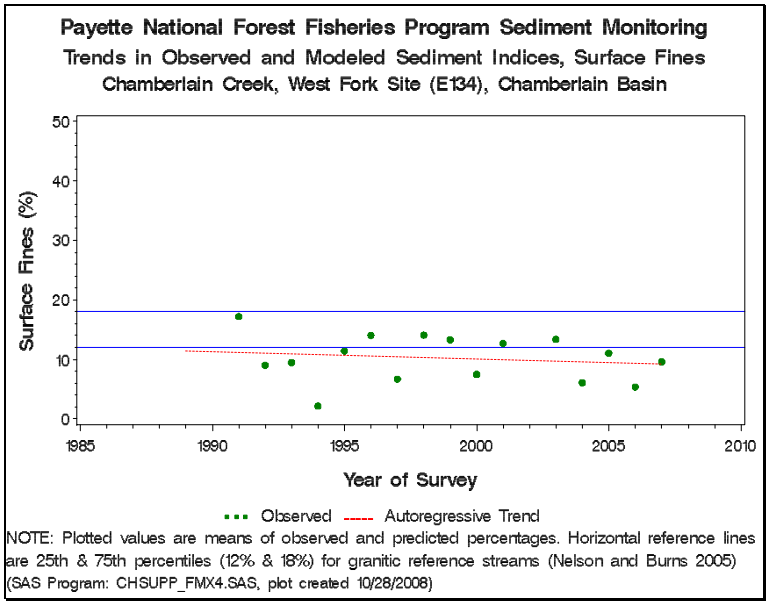

Figure 137.—Time trends in percent surface fines, Chamberlain Creek, West Fork site (E134), 1991-2007.

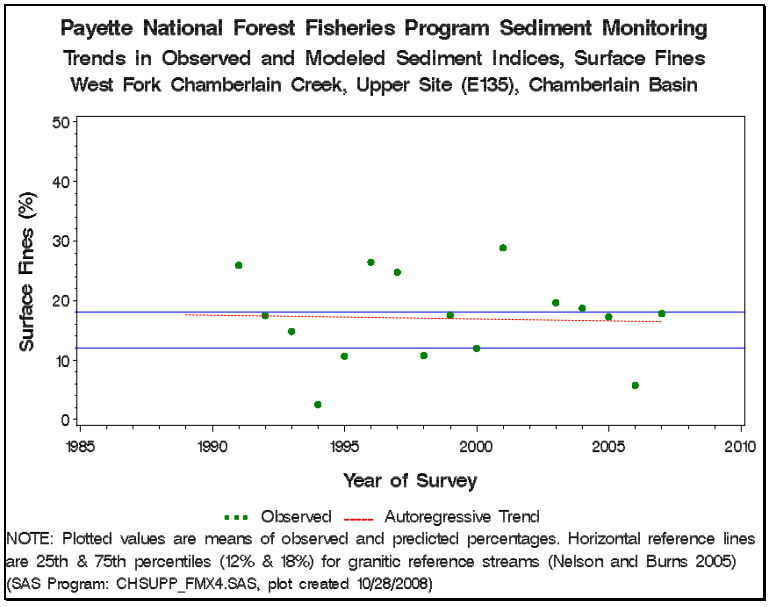

Figure 138.—Time trends in percent surface fines, West Fork Chamberlain Creek, Upper site (E135), 1991-2007.

Miscellaneous Sites

No miscellaneous sites for this area have recent data.

Appendix 7. Glossary

Definitions

Autocorrelation	The extent to which the error terms are correlated with one another (*i.e.*, are not independent). Correlation of error terms in a time series is called 'serial autocorrelation.'
Autoregression	For the purposes of this report, a regression analysis technique that takes autocorrelated errors into account.
Coefficient of Variation	A dimensionless number that is the ratio of the sample standard deviation to the sample mean.
Cobble	Substrate particles with major axis diameters from 45mm to 300mm. This definition does not correspond to the Wentworth scale, where cobbles range from 64mm to 256mm particle diameter.
Embeddedness	Impaction of substrate particles (principally cobbles) by fines.
Fines	Substrate particles with major axis diameters smaller than 6.3mm.
Highly Significant	Used in this report to designate statistical significance at the 1% level ($P<0.01$).
Indicator	A quantifiable measure of a habitat component.
Interstitial	Intermixed within the streambed matrix.
Large Fines	Used in this report to indicate substrate particles smaller than 6.33mm in diameter, inclusive.
Matrix Particle	A cobble particle.
Mean	In this report, means represent the arithmetic average value of the samples.
Median	The midpoint of a distribution where half the observations are on one side and half are on the other; the 50^{th} percentile.
Moderately Significant	Used in this report to designate statistical significance at the 10% level ($P<0.10$).
OLS	Abbreviation used for the 'ordinary least squares' approach to fitting a linear regression model to time series data to distinguish it from an approach using autocorrelation of sampling error (autoregression).
Percentile	Statistical parameter indicating the percentage of a set of observations are smaller than the specified value.
Quartile	A value in a distribution that divides the distribution into four groups; first quartile = 25th percentile, *etc*.

Significant	Used in this report to designate statistical significance at the 5% level ($P<0.05$).
Standard Deviation	A measure of the average distance of values in a sample from the sample mean.
Standard Error	In this report, the standard error of the mean, or the standard deviation of the sample divided by the square root of the sample size (or the square root of the variance divided by the sample size).
Surface Fines	Fine particles on the streambed surface.
Variance	A measure of dispersion in a sample who's square root is the standard deviation.

Abbreviations

aka	Also known as.
ANOVA	Analysis of Variance.
BA	Biological Assessment.
BNF	Boise National Forest.
BO	Biological Opinion.
CD-ROM	Compact Disc - Read Only Memory.
CE	Cobble Embeddedness.
CV	Coefficient of Variation.
e.g.	For example.
EF	East Fork.
EFSFSR	East Fork South Fork Salmon River.
ESA	Endangered Species Act.
et al.	And others.
et seq.	And the following.
FA	Functioning Appropriately.
FMX	Free Matrix.
FR	Functioning at Risk.
FUR	Functioning at Unacceptable Risk.
HSD	Honestly Significant Difference (Tukey's HSD test).

i.e.	In other words.
LRMP	Land and Resource Management Plan.
NF	North Fork.
NMFS	National Marine Fisheries Service (aka NOAA Fisheries Service).
PNF	Payette National Forest.
SE	Standard Error of the Mean.
SF	South Fork.
SFSR	South Fork Salmon River.
USFS	United States Forest Service.
USFWS	United States Fish and Wildlife Service.
WCI	Watershed Condition Indicator.
WF	West Fork.

Symbols

| |	Absolute value.
+	Addition.
α	Alpha, the statistical probability associated with committing a Type I error.
β	Beta, the statistical probability associated with committing a Type II error.
/	Division.
=	Is equal to.
>	Greater than.
**	Highly significant (P<0.01).
a	Intercept parameter in a regression model.
<	Less than.
†	Moderately significant (P<0.10).
•	Multiplication.
–––	Not available.

p	Number of parameters in a regression model.
P	Probability.
n or N	Sample size.
*	Significant ($P<0.05$).
b	Slope parameter in a regression model.
$()^{½}$	Square root.
t	Student's t.
-	Subtraction.