UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Comment Responsiveness Summary
for the
TRINITY RIVER
TOTAL MAXIMUM DAILY LOAD
FOR SEDIMENT

(December 20, 2001)

Introduction:

The Environmental Protection Agency (EPA) solicited public comments on the proposed Trinity River TMDL for Sediment, from October 17, 2001 to November 19, 2001. The public submitted several comments, questions and recommendations to EPA during the period via written letters and/or verbal statements made at public meetings held on October 30, 2001 and November 6, 2001. For each comment received, this document summarizes the comment and EPA's response, and identifies whether the final TMDL was revised based on the comment. The document is organized according to the individual or organization submitting the comments. In most cases, comments are quoted directly from the source. In certain cases, comments are paraphrased. EPA did not address comments that did not pertain to the Trinity River TMDL. EPA appreciates the level of interest and constructive input received by the public on this TMDL. Further questions about this document or the final TMDL should be directed to Chris Heppe at (707)825-2311, Heppe.Christopher@epa.gov.

List of Comments and Response (Alphabetically by Commenter)

1. Summary Response to Flow Related Comments

Response 1.1. EPA received several comments concerning the issue of Trinity River flows below the Lewiston dam and the Department of Interior's Trinity River Mainstem Fishery Restoration Record of Decision (ROD) in relation to the TMDL. The commenters expressed a wide range of views. For example, some commenters essentially objected to any mention of flow issues in the TMDL document, while others contended that flow issues should be given more weight in the TMDL analysis. EPA is providing this summary response, in addition to individual responses when necessary, to clarify our perspective regarding flow considerations in the Trinity River TMDL.

On the general issue of flow, we note that the Clean Water Act regulations provide that TMDLs shall take into consideration "critical conditions for stream flow." See 40 C.F.R. 130.7(c)(1). The regulations, however, do not provide specific guidance as to how flow should be addressed in a TMDL. Given this regulatory provision, along with the well-documented relationship between sediment impairment and flow in the upper middle mainstem river (below the dams), it was incumbent on EPA to carefully consider issues related to flow in its analysis for this TMDL.

At present, there is uncertainty concerning what the actual flows in the river will be. Therefore, we felt it appropriate to consider in our analysis both existing flows and also the flow regime discussed in the ROD and the Trinity River Flow Evaluation on which the ROD was based. We considered the flow regime recommended in the ROD because in our opinion this flow regime is based on the best scientific analysis of which we are aware, and because it represents the most recent decision of the Department of Interior concerning Trinity River flows. Although, as some commenters have pointed out, a preliminary injunction has been issued prohibiting DOI from implementing the flow requirements of the ROD, we note that the preliminary injunction was not based on any criticism of the scientific bases for the ROD decision. (We also note, moreover, that the preliminary injunction allowed DOI to implement the flow requirement of the ROD for critically dry years.)

Some commenters objected to the use of geomorphic indicators and targets in the TMDL because they were developed for the Trinity River Restoration Program to evaluate the effects of the flow regime. However, several of these geomorphic indicators are directly related to sediment conditions, in addition to flow, and therefore serve as appropriate indicators of the health of the beneficial uses of concern in the TMDL. Therefore, EPA has retained these indicators in the final TMDL.

Although we carefully considered the implications of various flow regimes in our analysis, we did not base the calculation of the loading capacity (TMDL) and allocations on any particular flow regime, nor does the TMDL in any way allocate flow or require a specific flow regime. We note that TMDLs are required by the Clean Water Act only for pollutants that are causing or contributing to the impairment of a waterbody, and EPA interprets the definition of "pollutant" as excluding flow alterations. Therefore, the TMDL should not be construed as allocating flow. However, our analysis of existing information strongly supported the conclusion that in order to fully protect beneficial uses, implementing the flow regime set forth in the ROD appears to be necessary. Thus, we are recommending that the State, when it develops implementation measures for this TMDL, carefully consider the relationship between flow and sediment loads. Additionally, we are recommending that DOI implement the flow regime called for in the ROD. In this regard, we respectfully disagree with those commenters who appear to suggest that any action taken under the CWA which could influence decisions by the State, Tribes or DOI regarding flow would be impermissible. We note that the strict dichotomy these commenters appear to urge between water quality and water quantity authorities was rejected by the US Supreme Court in *P.U.D. No. 1 of Jefferson County and City of Tacoma v. Washington Dept. of Energy*, 511 U.S. 700 (1994) (upholding a

State's decision under the CWA to require a minimum stream flow in order to protect water quality standards, despite the incidental effects on water quantity).

Some of the commenters suggested that the TMDL would not be effective without changes in the flow regime of the waterbody. With regard to these comments, we note that the Clean Water Act and its implementing regulations provide that TMDLs shall be established at a level necessary to implement the applicable numeric and/or narrative water quality standards. 40 CFR 130.7(c)(1). The Trinity River TMDLs are being set at levels necessary to attain the narrative water quality standards related to sediment discharge, as set forth in section 5.2 of the TMDL. EPA acknowledges, however, that in order to fully restore fish habitat in the mainstem, control of sediment sources alone will not be sufficient.

<u>2. Fall, Carol. Letter dated November 19, 2001.</u>

Comment 2.1. "I strongly support the TMDL report's recognition of the critical role that increased flows play in restoring the beneficial uses of the Trinity River. The river will not meet water quality standards for sediment or temperature unless the Trinity River Mainstem Fishery Restoration Record of Decision is implemented. Control of sediment sources alone will not restore the fishery."

Response 2.1. See response 1.1.

Comment 2.2. "The TMDL recognizes variability within the watershed...The implementation recommendations in chapter 6 should also recognize this variability, so that landowners are not unfairly burdened with stringent sediment reduction requirements that are not appropriate for their subarea. I suggest that you add language at the end of the second paragraph, chapter 6, which states: 'These provisions should also recognize the variable need to control sediment in each subarea of Tables 5-2 through 5-5. Sediment load reduction, appropriate for each subarea, may be accomplished through site-specific management practices, variable regulatory requirements (similar to snow loads), sediment trading credits or other mechanisms.'"

Response 2.2. Change made.

Comment 2.3. "...Based on personal observation, I think it is also important that Caltrans develop management practices that reduce sediment transport from state-maintained roads. I live on Hwy 3 and have observed Caltrans annual fall maintenance program, in which the toe of the slopes adjacent to the road are cut away by plows to create a drainage-way. This moves vegetation and creates unstable, loose soils that easily wash away. I have measured turbidity levels in these temporary 'ditches' in excess of 200 NTU. I suggest that you add language to Table 6-1 that recommends that Caltrans develop a maintenance program designed to minimize sediment transport."

Response 2.3. Change made.

<u>3. Mathis, Hal. Written comment submitted via email on November 16.</u>

Comment 3.1. "...it was stated by EPA representative individuals that, except on exceptional evidence, ALL landsliding with any evidence of a road, current, or 'Legacy', was considered to be 'Management Associated'. This, by definition could greatly increase 'Management Associated Loads', and reduce 'Background Associated Loads'. This change in apportionment would increase the amount of mitigation required, by any method of calculation of management associated to background associated total load, and thus skew required mitigation."

Response 3.1. The technical consultant for this TMDL (Graham Matthews and Associates) used professionally accepted methods when analyzing air photographs to determine whether there was any association between the landslide and land management activities. Air photo analysis is a commonly used methodology for a large scale, basin-wide inventory. The landslide data was combined with other field surveys of plots, roads and mining ditches, etc. to determine relative contributions of sediment between the various source categories. EPA acknowledges that the assignment of the erosional features as either management or non-management related affects the calculation of the loading capacity (TMDL) and allocations (chapter 5 of TMDL).

Comment 3.2. "TIMBER HARVEST: It appears as if all data used in evaluating timber harvest are either dated prior to EPA ban on harvesting, or upon USFS THP (which does not accurately represent harvested acreage."

Response 3.2. As described in Chapter 4, EPA determined sediment delivery rates from timber harvesting practices by evaluating landslides from harvested areas (federal and non-federal timberlands) using several years of air photos, applying surface erosion rates to harvested acres and some field plot analysis of erosional features. EPA used the best available information to calculate harvest areas, which included digitizing timber harvest plan (THP) areas into a geographic information system (GIS) for analysis. EPA has not instituted a "ban on harvesting."

Comment 3.3. "Between these two deficiencies alone, it appears that the TMDL management based apportionment, and thus mitigation required, has been exponentially raised above what an evaluation, using accurate timely and unbiased data would have produced."

Response 3.3. EPA believes the TMDLs and load allocations are based on accurate, timely and unbiased data. The commenter did not provide additional data or recommend alternative methodologies in order to change the TMDL.

4. Denver Nelson. Written comment received by EPA on 10/31/01.

Comment 4.1. "The statistical basis for the computation of this TMDL does not appear to be as rigorous as some of the other TMDL's in the Northern California Region. Specifically it appears only about 40 plots of 40 acres were analyzed to derive a sediment load. It is not clear that these were randomized so that the values obtained could be extrapolated to the entire river basin. There appears to have been no attempt to analyze the basin by different soil types and thereby establish the sediment load for varying soil type, based on the 40 acre parcels and/or air photo analysis."

Response 4.1. The sediment delivery rate was based on several assessment methods, one of which was the inventory of 40 plots. The plots were randomly selected, however limited to public ownership due access constraints on private land. The plot assessments were intended to identify erosional features not visible from air photos such as gullies and rills from various sources. Other assessment methods included air photo analysis to identify large landslide features, road inventories, and limited field inventory of legacy mining ditches as summarized in Chapter 4. Although the sediment source data could be extrapolated to soil types, EPA chose to present the data according to source categories (roads, timber harvesting, mining, background, etc.) within subareas in order to allocate loads to each category as described in Chapter 5.

Comment 4.2. "The road component of sediment production was not measured, but instead was based on sediment production from roads measured in other allegedly similar watersheds. This means that in the implementation plan the only way to reduce the sediment load is to decrease the number of roads, leaving the implementation plan in a “Catch 22" situation. It may be that sediment production is proportional to miles of roads and therefore decreasing the miles of roads decreases sediment production in some sort of mathematic formula, but without measuring the sediment production before and after road removal, one can only speculate on the tie between roads and sediments in the Trinity River Basin.”

Response 4.2. As described in Section 4.1, the TMDL assessment did include a field inventory of roads located within the Trinity Basin to estimate surface and gully erosion. Decommissioning roads is one method for reducing or eliminating sediment delivery from roads. However, there are several other cost-effective practices available to resource managers to reduce the risk of sediment delivery from roads, particularly regarding drainage structures and stream crossing construction and maintenance, as cited in the Watershed Indicators of the TMDL (Section 3.3). In addition, several local entities including Trinity County, U.S. Forest Service, Resource Conservation District and timberland managers have conducted or are in the process of assessing potential sediment delivery from roads. As identified by the commenter, EPA strongly recommends monitoring before and after road mitigation or decommissioning to measure the effectiveness of these practices on water quality.

Comment 4.3. “Timber harvesting effects on sediment production is not rigorously tied to objective measurements of natural vs. timber related sediment production. A reproducible conclusion cannot be reached regarding timber harvesting activities without measuring pre-timber harvest and post-timber harvest sediment production in multiple areas. There must be enough areas measured to produce statistical significance when extrapolated to the entire Trinity basin.”

Response 4.3. The degree to which timber harvesting affects sediment production is influenced by several factors such as the silvicultural method (clear cut, selection, etc.), proximity of harvest to watercourse, stability of slope, soil types, magnitude of storms following harvest, etc. EPA used the best available information to determine the relative contribution of sediment delivery from timber harvest, compared with other source categories, primarily based on air photo analysis of landslides occuring in harvested areas and the application of surface erosion rates to harvest areas according to time periods (Chapter 4). EPA encourages additional research to further quantify the magnitude of various harvesting methods on sediment delivery to streams and associated impacts on aquatic habitat.

Comment 4.4. “Figure 4-1 Percent Sediment Input by Source Category Within Each Assessment Area. This is a helpful graph. To me an even more helpful graph would be to add an additional graph showing these same values in tons per square mile per year instead of percent...”

Response 4.4. EPA has included the recommended graph in the administrative record for the TMDL.

Comment 4.5. “On Page 52, I note that the data collection is based only on water year 2001. This cannot be statistically significant. Surely there must be a way to collect data for more than one water year.”

Response 4.5. Although GMA collected detailed turbidity and suspended sediment data during only one winter season, GMA assessed sediment data from several gages with long-term records, particularly in Grass Valley Creek, as described in Section 4.3.

Comment 4.6. “In the Trinity Basin there is a 500 pound gorilla who does not get enough respect in this TMDL. I am referring to the dams, reservoirs and the diversion of 90% of the Trinity river flow to the Sacramento River...In order to restore the river to a healthy state, even the non-management sediment must be reduced to 140 tons from the present 1400 tons."

Response 4.6.   EPA summarized and referenced the effects of the dams on flow in relation to sediment under Habitat Conditions (Section 2.4), Sediment Budget (Section 4.3), Critical Conditions (Section 5.4) and Implementation Recommendations (Chapter 6) in the TMDL. EPA believes this level of consideration for flow is appropriate in the context of a sediment TMDL. See also response 1.1.

Comment 4.7.   "Since sediment, either dissolved or particulate, is carried away from the basin by water, the amount of water flowing in the Trinity River has had, and continues to be, far and away the major factor in the health of the Trinity River. Since the construction of the Trinity River diversion, 90% of the flow of the river has been diverted out of the river into the Central Valley and has not been available to Transport sediment in the Trinity River. A recent Record of Decision recommended increased flows but has been stopped by court order. The court ordered Trinity flow releases are only slightly greater than what has been occurring since the construction of the Trinity diversion, and therefore will not have a significant effect on sediment transport. The Trinity River TMDL draft does not take into account the tremendous effects of the diversion of 90% of the river flow out of the basin. Much more emphasis should be placed on attaining the new increased flows outlined in the Record of Decision."

Response 4.7.   EPA has recommended that the Department of Interior implement the flow schedule called for in the ROD based on several years of study in order to protect cold water beneficial uses in the mainstem below the dams. However, TMDLs are developed for the pollutant for which the basin was listed in accordance with Section 303(d) of the Clean Water Act. Consequently, EPA is establishing this TMDL for sediment while giving appropriate consideration to flows. See also response 1.1.

Comment 4.8.   "The Trinity River TMDL document concentrates more on the tributary stream sediment production and much less on the Trinity River sediment. The dams have blocked virtually all of the sediment transport from the Upper Basin and have produced a deficiency of spawning type gravel sediment below the dam. Artificial attempts at introducing spawning gravel below the dams have merely served to fill in deep holes... The effect on Trinity River sediment below the dams is, of course, the essence of the need for this TMDL. Reducing the river flows by 90% reduces the river's ability to handle sediment by at least 90% and, in the case of large rock type sediment, without normal and high flows there can be no sediment transport at all. It must be emphasized in this TMDL that the only way to effectively deal with sediment, whether it be natural or management related, is to restore the normal river flow."

Response 4.8.   See response to previous comment. In addition, EPA reminds the commenter that the TMDL applies to all the tributaries (excluding the South Fork which is covered under a previously adopted TMDL, and areas under tribal jurisdiction) as well as the watershed area above the reservoirs.

Comment 4.9.   "If the Trinity River flow were increased from its 10% of the normal flow to 100% (a ten fold increase), there would be no need to reduce any management activities in order to meet healthy river guidelines. If the flows are not restored, the sediment produced will continue to accumulate in the Trinity river with no hope for any restoration of the river. This TMDL must emphasize the extreme detrimental effects the dams, reservoirs and diversion have had on the Trinity River. The implementation plan must deal with increasing flows."

Response 4.9.   The Trinity River is listed under Section 303(d) as being impaired by sediment, and EPA's analysis underlying the TMDL supports the conclusion that the amount of sediment being delivered to the Trinity River is excessive, even if no water was diverted from the Trinity basin. Thus, EPA is establishing a loading capacity (i.e., TMDL) and allocations for each subarea that apply regardless of flow. See also response 1.1.

Comment 4.10. "...The implementation portion of this TMDL will need millions more for road assessment and removal. It is clear that spending millions of dollars will not restore the Trinity River unless the water flowing in the Trinity River is restored."

Response 4.10. Comment noted. See also response 1.1.

Comment 4.11. "...To measure the effectiveness of this process a new TMDL will have to be done and compared with this present TMDL to determine if the process has been successful. Because of funding limitations, this TMDL was not as complete as need be and therefore lacks statistical significance. This means that it will be impossible to make a statistically significant appraisal of the restoration efforts effect."

Response 4.11. EPA expects the State to determine the effectiveness of the TMDL using a "weight of evidence" approach by evaluating the attainment of the stream habitat and watershed indicators (Chapter 2), the allocation and reduction levels from management activities (Chapter 5), as well as the successful implementation of the sediment control measures (Chapter 6 recommendations). EPA has also recommended a coordinated monitoring approach among all the resource managers and interest groups in order to provide the information necessary to track the health of the watershed in the future.

Comment 4.12. "The cost of the Trinity River TMDL has not been reported, but the EPA report 'The National Cost of the TMDL Program' shows that average cost of the most expensive TMDLs to be $123,476. Over $93,952,547 has already been spent restoring the Trinity River and $10,000,000 more is budgeted. It is false economy to not spend enough on this TMDL to get a statistically significant baseline with which to evaluate the effect of the millions of dollars of restoration work."

Response 4.12. Comment noted.

5. North Coast Regional Water Quality Control Board. Letter dated November 19, 2001.

Comment 5.1. "As a general comment, the assumptions, potential sources of error, and confidence level in the analysis should be discussed in the TMDL document."

Response 5.1. EPA has accounted for uncertainties (Margin of Safety, Section 5.3), season variation and critical conditions (Section 5.4) as required for TMDL development. Any further discussion of assumptions, potential sources of error and confidence level can be found in the specific references upon which the TMDL assessment was based.

Comment 5.2. "Table 3-3, Sediment Indicators and Targets: Road-related sediment in this watershed is too high for properly functioning conditions. In order to reduce the amount of road-related sediment, the number and lengths of roads should be reduced. Perhaps this could be addressed by changing the scope of the existing target for roads so that all roads in the watershed are included, not only roads adjacent to streams."

Response 5.2. Most of the road-related targets apply to roads and/or features of roads that represent a risk of sediment delivery to the watercourse. EPA believes that the road-related targets as well as the management load allocations in Chapter 5, allow resource managers the flexibility of addressing sediment sources from roads that are not just located adjacent to streams.

Comment 5.3. "Table 3-3: It should be noted that the units for spawning gravel quality are % dry weight."

Response 5.3. In the "Description" column of Table 3-3, dry weight is specified for spawning gravel quality.

Comment 5.4. "Table 3-3 and page 35. Information reported in the literature about salmonid response to turbidity levels can help to explain the potential relevance of turbidity data to beneficial uses even with limited data. A summary of literature-reported turbidity effects is provided below...the data presented at the public meeting on November 6, 2001 in Weaverville show that Trinity watershed streams exhibit storm turbidity values above values the literature reports as creating adverse conditions, even if the limited data do not allow a definitive comparison to the indicator targets."

Response 5.4. EPA has added a brief summary of the maximum turbidity values sampled by GMA (2001b) during WY2000 and 2001, under Section 3.2.

Comment 5.5. "Page 34. Riffle Embeddedness. It is not clear at the end of the first paragraph whether it is the threshold or the protocols that is not available."

Response 5.5. An embeddedness threshold based on the USFS monitoring protocol has not been established.

Comment 5.6. "Page 36, Thalweg Profile. It would be useful to include reference on this indicator. USGS may have some recent work in this area."

Response 5.6. EPA added the following reference: "Harrelson et al. (1994) provides a practical guide for performing thalweg profiles and cross sections."

Comment 5.7. " Page 38, Stream Crossing Failure Target. It would be useful to include a reference for the <1% value."

Response 5.7. The <1% value was first recommended by the US Forest Service as a numeric target in the South Fork Trinity TMDL.

Comment 5.8. "Table 3-4. How is the composite rating calculated?"

Response 5.8. The composite rating is calculated using additional road parameters that are not all included in Table 3-4. For a thorough description of the calculation, EPA refers the commenter to De la Fuente (2000). Contact EPA or the US Forest Service for a copy of this document if one is needed.

Comment 5.9. "Page 43, 44; Section 4.1: it would be helpful to discuss the Trinity River watershed aerial photo analysis in more detail. Specifically, the number of photo years used and the extent of the area analyzed should be included in more detail so that the reader can better understand the spatial and temporal coverage of the aerial photo analysis. In addition, limitations of the aerial photo analysis such as the ability to detect and accurately delineate features given aspect, shading, and revegetation considerations, and the impact of these limitations on sediment delivery estimates should be discussed. A discussion of the confidence in sediment delivery estimates derived from the aerial photograph analysis should be included to help understand the robustness of the analysis."

Response 5.9. EPA refers the commenter to a more thorough discussion of the analysis in the Sediment Source Analysis for the Mainstem Trinity River by Graham Matthews and Associates (2001).

Comment 5.10. "Page 44, Section 4.1, paragraph 2:...Please include the criteria that were used to determine whether a slide was 'questionable' and therefore discarded from the aerial photo analysis. The prevalence, nature, and any anticipated effect of features identified as 'questionable' should be explained to clarify why they were left out and the impact (if any) this procedure might have on the results of the aerial photo analysis."

Response 5.10. EPA refers the commenter to a more thorough discussion of the analysis in the Sediment Source Analysis for the Mainstem Trinity River by Graham Matthews and Associates (2001).

Comment 5.11. "Page 44, Section 4.1: methods used to extrapolate sample plot inventories to the entire Trinity watershed and associated confidence in these extrapolations were not explained. An explanation of the confidence in the extrapolation methods used would help to clarify the amount of uncertainty associated with sediment delivery from sample plots."

Response 5.11. EPA refers the commenter to a more thorough discussion of the analysis in the Sediment Source Analysis for the Mainstem Trinity River by Graham Matthews and Associates.

Comment 5.12. "Page 46, Section 4.1, Paragraph 3: It is stated that for pre-1974 harvesting, the rate of surface erosion from harvested areas is assumed to be 12 tons/ac/year. The basis of the application of this rate should be clarified."

Response 5.12. This rate was based on a best professional estimate as described in the Sediment Source Analysis for the Mainstem Trinity River by Graham Matthews and Associates.

Comment 5.13. "Page 46, Section 4.1, paragraph 4: It is state that for the extremely erodible Shasta Bally Formation, the surface erosion rate from harvested areas is assumed to be 40 tons/ac/year. The basis of the application of this rate should be clarified."

Response 5.13. This rate was based on a best professional estimate as described in the Sediment Source Analysis for the Mainstem Trinity River by Graham Matthews and Associates.

Comment 5.14. "Page 47, Section 4.1, Paragraph 2: It is stated that for sediment delivery from legacy roads, a delivery period of 30 years was applied for observed features. The basis of the application of this time period should be clarified."

Response 5.14. This time period is based on the best professional judgement as described in the Sediment Source Analysis for the Mainstem Trinity River by Graham Matthews and Associates.

Comment 5.15. " page 53, 54; Section 4.3; Table 4-6, Table 4-7. In general, the variance associated with sediment yield and transport estimates can be significant. A qualitative description or quantitative estimate of the variance associated with the sediment transport values presented in Table 4-6 and 4-7 would be valuable in evaluating and comparing tributary sediment transport rates.

Response 5.15. EPA has described how the TMDL accounted for any uncertainties within the Margin of Safety (Section 5.3).

Comment 5.16. " Table 5-1, Table 4-5 and text on page 57. There are some disagreements among the figures cited at these locations for some drainages, e.g., Coffee Creek and Horse Linto Creek."

Response 5.16. EPA has reconciled these differences in the TMDL.

6. Northern California Power Agency. Letter dated November 19, 2001.

Comment 6.1. We also hope to continue with a collaborative and science-based dialog on implementation and monitoring of the TMDL and associated water quality standards. We are encouraged by the report's objectivity and basin-wide perspective, which has been delinquent in the larger Trinity River Restoration Program process."

Response 6.1. EPA encourages the continuation of a collaborative and science-based dialogue on implementation and monitoring of the TMDL.

Comment 6.2. "It is readily evident that sediment is a problem in the basin. However, *the report fails to clearly acknowledge the degree of impairment (i.e., detriment to the fishery) and the causal relationship (sediment-fishery production) cannot be quantified*, especially as related to salmonid rearing and migration. This acknowledgment does not change the need for action, but emphasizes the need for and the importance of adaptive management concepts in resolving the habitat impacts."

Response 6.2. EPA used the best available information to characterize the relationship between sediment and fish habitat in Chapter 2. EPA agrees that adaptive management concepts are appropriate as new information becomes available.

Comment 6.3. "The report forages into restoration issues that are not within the purview of the TMDL. For example, loss of coarse sediment supply (pg. 22), inadequate bed mobilization (pg. 23), encroaching riparian vegetation (pg. 23) and dynamic geomorphological features (pg. 24) are not water quality issues as established and defined by EPA (pg. 12). Changes in sediment loads via a TMDL implementation program will not significantly affect these features."

Response 6.3. EPA believes, based on the TRFE and common literature regarding geomorphology (e.g., Ritter 1986), that each of the features identified above are related to sediment loads and protection of freshwater habitat beneficial uses. As such, changes in sediment loads via a TMDL will affect these features.

Comments 6.4. "While they are issues potentially related to fishery production goals, a more complete and open discussion of the causes, impacts and resolution of such issues need to be addressed. Such dialog is appropriate with the Trinity River Restoration Program, rather than as part of the TMDL process. The minimal reference to these issues in the report precludes consideration of important dialog, and implies more knowledge than is reality. While much work has been performed in attempting to understand the mainstem conditions, very little causal relationship information is known. These discussions need to be deleted, with perhaps a reference to the Mainstem Trinity River EIS and flow evaluation for discussion of other factors impacting fisheries within the basin. They offer no value to an otherwise objective report. The discussion in this section needs to stay within the U.S. Forest Service criteria and considerations (pg. 20) in presenting an assessment of the plan watershed and riverine water quality conditions (e.g., impaired) without causal reference to the causes and solutions beyond the pollutant of concern."

Response 6.4. EPA is required to base the TMDL on best available information. The Trinity River Mainstem EIS and supporting scientific documents provide a tremendous amount of information regarding the physical, hydrological and biological processes of the upper middle mainstem river. Such information cannot be overlooked or casually referenced in a TMDL for sediment where the condition of aquatic habitat is of primary concern. Based on all the available information, in addition to the EIS, EPA has determined that sediment-related water quality objectives are not currently being attained and that sediment reduction levels from management activities as assigned in the TMDL are necessary. EPA encourages and supports continued dialogue within the Trinity River Restoration Forum regarding all issues pertaining to the restoration of the fishery including attainment of TMDLs for sediment.

Comment 6.5. "There appears to be some confusion about and misuse of the indicator concept throughout the document. The term indicator has traditionally been interpreted as a reference to an indirect performance measure utilized to evaluate project progress when other more direct means do not exist. It does not generally serve either as a replacement standard (pg.65), a description of water quality (pg. 28), nor an interpretation of standards (pg. 28). As well, direct measures of the standards and effects of the standards do exist, and are partially identified in the report (p. 32). For example, spawning gravel quality and permeability are the impaired habitat. Measuring these attributes will give you direct indication of program progress. Keeping performance measures fuzzy and vague provides a disservice to the technical community and to a healthy adaptive management process. This language needs to be corrected so that readers are not inadvertently misled and confused. You might instead consider use of the term *performance measures* in this context."

Response 6.5. EPA believes that "indicators" is an appropriate term because the parameters described in the TMDL provide an "indication" of the condition of the watercourse with respect to sediment water quality objectives.

Comment 6.6. "There is no need, and moreover, it is counterproductive, to isolate a set of 'indicators' for the mainstem from the other streams and rivers of the Trinity River Basin. The Basin-wide indicators should, and do, apply to the entire basin. No argument has been shown that suggests otherwise, and certainly not because of suggested differences in geomorphic features, being more altered, having been studied more, or having more hypotheses (pg. 29). As well, most of the Upper Middle Mainstem geomorphic 'indicators' have no significant relationship to the TMDL and water quality standards and measures to achieve such. For example, spatially complex channel geomorphology uses sediment but does not result from the existence of excessive sediment. The one that does have relationship - balanced fine and coarse sediment budget - also does not apply to water quality objectives (pg. 12), and is addressed by the general goal of reducing fine sediment as would be gauged through the various basin-wide indicators. It is especially inappropriate to use a flow target (pg. 30) as an indicator of sediment management program success. Mainstem flow has NO relationship to load allocations and changes in those allocations. Costs to plan and implement monitoring of these 'indicators' is a misuse of TMDL program resources. These 'indicators' should be deleted from the report, leaving their discussion for appropriate forums (e.g., the Trinity River restoration program)."

Response 6.6. EPA maintains that the upper middle mainstem is unique for several reasons and warrants a unique set of indicators. In addition to the four reasons identified in the TMDL, the upper middle mainstem is important biologically for anadromous fish spawning and rearing habitat. The infomation in the EIS and supporting studies is strongly related to sedimentation process and must be acknowledged in the TMDL. Moreover, EPA only included geomorphic indicators and targets from the

EIS that are closely associated with sediment. One of the water quality objectives identified in the Water Quality Control Plan for the North Coast ("Basin Plan") that applies to the Trinity is based on "settleable material" defined as follows (and in Section 2.1 of the TMDL): "Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses." From the studies cited in the TMDL, EPA believes that deposition of material in the mainstem below the dams is adversely affecting beneficial uses. EPA also considers that most of the indicators in Table 3-1 are sufficiently associated with "deposition of material" that they are appropriate for inclusion as indicators of river health. In fact, most of these indicators and targets are described in terms of sediment-related characteristics (e.g., alternate bar sequences, channelbed particle size, channelbed surface, median bars, pool tails, spawning gravel deposits, etc.)

Comment 6.7. "In general, reference to the value and need for implementing the ROD (e.g., pg. iii) should be deleted because of its associated narrow focus (mainstem only, no specific watershed actions, no tributary actions) and Graham Matthews Associates's findings that flows appear to not benefit the TMDL goals. Linkage of the TMDL effort to the currently controversial and dysfunctional Trinity River Restoration Program can only harm an otherwise objective and constructive process."

Response 6.7. Although the ROD is focussed on the mainstem, it also addresses watershed restoration activities, including sediment reduction in the tributaries, as an important component to the overall success of the program. As such, sediment reduction is a common to both the ROD and TMDL. EPA is not aware of any findings by Graham Matthews and Associates suggesting that flows do not benefit TMDL goals.

Comment 6.8. "Additional 'indicators' and a narrowing of the wide range of parameters should be considered. A direct measure of program success could include monitoring of localized juvenile production, incubation survival, and/or adult use of habitats (e.g., pools). The spawning gravel quality and permeability measures are also direct measures of program effectiveness (these are the impaired habitats), and thus other monitoring could be minimized for TMDL purposes. Since this indicator list provides recommendations for consideration (by the State Water Resources Control Board) in the implementation and monitoring plan development, we encourage you to emphasize the need for a broad based technical group (similar to reference on page 66, but without reference to ROD processes) to review and refine the appropriate set of performance measures (indicators). Such a group would benefit from agency, stakeholder and non-vested scientific representatives in a collaborative, open dialog. In fact, such a group would have greatly enhanced the TMDL product itself."

Response 6.8. EPA encourages the State to obtain a broad spectrum of stakeholder input as they develop measures to implement and monitor effectiveness of the TMDL.

Comment 6.9. "The reference watershed approach appears to be the most viable approach to determine load allocations, but it is clearly a rough estimate of the 'solution'. The relationship between the desired outcome (improving spawning success and rearing conditions) and the standards by which to achieve that outcome (1:4 ratio between management load and non-management load) is clearly unknown. Given this unknown, a fixed sediment load allocation standard is clearly inappropriate. Without flexibility in the load allocation standard, costly bureaucratic processes are required with subsequent harm to either the environment or the community. We would recommend consideration of a range of the standard (e.g., based on 15-25 percent of non-management load), with a initial fixed value (e.g., 25%) to be reassessed within a certain time frame (e.g., 3 years) by a scientific review panel. The overall water quality standards with appropriate metrics (i.e., indicators) would not change and would guide subsequent changes in the load allocation standard. While this is not the traditional approach, it or something similar is necessary to truly allow for adaptive management practices."

Response 6.9. EPA expects the State to review the TMDL periodically. We agree that an evaluation by a scientific review panel after 3 years or so should be considered by the State as they develop measures to implement and monitor effectiveness of the TMDL. EPA will forward this comment to the State for their consideration as they implement and measure effectiveness of the TMDL.

7. Riley, Vicki. Letter submitted by email dated 11/18/01.

Comment 7.1. "The whole point of reducing sediment in the Trinity River is based on the assumption that sediment is harmful to Trinity River fisheries. This assumption is undercut by the information given in the tables 5-1, 5-2, 5-3, 5-4, 5-5, where many of the listed reference streams, termed 'properly functioning,' have quite high background sedimentation rates, especially in comparison with many of the streams draining watersheds where most of the land is privately owned. In other words, sedimentation itself is not bad, only 'management' sediment, i.e., sedimentation coming from private lands, is considered harmful."

Response 7.1. The adverse effects of excessive sediment on salmonid habitat are well documented (a summary of the information is presented in the TMDL in section 2.3). However, it is also true that salmonids inhabit streams with a wide range of natural average sediment rates. The underlying process which is important is the relationship between sediment delivery and channel stability. Stream channel shape and structure have adjusted to the rainfall/sediment runoff relationships (Simon et al., unpublished) that existed in the period before contact with euro-americans/settlers. These stream channel shapes and structures included properly functioning conditions for salmonids. Channels which have high absolute average levels (e.g., some Trinity reference streams) and are stable (within the context of historical conditions), often provide better habitat conditions than streams which have overall lower absolute levels, but are unstable (e.g., some Trinity non-reference streams). Thus, the absolute level of sediment delivery, except when looked at as a long term average for a particular watershed, is not diagnostic of channel stability of good fish habitat conditions. What is important is the CHANGE in the rainfall/sediment delivery relationship. In summary, it is not that management-related sediment is any different than natural sediment, it is that increases in sediment delivery due to management activities can disrupt the rainfall/sediment delivery balance causing the streams to become unstable and adversely impacting salmonid habitat (e.g., stream widening, filling pools, degrading spawning gravels).

Simon, A., R. Kuhnle, S. Knight, and W. Dickerson. "Reference" and Enhanced Rates of Suspended-Sediment Transport for Use in Developing Clean-Sediment TMDL's: Examples from Mississippi and the Southeastern United States. unpublished.

Comment 7.2. "...since management load allocations are calculated as a percentage of background sedimentation rate, the lower the background rate the lower the management allocation. This plan insures that the management allocation will be very low on all privately owned land by using judgement calls to assign sediment loads to 'management' rather than 'background' on these lands, keeping the background rates much lower on privately owned watersheds than on federally owned watersheds."

Response 7.2. With regard to "judgement calls to assign sediment loads to 'management' rather than 'background,'" EPA wishes to point out that not all erosion from private land was identified as "management-related." Nor does EPA expect that future assessments will assume that all erosion from private land is management-related. In order for a slide or other erosional feature to be considered management related, there must be a clear indication of a recent (in the case of timber harvest) and/or direct (in the case of roads) association between the feature and the management activity. By utilizing the "percent of background" approach, EPA is emphasizing the ratio of management to natural sources rather than absolute rates of sediment delivery. Clearly, in watersheds with high intensity management, the probability is higher that sediment delivery is associated with management activities. However, even in a predominantly private watershed, EPA believes that the 125% of background condition can be achieved through a combination of restoration and prevention measures and/or a sustainable level of management over the long-term. The TMDL provides a basin-wide comparison of the subareas and the degree to which sediment reductions are necessary to achieve the 125% of background threshold. EPA expects the State to strongly consider the ratio of management to natural, in addition to the absolute sediment delivery rate, when evaluating the attainment of the allocations.

Comment 7.3. "This would require one to believe that the geology of all federally owned lands are less stable than all privately owned lands because federally owned lands generally seem to produce a higher rate of background sediment load. Granted, much of the federally owned land is quite steep and includes high elevations. However, all of Trinity County has steep grades, and most watersheds include peaks where rain on snow is a possible event producer."

Response 7.3. EPA agrees that factors such as steepness and elevation influence sediment loading rates.

Comment 7.4. "Furthermore, streams which produce far less total sediment than the reference watersheds are nevertheless targeted for very high percentage reductions, even though these reductions will turn out to be insignificant amounts when compared to the permitted background sedimentation rate. Again these streams mostly drain private lands..." The commenter then provided an example.

Response 7.4. See response 7.1.

Comment 7.5. "...since the watersheds on the eastern side which drain mostly private lands have very low background rates, they must have very stable soils. Since the method of calculating the management allocation of a watershed is as 25% of the background, the management allocations of these lands no where near covers the current roads. Consequently, future economic activity will be discouraged on these stable lands with low background rates, and encouraged in watersheds with higher background rates, because those watersheds have much higher management allocations. This does not seem to me to be a desirable consequence. High background watershed get high allocations for human activity, while low background watersheds get very low allocations for human activity."

Response 7.5. The comment seems to be based on the assumption that use of 125% to estimate the loading capacity is more stringent when the soils are very stable. This assumption would not be correct. While it is true that the management allocation might be lower in a watershed with very stable soils, it would also be true that management activities (including operation of roads) would be expected to generate less sediment in such a watershed than similar activities on less stable soils. Thus, while the allocation for management-related sediment delivery would be lower on more stable land (all other factors equal), the amount of human activity associated with that level of sediment delivery may well be comparable. Please note, however, that while use of 125% neither discourages or encourages activity on stable watersheds relative to unstable watersheds, at the watershed level, the TMDL contains a water quality indicator (section 3.2) that encourages activities in unstable areas within a watershed to be avoided or eliminated.

Comment 7.6. "Where very little is given for management allocation, much of that can be eaten up by 'legacy,' old stuff from mining claims etc., much of which probably cannot be reduced."

Response 7.6. EPA disagrees that sediment from legacy activities cannot be reduced.

Comment 7.7. "A lot of folks on these creeks live in small houses on dirt roads. To achieve even a 40% reduction in sedimentation what kind of pressure will be put on these folks? Will the government fine folks for non-compliance who live on private dirt roads?"

Response 7.7. The State is responsible for developing effective and equitable implementation measures that will result in the attainment of the load allocations on a subarea basis, not necessarily by each individual landowner.

Comment 7.8. "A lot of these roads would have to be paved in order to achieve any major reduction, as they often go steeply up hill from the creek. Who would pay for paving them? What will happen to folks who can't afford to do anything about their roads? This is, after all, one of the poorer counties in California. What will the need for reducing sediment allocations do in regard to the need for fuels reduction in residential areas, as these areas tend to be close to the creeks? Will it prevent owners from building on their property? What will it do to the few remaining jobs in timber harvest? The way this plan is set up, the impact on private property and on the people who live in the county will be entirely out of proportion to the benefits to be gained. For very small amounts of sediment load, economic activity could be brought to a standstill, while federal lands which do nearly nothing for the economy of the county, and even that nearly nothing is further reduced every year, are dumping truly significant amounts of sediment in the river as 'background' sediment."

Response 7.8. The reduction in sediment loads from management activities is proportional to the degree to which management is impacting the resource in each subarea. There are techniques for reducing sediment from rural roads that do not involve paving (Weaver and Hagans 1994). Trinity County has an excellent track record of attracting funding to implement erosion control and fuel management projects on private and public land through entities such as the Trinity County Resource Conservation District. EPA encourages the commenter to remain involved in the State's implementation planning process to address concerns about TMDL implementation on private lands.

Comment 7.9. "NEPA requires that economic effects must be taken into consideration. Recent court decisions have reinforced the concept that if the government reduces the value of property by regulations, the government must reimburse the property owners. These economic and political consequences must also be considered in any plan produced."

Response 7.9. EPA's action is not subject to NEPA nor do the TMDL regulations specifically require the consideration of economic effects. An essential feature of the TMDL is that is based on an assessment of what is necessary to meet water quality standards, independent of economic considerations. The appropriate point in the process for consideration of economic factors is in the development of implementation measures. EPA expects the State to devise effective and achievable implementation measures using a collaborative planning process with local property owners. EPA has identified TMDLs and Allocations for subareas within the Trinity River Basin at levels necessary to attain water quality objectives for sediment, according to the regulations.

Comment 7.10. "The endangered status of the coho, which was part of the underlying basis of the original suit, is now in question. Therefore, part of the reasons for the plan are also questionable. Even more questionable is the idea that small reductions in sediment are going to make any difference at all to significant quantities of fish. Yet generally small reductions would be the results of the largest percentage targets. The percentages may be in the 80's and 90's, but the sediment reduction would be very small compared to the amount of sediment reaching the river as permissible background rates. And for these relatively insignificant amounts, of questionable usefulness, the humans who inhabit the county will likely be penalized heavily."

Response 7.10. The recent court ruling regarding the coho salmon in Oregon (*Alsea Valley alliance v. Evans*) does not in any way affect the existing information regarding aquatic habitat and fish populations that EPA evaluated for the Trinity River TMDL assessment and therefore that ruling will have no effect on this TMDL. EPA believes that the "relatively insignificant amounts" of sediment reductions, described by the commenter, will actually have significant effects on the aquatic habitats within their respective subareas. EPA agrees that some of the subarea sediment reduction levels are small compared to sediment delivery rates in certain reference watersheds or the basin as a whole. However, the TMDLs are calculated on subarea basis and intended to meet the water quality objectives for each subarea. EPA encourages residents of Trinity County who are concerned about how the TMDL may affect them to participate in the State's development of implementation measures.

8. Sacramento Municipal Utility District. Letter dated November 19, 2001.

Comment 8.1. "... the text of the Draft sediment TMDLs for the Trinity River is focused - not on sediment loads or their reduction - but on the increase of releases from Trinity Reservoir (flows) that the Draft asserts are necessary to manage sediment in the mainstream, most of which is contributed by tributaries...the Draft is attempting to push TMDLs beyond their statutory limits for purposes of controlling matters that are outside EPA's statutory responsibility..."

Response 8.1. The focus of the TMDL is on sediment loads. EPA assessed the amount of sediment delivered to watercourses from various sources and locations (Chapter 4) then determined TMDLs and allocations for sediment (Chapter 5), expressed in terms of tons of sediment per square mile per year (t/mi2/yr). However, it is appropriate that EPA also consider flows as part of its analysis for this TMDL. Mainstem flows below Lewiston Dam have a significant effect on sediment conditions in the Upper Middle mainstem and therefore warrant consideration in the development of TMDLs. In addition, 40 CFR 130.7(c)(1) requires that, "Determinations of TMDLs shall take into account critical conditions for stream flow..." See also response 1.1.

Comment 8.2. The Secretary of the Interior has responsibility over allocation matters, with EPA's regulatory responsibility and authority being limited to pollutants and pollution added to the River. "Congress expressly withheld regulatory authority over water allocation and water rights from EPA (and as to the Trinity conferred it on the Secretary) and instead limited EPA's responsibility to control of pollution and pollutants added to water bodies."

Response 8.2. EPA acknowledges the role of the Department of Interior in ensuring adequate flow from the Trinity River, and also notes DOI's responsibility to comply with Clean Water Act requirements under CWA Section 313. The TMDLs and allocations being established for the Trinity River do not mandate specific flow regimes, nor do they mandate a reallocation of water. See also response 1.1.

Comment 8.3. "...the Trinity, like many rivers in California and elsewhere in the West, serves beneficial uses not just in its watershed but also in distant regions of California without substantial indigenous water supplies."

Response 8.3. The beneficial uses addressed by the TMDL are those that are listed for the Trinity in the Basin Plan (Table 2-1) not in distant regions of California.

Comment 8.4. Under the heading, “TMDLs are not intended to resolve all of the Nation’s water quality issues,” the commenter provided a summary of Clean Water Act programs including TMDLs. The commenter then stated, “...Section 319 of the Clean Water Act provides the states with a specific, detailed approach to the development and implementation of these management plans that accounts for the vastly greater technical and political complexity associated with ‘pollution’ control. The TMDL program, which focuses on ‘pollutants’ discharged into water, was not intended to deal with these complexities.”

Response 8.4. Implementation of the TMDL program is intended to result in the attainment of water quality standards.

Comment 8.5. “The Clean Water Act simply does not authorize the EPA, or the states, to take any and all actions perceived as desirable for water quality, even for the purpose of meeting water quality standards... Likewise, the Clean Water Act does not authorize the EPA, or the states, to reallocate water supply or other natural resources in order to change stream morphology for the purpose of improving habitat for aquatic species.”

Response 8.5. See response 1.1. EPA does not reallocate water supply in the TMDL. As noted in the Summary Response (1.1), moreover, the Supreme Court has specifically upheld actions under the Clean Water Act which may have incidental effects on water quantity.

Comment 8.6. “The TMDL program is specific, limited tools that contributes to achievement of water quality standards: The sole function of a TMDL is to limit the amount of a pollutant that is introduced into a water body from the outside world.” The commenter then provided a description of Section 303(d) of the CWA and TMDLs.

Response 8.6. EPA agrees that the TMDL program is intended to result in the achievement of water quality standards. The function of a TMDL is to establish the maximum amount of a pollutant that can be present in a water body and still achieve water quality standards.

Comment 8.7. “The Draft TMDL attempts to manage the location and transport of sediment in the River by establishing indicators and targets, and recommending management measures, that are not related to reducing the introduction of sediment in the River.”

Response 8.7. The indicators and targets are indeed related to reducing the introduction of sediment into the river because they are a reflection of what happens to sediment once it has entered a waterbody. If one only measured the introduction of sediment and not channel conditions, one would not know the effects of that sediment on beneficial uses. In addition, the recommended management measures in the draft TMDL are appropriate because they support the protection of beneficial uses and restoration of the river.

Comment 8.8. “For the most part, chapters 4, 5, 6 of the Draft TMDL generally conform to the Statutory and regulatory scheme for TMDLs.”

Response 8.8. Comment noted.

Comment 8.9. “...In Chapter 3, the Draft TMDL establishes indicators and targets for the river that depend on factors other than reduction in introduced sediment, including, among others, restoration of the alluvial channel, creation and maintenance of complex alternate bar sequences...Table 3-1 at p. 30...

this table and the accompanying text are explicit in their assumption that these indicators and targets require substantially increased flows if they are to be met."

Response 8.9. The indicators and targets are intended to, "...provide a useful reference in determining the effectiveness of the TMDL in attaining water quality standards... No single indicator adequately describes water quality related to sediment, so a suite of instream and watershed indicators is identified" (Chapter 3). The targets referenced in this comment are related to sediment input as well as flow. EPA believes it is appropriate to include sediment-related geomorphic indicators and targets for the Upper Middle mainstem, especially given the vast body of information used to develop those indicators. Although the TMDL does not allocate flow, it is entirely appropriate that the TMDL contain indicators that are useful in determining the effectiveness of the TMDL, whether or not those indicators have a relationship to flow.

Comment 8.10. "And, in Chapter 6, the Draft TMDL specifically recommends implementation of an increased flow regime for the purpose of managing the location and transport of sediment, even though the flow regime does not control the introduction of the pollutant sediment. Because the TMDL program is limited to managing the aggregate amount of sediment introduced to the Trinity River from the outside world, these latter aspects of the Draft TMDL exceed the authority provided in section 303(d) of the Clean Water Act and must be eliminated."

Response 8.10. Section 303(d) of the Clean Water Act does not limit EPA from making recommendations. There is a tremendous scientific foundation supporting the need for increased flows in order to improve fish habitat conditions, one component of which is sediment transport and storage. EPA is not allocating higher flows in the TMDL, merely recommending the implementation of actions which we believe will assist in the achievement of the beneficial uses of the Trinity River currently impaired in part by sediment. See also response 1.1.

Comment 8.11. "...most of the indicators for the Upper Middle Mainstem, and many of the basin-wide indicators, are focused on achievement of goals other than a reduction in sediment 'pollutant' loading. Indeed, as Table 3-1 indicates, the EPA expects that achievement of most if not all of the targets and indicators result not from a reduction in sediment loading, but instead on dramatic change to the current flow regime. ...Neither the TMDL program nor any other part of the Clean Water Act authorizes the EPA to engage in or recommend this type of resource reallocation."

Response 8.11. EPA only included the targets from the EIS that are closely associated with sediment. One of the water quality objectives identified in the basin plan that applies to the Trinity is based on "settleable material" defined as follows (and in Section 2.1 of the TMDL): "Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses." From the studies cited in the TMDL, EPA believes that deposition of material in the mainstem below the dams is adversely affecting beneficial uses. EPA also considers that most of the indicators in Table 3-1 are sufficiently associated with "deposition of material" that they are appropriate for inclusion as indicators of river health. In fact, most of these indicators and targets are described in terms of sediment-related characteristics (e.g., alternate bar sequences, channelbed particle size, channelbed surface, median bars, pool tails, spawning gravel deposits, etc.)

Comment 8.12. "...the Draft TMDL identifies three targets: (1) the creation of channel avulsions every ten years; (2) obtaining channel migration in alluvial reaches; and (3) maintaining channel geometry as the channel migrates. Id. These targets have virtually no relationship to sediment introduced to the River as a "pollutant:" The Draft TMDL even states that reduction in sediment loading will not accomplish the goal of channel migration."

Response 8.12. EPA disagrees that these three targets have "virtually no relationship to sediment introduced to the River as a 'pollutant:'" Sediment input does have an influence on channel avulsions, migration, and geometry. As an example, the mainstem channel directly below Lewiston dam, where sediment supply is virtually cut off, behaves differently than further downstream where sediment is contributed by the tributaries. Under the existing controlled flows, the uppermost mainstem channel is downcutting while, further downstream, the channel is aggrading. EPA acknowledges that flow is a critical factor in channel migration. However, it does not operate independent of sediment supply. Consequently, these channel conditions are appropriate TMDL indicators in conjunction with the suite of other instream and watershed indicators.

Comment 8.13. "EPA regulations also recognize that implementation plans for a TMDL must be limited to achieving reductions in pollutant loading. 65 Fed. Reg. 43586, 43626 (July 13, 2000) (stating that implementation plans must include 'a description of specific regulatory or voluntary actions, including management measures or controls ... that provide reasonable assurance that *load reductions* will be achieved, and the schedule by which these measures are expected to be implemented') (emphasis added)."

Response 8.13. EPA concurs that implementation plans must address load reductions. However, the regulation cited above (which has not gone into effect) does not preclude EPA from making recommendations to the State, Department of Interior, or other entities regarding implementation actions that are necessary to attain the beneficial uses currently impaired in part by the listed pollutant.

Comment 8.14. "...TMDLs control only the loading (introduction) of 'pollutants,' and the recommendations must be limited similarly." The commenter then described how flows are not considered a pollutant.

Response 8.14. EPA believes it is appropriate to include implementation recommendations in the TMDL report regarding actions that are necessary to attain the beneficial uses currently impaired in part by the listed pollutant. See also response 1.1.

Comment 8.15. "The primary reason why sediment is not suitable for TMDL calculation is because not all of the sediment present in waterbody qualifies as a 'pollutant,' and it is impossible to distinguish between 'pollutant' sediment and other sediment present in the River – a distinction that must be made in the context of the TMDL regulatory program that is limited, by statutory mandate, to 'pollutants.'"

Response 8.15. EPA considers sediment a pollutant for purposes of section 303(d), notwithstanding that some sediment in a water body may be natural. The Federal District Court for the Northern District of California has held that sediment is a pollutant suitable for TMDL calculation. See discussion in *Pronsolino v. Marcus*, 91 F. Supp. 2d 1337 (N.D. Cal. 2000)(appeal pending).

Comment 8.16. "The Draft TMDL improperly relies on the Record of Decision (ROD) issued by the Secretary of the Interior on December 19, 2000 in which the Secretary adopted recommendations for flow increases, habitat management, and other measures contained in the U.S. Fish and Wildlife Service's Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (1999)....The Draft TMDL cannot rely on the ROD flows because in March 2001, a federal district court enjoined implementation of the ROD with respect to any flows above the 369,000 acre-feet per year....the Trinity River TMDLs must be based on existing flows, not on those which the Secretary may - or may not - adopt in the future.

Response 8.16. The calculation of the loading capacity (TMDL) and allocations (Section 5.2) are based on the sediment delivery rates expressed as a percent of background. This approach is based on conditions in reference watersheds and is independent of any particular flow rate. See also response 1.1.

Comment 8.17. “The Draft TMDL does not account for natural variation in sediment loading...The Draft TMDL fails to explain why, given these factors, a ten-year rolling average is appropriate.”

Response 8.17. EPA believes that a ten year rolling average is appropriate because it is a substantial period of time over which natural variation can be averaged, and yet it is not so long that it would be difficult to assess the effectiveness of the TMDL.

Comment 8.18. “The Draft TMDL establishes appropriate sediment loading at 125% of background sediment, stating only – without citation – that the approach has been used successfully elsewhere. Ud, at 57-58. Estimates of background sediment delivery rates from reference subwatersheds vary by an order of magnitude which provides a poor basis for extrapolation unless the variance can be explained, and then appropriately applied to other similar watersheds.”

Response 8.18. The commenter is correct that EPA based the estimate of loading capacity for the various subareas using a reference watershed approach. EPA compiled information related to aquatic habitat conditions and compared this to information on sediment yield and watershed disturbance. The information for the reference streams is summarized in Table 5-1 of the TMDL. Upon examination of this information, EPA concluded that there was a much better correlation between aquatic habitat condition and sediment yield expressed as a percent of background, than between aquatic habitat condition and sediment yield expressed directly as a rate (in tons/mi2/yr). As described in the TMDL, EPA concluded that 125% of background was the appropriate way to estimate the loading capacity of a subarea, rather than extrapolating the loading rate for a reference watershed. EPA has used 125% of background to estimate the loading capacity in other TMDLs, although the basis was somewhat different than in the Trinity. EPA first estimated the loading capacity as 125% of background in the South Fork Eel sediment TMDL, where the use of 125% was supported by information for the Noyo River which showed that salmonid populations were relatively high during a period when sediment delivery was about 125% of background. EPA has also used 125% of background in the Ten Mile and Navarro River sediment TMDLs, and in the recently proposed TMDLs for the Big and Gualala Rivers.

Comment 8.19. “No reference watersheds were identified for the Upper Middle area which is that portion of the Trinity River below Lewiston Dam. Id. at 56-57. The Draft TMDL provides no basis for the conclusion that the geology is similar to portions of the Upper and Lower Middle areas...”

Response 8.19. In Section 5.1, EPA has added a reference to the geologic map and information by GMA (2001b) which illustrates how the geology in the Upper Middle Area is similar to the Upper Area (e.g., Granitic and Ultramafic Rocks) and Lower Middle Area (e.g., North Fork Terrane, Central Metamorphic Subprovince and Hayfork Terrane).

Comment 8.20. “To comply with section 303(d), the Draft TMDL must (1) calculate and analyze success of the TMDL reductions in sediment loading according to existing flows; (2) remove all indicators and targets that are not primarily related to reductions in sediment loading; and (3) remove all references to the flow regime of the December 2000 ROD, with the exception of the discussion regarding the uncertainties as the level of future flows.”

Response 8.20. See response 1.1.

9. San Luis and Delta-Mendota Water Authority and Westlands Water District, Letter dated November 19, 2001.

Comment 9.1. "The EPA should also be aware that the Secretary failed to adequately consider and address the environmental and other impacts of the lost water and power supply that the ROD would cause...A federal district court has ruled that the Authority and Westlands will likely prevail on their claims that the ROD was adopted in violation of the National Environmental Policy Act...The proposed TMDL should not, as it does, assume that the same flow regime as is set forth in the existing ROD will be readopted without change."

Response 9.1. See response 1.1.

Comment 9.2. "A TMDL that results in reductions of discharges of fine sediment to the Trinity River is therefore appropriate and salutary."

Response 9.2. Comment noted.

Comment 9.3. "Regrettably, however, the proposed TMDL goes far beyond the scope of EPA's authority to regulate discharges of pollutants under the Clean Water Act to establish a TMDL. It seeks ultimately to compel implementation of the entire ROD, including the flow-related portions that were illegally adopted by the Secretary, and which are now undergoing supplemental environmental review. EPA should amend the proposed TMDL to eliminate these provisions, and clarify that changes to the flow regime are not and cannot be mandated pursuant to the proposed TMDL."

Response 9.3. EPA is establishing TMDLs for the Trinity River for sediment, the pollutant for which the Trinity River is listed in accordance with Section 303(d) of the Clean Water Act. See also response 1.1.

Comment 9.4. The commenter provided definitions of TMDLs then stated, "In sum, the proposed TMDL, and the measures recommended to implement it, should be addressed to discharges of sediment into the Trinity River....as drafted the proposed TMDL attempts to reach beyond limiting sediment discharges to require other actions to improve fish habitat. To this extent, it is contrary to law."

Response 9.4. See response 1.1.

Comment 9.5. "The fundamental defect of the proposed TMDL is that it exceeds the defined scope of TMDLs authorized by the Clean Water Act. It is not limited, as it must be, to determining the allowable level of discharges of sediment to the Trinity River. Instead, it seeks to dictate habitat conditions not achievable by reductions in sediment discharge...."

Response 9.5. The TMDL and allocations (Chapter 5) are expressed in terms of allowable levels of sediment discharge (tons/mi2/yr). See also response 1.1.

Comment 9.6. "The proposed TMDL states that the indicators are to be used to assist in determining 'if, in fact, the TMDL is successful in attaining water quality standards.'...A number of the indicators selected in the proposed TMDL, however, are not measures of the impact of discharges of sediment to the Trinity River....Thus, the proposed TMDL establishes some “indicators” that have no nexus to the pollutant discharge that is supposed to be the subject of the proposed TMDL.”

Response 9.6. All the indicators included in this TMDL have a “nexus” to sediment and thus are appropriate indicators of the success of the TMDL. See also responses 8.12 and 1.1.

Comments 9.7. “Whatever the merits of the ‘healthy alluvial river’ approach to restoration of fish in the Trinity River, which we will not address here, it is not an appropriate indicator for a sediment TMDL. These ‘attributes’ were not designed as a measure of the impact of ongoing discharges of sediment to the Trinity River as part of a TMDL. Instead, the ROD measures were developed under a different regulatory process, for a different and broader purpose.”

Response 9.7. EPA only included the geomorphic indicators from the EIS that are closely associated with sediment. One of the water quality objectives identified in the basin plan that applies to the Trinity is based on “settleable material” defined as follows (and in Section 2.1 of the TMDL): “Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.” From the studies cited in the TMDL, EPA believes that deposition of material in the mainstem below the dams is adversely affecting beneficial uses. EPA also considers that most of the indicators in Table 3-1 are sufficiently associated with “deposition of material” that they are appropriate for inclusion as indicators of river health. In fact, most of these indicators and targets are described in terms of sediment-related characteristics (e.g., alternate bar sequences, channelbed particle size, channelbed surface, median bars, pool tails, spawning gravel deposits, etc.). It is appropriate, therefore, to incorporate these sediment-related attributes into the TMDL, regardless of the regulatory process through which they were developed.

Comment 9.8. “EPA should revise the proposed TMDL to eliminate ‘indicators’ that would require increased flows in order to be achieved. Instead, EPA should include only indicators that measure future discharges of sediment to the Trinity River, and the impact of such discharges on water quality. As described below, EPA should conservatively estimate allowable sediment discharges or ‘loading’ by assuming that the existing flow regime will continue.”

Response 9.8. EPA believes the upper middle mainstem geomorphic indicators are, in part, measures of sediment discharges and expressions of the cold freshwater habitat beneficial uses and therefore are appropriate TMDL indicators. EPA does not believe that sediment reductions beyond those necessary to achieve the allocations in the TMDL under existing flow conditions would result in the attainment of cold freshwater habitat beneficial uses in the mainstem below the dams. As stated in the Critical Conditions (Section 5.4) of the TMDL, the peak flows called for in the ROD are critical to support several river functions including mobilizing channelbed particles, scouring of pools, creating point bars and connecting the mainstem to the floodplain. These are functions that the TMDL sediment allocations cannot achieve alone. Therefore, EPA recommends that the Department of Interior implement the science-based flow regime called for in the ROD to enhance the effectiveness of the TMDL and result in the protection of beneficial uses below the dam. See also response 1.1.

Comment 9.9. “...the flow regime in the ROD is not directed at what the TMDL is supposed to address - the load of discharges of sediment to the Trinity River.”

Response 9.9. The goals of both the ROD and TMDL are related to the achievement of healthy river habitat conditions and are therefore similar and compatible. Moreover, the Department of the Interior has a responsibility to comply with Clean Water Act requirements in accordance with CWA Section

313. See also response 1.1.

Comment 9.10. "The proposed TMDL adopts the wrong approach to factoring flows in the Trinity River into its analysis. Changes in flows cannot be mandated pursuant to section 303(d) of the Clean Water Act." The commenter goes on to describe how flows are to be considered based on the final TMDL regulations, published in the Federal Register on July 13, 2000, at 65 FR 43586...EPA should calculate and allocate the total sediment load 'in light of' the existing flow regime, and develop the TMDL based on the existing flow regime. It should not - and cannot legally - simply assume implementation of the flow regime contained in the ROD. Nor may it legitimately recommend implementation of the ROD flows as 'necessary' to 'implementation' of a TMDL."

Response 9.10. EPA did not base the calculation of the loading capacity (TMDL) and allocations on any particular flow regime, nor does the TMDL in any way allocate flow or require a specific flow regime. See also response 1.1.

Comment 9.11. "... The way to meet this mandate of conservatism is to base the TMDL on the flows currently mandated by law, in section 3406(b)(23) of the Central Valley Project Improvement Act. That provision requires the release of 340,000 acre feet per year to the Trinity River from the Trinity Reservoir Division. That amount, plus tributary inflow from the below the dam, should form the basis for calculation of the total pollutant load."

Response 9.11. The CVPIA did not specify a level of flow for the Trinity River. Rather, it established a minimum flow, along with a process for the Department of Interior, in consultation with the Hoopa Valley Tribe, to further evaluate Trinity River flow needs. The numerous years of flow evaluation studies clearly support the need for increased flows, along with sediment reduction from the tributaries, in order support cold freshwater habitat conditions in the mainstem below the dams. The calculation of the loading capacity (TMDL) and allocations (Section 5.2) is based on the sediment delivery rates expressed as a percent of background. This approach is based on conditions in reference watersheds, and is independent of any particular flow rate.

Comment 9.12. Commenter suggests that these TMDLs are inconsistent with provisions of the Central Valley Project Improvement Act (CVPIA), specifically those provisions discussing flows on the Trinity River.

Response 9.12. EPA disagrees with commenter for several reasons. First, EPA's TMDL is not predicated on the existence of any particular flow regime. Nor did the CVPIA specify a level of flow for the Trinity River. Rather, it established a minimum flow, along with a process for the Department of Interior, in consultation with the Hoopa Valley Tribe, to further evaluate Trinity River flow needs. Both the CVPIA and the previous 1984 statute establishing a process for determining Bureau of Reclamation operations on the Trinity River are silent as to the Clean Water Act. In other words, there has been no explicit Congressional decision to subordinate the requirements of the Clean Water Act to the CVPIA. EPA recognizes that the Department of the Interior is preparing a supplemental environmental impact statement with regard to its Trinity River record of decision, and can be expected to take further action to set minimum flows. Also, EPA expects the State to take actions to implement these TMDLs. These decisions will require an evaluation of the potential interplay of the CVPIA, Section 303 and Section 313 of the CWA, California's own water laws, and the standards for preemption articulated by the U.S. Supreme Court in *California v. U.S.*, 438 U.S. 645 (1978) and related cases, to ensure that the measures implementing the CVPIA and measures implementing these TMDLs are compatible.

Comment 9.13. “The EPA has no authority to mandate that the State of California develop or carry out any particular implementation measure. Pronsolino v. Marcus, 91 F.Supp.2d 1337, 1354 (N.D.Cal. 2000).” The commenter then describes EPA guidance regarding the development of implementation plans. “If EPA adopts the proposed TMDL, and then seeks to coerce the State of California to adopt measures to ‘implement’ such portions of the proposed TMDL, it will be acting in excess of its authority and contrary to law.”

Response 9.13. EPA is not mandating any particular implementation measures.

Comment 9.14. “... EPA should revise the proposed TMDL by deleting the recommendation that the ROD flow regime be implemented. EPA should address ‘low flows’ by calculating the TMDL based on the existing flow regime, and should not assume that the ROD flow regime will be implemented. EPA should expressly disavow any intention to require that the Trinity River flow regime be altered to satisfy the TMDL for sediment in the Trinity River.”

Response 9.14. See response 1.1.

Comment 9.15. “Page iii, second paragraph on page: ‘Up to 90% of water flowing into Lewiston exported to Sacramento River.’ This statement is very misleading...In fact, diversions have been as low as 37%.”

Response 9.15. EPA has changed this statement to, “Significant water exports from the Trinity to the Sacramento River since early 1960's.”

Comment 9.16. “Page iii, Summary, Loading Capacity: ‘Based on sediment delivery rates in reference watersheds.’ The USFWS has continually indicated that the conditions of the Upper Trinity River are unique and cannot be compared to any other streams. If this is the case, it is not appropriate to use data from ‘reference watersheds,’ especially since much of that information was obtained during a critically dry water year.”

Response 9.16. The mainstem condition in Upper Middle Area of the Trinity is certainly unique for several reasons including the influence of the dams on the flow. However, the geology in the Upper Middle area is similar to the Upper area (Eastern Klamath Province and Weaverville Formation) and Lower Middle area geolgoy (North Fork Terrane, Hayfork Terrane). The Central Metamorphic Subprovince geologic formation occurs throughout all three assessment areas. Therefore, as a basis for determining appropriate sediment delivery rates, it is appropriate to apply reference watershed data to the tributary watershed area in the Upper Middle Assessment Area. To account for the uniqueness of the upper middle mainstem, the TMDL contains geomorphic indicators tailored specifically to the mainstem conditions.

Comment 9.17. “...it was noted that some of the data used in determining sediment budgets was ‘synthetic’ since only limited real data were available and much of the information was gathered in only one year - a critically dry year. These data had to be modified or extrapolated to fit wet years, dry years and average years over a period of time. The analysis therefore appears to rely considerably upon ‘professional judgement’ rather than actual conditions.”

Response 9.17. The TMDL relies upon best available information which incorporates data regarding actual conditions where such data exist.

Comment 9.18. "The 'reference watersheds' have a much higher background or 'natural' sediment rate than do the streams of concern. EPA should explain why, given this difference, it is appropriate to rely upon the 'reference watersheds' to develop loading capacity.

Response 9.18. EPA compiled information related to aquatic habitat conditions and compared this to information on sediment yield and watershed disturbance. The information for the reference streams is summarized in Table 5-1 of the TMDL. Upon examination of this information, EPA concluded that there was a much better correlation between aquatic habitat condition and sediment yield expressed as a percent of background, than between aquatic habitat condition and sediment yield expressed directly as a rate (in tons/mi2/yr). As described in the TMDL, EPA concluded that 125% of background was the appropriate way to estimate the loading capacity of a subarea, rather than extrapolating the loading rate for a reference watershed. EPA has used 125% of background to estimate the loading capacity in other TMDLs, although the basis was somewhat different than in the Trinity. EPA first estimated the loading capacity as 125% of background in the South Fork Eel sediment TMDL, where the use of 125% was supported by information for the Noyo River which showed that salmonid populations were relatively high during a period when sediment delivery was about 125% of background. EPA has also used 125% of background in the Ten Mile and Navarro River sediment TMDLs, and in the recently proposed TMDLs for the Albion and Gualala Rivers. See also response 7.1.

Comment 9.19. "The ROD was adopted illegally. The Department of the Interior is reassessing the impacts of the flow regime proposed in the ROD. That flow regime may change. The TMDL should not assume that the flow regime in the ROD will, in fact, be implemented."

Response 9.19. It is appropriate for EPA to recommend to the Department of Interior the flow regime called for in ROD that, according to the best available information, is necessary to support beneficial uses in the mainstem Trinity River below the dams. See also Response 1.1.

<u>10. Sierra Pacific Industries (SPI). Letter dated November 19, 2001</u>

Comment 10.1. "...I found it difficult to obtain copies of the information sources listed in Section 1.2....the lack of availablity of these source is a severe impairment (pun intended) of our ability to critically review the draft TMDL."

Response 10.1. EPA similarly had difficulty obtaining copies of all the relevant information that exists from different sources and in different locations. Please contact EPA if you still would like copies of specific documents.

Comment 10.2. "...I believe that the EPA has not correctly identified the major impairment to the salmonid fisheries. That impairment is clearly the 2 dams on the river at Lewiston...the construction and management of these dams has removed more than 50% of the highest quality habitat for these fisheries while reducing the quality of the remaining habitat. This level of impairment deserves a place at the head of the list when discussing 'sources of impairment'."

Response 10.2. When using the term "sources of impairment" in the TMDL context, EPA is referring to the sources of the pollutant for which the waterbody is listed, in this case sediment. EPA recognizes the impact of the dams on loss of fish habitat and quality of remaining habitat in Section 2.2 and 2.4, respectively, in the TMDL document.

Comment 10.3. "...when discussing what has caused the anadromous salmonid beneficial use to become impaired, the effects of the dams and their ongoing management is ignored..."

Response 10.3. EPA summarized and referenced the effects of the dams, combined with sediment inputs from the tributaries, to the mainstem below the dams in Section 2.4. under Habitat Conditions in Upper Middle Assessment.

Comment 10.4. "...it is abundantly clear that recreational beneficial use in the Trinity River system is more diverse and more heavily used than at any time in the past. However, there is no statement regarding the status of this beneficial use. I believe that the EPA should clearly state that this beneficial use is not impaired."

Response 10.4. The TMDL briefly describes the recreational beneficial uses on the Trinity River and the reservoirs in Section 2.1. As stated in the section, sediment can impact several of these uses, such as recreational fishing in both the river and reservoirs. Rather than make a specific determination as to whether the recreational beneficial uses are impaired, EPA made determinations that the fisheries-related beneficial uses are impaired and that they are the beneficial uses that are most sensitive to sediment impacts. Thus, EPA concludes that any impairment of recreational uses caused by excessive sediment will be addressed by attainment of the loading capacity determined by consideration of fisheries-related beneficial uses.

Comment 10.5. "...the discussion seems to focus, incorrectly, on only 'native anadromous fish populations' and basically ignores hatchery and introduced fish...hatchery and introduced salmon and steelhead (and other species) are just as much a beneficial use as are 'native' species."

Response 10.5. One reason to focus attention on native anadromous fish populations and their habitat is because the Basin Plan includes a beneficial use (applicable to the Trinity River) for Spawning, Reproduction, and/or Early Development (SPWN) defined as: "Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish." Naturally spawned fish need high quality aquatic habitat suitable for reproduction and early development compared with hatchery fish that are raised under artificial conditions. Relatively low numbers of naturally spawned anadromous fish, compared to hatchery produced fish, are an indicator that the SPWN beneficial use is impaired.

Comment 10.6. "It appears that the EPA has assumed that the goals under the Trinity River Restoration Program (TRRP) and the Federal Endangered Species Act (ESA) are synonymous with beneficial uses, which they are not. These TRRP and ESA goals relate to an important sub-set of the overall cold water fish beneficial use. Discussions and resolutions of the impairment of the cold water beneficial use must include all cold water fisheries, not just a subset....hatchery fish must be part of the overall goal for resolution, not just 'native' or 'naturally spawned' fish... there should be no difference regarding hatchery and non-hatchery salmonid production in terms of TMDL objectives."

Response 10.6. The beneficial uses of concern in this TMDL are focussed on supporting cold water ecosystems, the preservation or enhancement of aquatic habitats, and high quality habitats suitable for reproduction, early development and migration of aquatic organisms (described in Section 2.1 of the TMDL and defined in the Water Quality Control Plan for the North Coast Region "Basin Plan"). EPA believes it is appropriate to focus particular attention on the status of native fish populations since they are more dependent on high quality aquatic habitat necessary to support all life stages (particularly reproduction and early development) compared to hatchery populations that are spawned and raised artificially. EPA believes the goal of the TMDL, to attain water quality standards for sediment, is compatible with the fish restoration goals of the TRRP and ESA.

Comment 10.7. “The TRRP goal of 62,200 fall chinook reflect a level of returning spawners greater than was documented prior to dam construction...Instead, something close to 45,000 should be the TMDL target.”

Response 10.7. EPA referenced the TRRP goal for purposes of characterizing existing conditions in the watershed, not as a TMDL target. The average inriver escapement of naturally produced fish (11,932 from 1982 to 2000) is still well below the 45,000 level identified by the commenter.

Comment 10.8. “When counting hatchery and non-hatchery adult chinook spawners, the minimum average estimate is about 32,000 from 1982 through 2000. This suggests a reduction of about 13,000 or 30%. This potential reduction is best explained by changes in ocean conditions....When considering coho, current adult returns are well above historic estimates. Having averaged about 6,800 spawners from 1991 to 1999, this exceeds the TRRP goal by about 5 times and is well above the 5000 estimated to exist prior to dam construction. There is no basis to state that the beneficial use of coho salmon is impaired beyond that caused by construction and management of the dams.”

Response 10.8. There is a tremendous amount of existing information indicating that sediment-related habitat conditions in the mainstem and certain tributaries below the dams are impaired, as described in Chapters 2 and 3 of the TMDL. Construction and management of the dams appears to be a significant factor for the mainstem. However, habitat conditions in certain tributaries with high ratios of management-related sediment production, not influenced by the dams, are also impaired and warrant sediment reduction as called for in the TMDL. See also response 10.5.

Comment 10.9. “The draft TMDL notes that hatchery fish dominate the adult returns, and asserts that this is evidence of impairment. However, this is most likely due to the loss of the best spawning and rearing habitat by construction of the dams. The remaining habitat is ‘naturally’ lower quality spawning and rearing habitat as these species utilize the upper portions of streams much more than mid- and lower portions (Meehan 1991)...”

Response 10.9. EPA agrees that construction of the dams blocked access to considerable spawning and rearing habitat. However, an abundance of scientific information suggests that the aquatic habitat below the dams is impaired (summarized in Section 2.4) and will improve in response sediment reduction from tributaries as called for in the TMDL.

Comment 10.10. “...Large sized outmigrants are known to have a much higher survival rate than smaller fish. This is the basis for construction of the hatchery and its management: to replace the lost production above the dam, and to increase survival rates by releasing large smolts and yearlings. The ratio of hatchery to non-hatchery returns is evident that this is working.”

Response 10.10. High returns of hatchery fish does not constitute evidence that the beneficial use (high quality aquatic habitat) is being attained. It may be an indicator that other factors (ocean conditions, predation, etc.) may not be limiting production. Whereas, a long-term sustainable level of naturally produced anadromous fish, in conjunction with sediment-related habitat information, would provide a strong indication that the beneficial uses for cold water habitat, spawning, rearing and early development of fish are being attained.

Comment 10.11. “These numbers and information suggest, beyond that caused by the construction of the dams and their subsequent management, reductions in anadromous salmonids in the Trinity system are not at a level to be addressed as having ‘changed dramatically’. The statements regarding coho salmon having been reduced since the 1940's simply are not supported by this information.”

Response 10.11. EPA does not agree with the approach taken by the commenter to combine hatchery with non-hatchery fish in order to determine changes in fish abundance. In addition, the fact that the dams severely impacted fish populations, does not eliminate the need to address other limiting factors, such as sediment.

Comment 10.12. “Habitat typing and biological inventories conducted in these tributaries in 1989 and 1990 documented coho juveniles in Brown’s Creek, Indian Creek, Reading Creek, Deadwood Creek, Weaver Creek, and Rush Creek (Parkinson et al. 1990, 1991; Moore 1990; Frink and Cook 1990. These tributaries are well used by coho for spawning and rearing. Steelhead and chinook were also found in these tributaries.”

Response 10.12. EPA has clarified the second paragraph of Section 2.2 regarding coho utilization of the upper middle tributaries as of 1990. This information does not change the TMDLs and Load Allocations called for in Chapter 5.

Comment 10.13. “We find it interesting that the ‘reference streams’ available to coho are essentially not used by coho, or they are present only at low levels. The North Fork of the Trinity River may be an exception here. However, the point still stands.”

Response 10.13. There are several potential explanations for the degree to which coho salmon are using certain tributaries and/or mainstem reaches as opposed to others such as natural stream gradients, amount of cover, competition, proximity to hatchery, etc. EPA did not base the identification of reference streams solely on limited population data for a single species. Rather, EPA evaluated a variety of physical aquatic habitat and watershed indicators along with biological data where available.

Comment 10.14. “We hope that EPA has access to this information [outmigrant data for Horse Linto Creek] and can utilize it in terms of an instream goal..”

Response 10.14. EPA recommends continued downstream migrant trapping in strategic locations (such as Horse Linto Creek), as well as spawner escapement, to evaluate the long-term fish productivity in the watershed (Chapter 6). However, at this time, there is insufficient information from which to develop a quantitative TMDL target. Based on additional monitoring, an outmigrant indicator and target could be added to the TMDL in the future.

Comment 10.15. “The information from Appendix A [information provided with the comment letter] regarding the currently well recognized effects of ocean condition changes on returning adult salmon, the relatively small reduction in fall chinook, coupled with the increase in coho salmon documented to have occurrred in the Trinity River are not strong evidence of a dramatically impaired beneficial use. If there is an impairment, the most likely cause, other than dam construction and management, is the documented changes in ocean conditions.”

Response 10.15. EPA acknowledges that several factors, including ocean conditions, influence anadromous fish populations. However, the best available information also suggests that freshwater habitat conditions in the Trinity are impaired with regard to sediment and require sediment reduction as called for in the TMDL.

Comment 10.16. “The draft TMDL states that DFG habitat information indicates that coho tend to be found in streams that have as much as 40% of their total habitat in primary pools. This is an incorrect interpretation. The DFG habitat typing protocol (Flosi et al. 1998) interprets 40% or more pool habitat in a stream to be an indicator of good to excellent coho habitat. Pools comprised 35%, 29% and 13% of total habitat in Brown’s Creek, Reading Creek and Deadwood Creek, respectively (Parkinson et al. 1990, 1991; Moore 1990; Frink and Cook 1990). ... All of these Creeks are known to support coho spawning and rearing...”

Response 10.16. EPA interprets the information submitted by the commenter as an indicator that pool habitat is not good (<40%) in the streams identified in the comment. Although coho may be present in the streams cited, an improvement in habitat conditions, in part based on sediment reduction, should correspondingly support increased coho abundance.

Comment 10.17. The commenter identified several sediment impairments in the Upper Middle Assessment Area mainstem that are “dam caused” then discussed the effects of eliminating the large peak flows due to the dam. “The combination of loss of peak flows and summer flow variation has damaged salmonid habitats far more than any other factor in the Trinity River. I do not believe these facts to be under dispute. If the mainstem is impaired, it is due to the dams and their subsequent management. This should be the focus of this TMDL.”

Response 10.17. The focus of this TMDL is on sediment because that is the pollutant for which the waterbody is listed under Section 303(d) of the Clean Water Act. The best available information suggest that freshwater habitat conditions in the Trinity are impaired with regard to sediment and require sediment reduction as called for in the TMDL. Additionally, EPA summarized and referenced the effects of the dams on flow in relation to sediment under Habitat Conditions (Section 2.4), Sediment Budget (Section 4.3), Critical Conditions (Section 5.4) and Implementation Recommendations (Chapter 6) in the TMDL. EPA believes this level of consideration for flow is appropriate in the context of a sediment TMDL. See also response 1.1.

Comment 10.18. “...over the last 20 years, as measured on a per mile basis, most of the sediment in the Trinity river has come from ‘reference streams’....On average, the ‘non-reference streams’ produce about 1547 tons/mi2/year ... This is about 7 percent less than the ‘reference streams’ produce. Given this, if sediment reduction is necessary, it should be focused on the ‘reference streams’ and the 5 ‘non-reference’ sub-areas (Upper Trinity, Grass Valley Creek, Indian Creek, Canyon Creek, Campbell/Supply Creeks).”

Response 10.18. The commenter is correct that EPA is estimating that some reference watersheds have higher sediment delivery rates than some non-reference watersheds. However, we also found that those reference watersheds had relatively high <u>natural</u> sediment delivery rates. Upon examination of the reference stream information, EPA concluded that there was a much better correlation between aquatic habitat condition and sediment yield expressed as a percent of background, than between aquatic habitat condition and sediment yield expressed directly as a rate. As described in the TMDL, EPA concluded that 125% of background was the appropriate way to estimate the loading capacity of a subarea, rather than directly utilizing the loading rate for a reference watershed. Thus, rather than emphasizing sediment reduction where sediment delivery is highest in absolute terms, EPA is emphasizing sediment reduction where sediment delivery is high relative to the natural sediment delivery rate for that area. See also response 7.1.

Comment 10.19. “...these measured [permeability] rates are within the range of acceptable rates as shown in the literature. Rates of 50 cm/hr appear adequate to support acceptable egg-to-emergent survival rates (Fig 4.10, pag. 100, Meehan 1991). In addition, salmon typically remove 40-60% of fine sediment within gravels through redd construction (Chapman 1988; Regnart 1991).”

Response 10.19. The rates referenced by the commenter are measured in terms of mean apparent velocity (“volume of water passing through a given area of redd per unit of time”) as opposed to permeability (“ability of particles in the redd to transmit water per unit of time”) (Meehan 1991). McBain and Trush (2000) explain that permeability, as opposed to apparent velocity, is a more efficient measure of conditions affecting embryonic survival. Chapman (1988) presents survival to emergence of coho salmon in natural redds and of chinook in laboratory gravel mixes in relation to gravel permeability. Based on this analysis, a permeability measure of 50 cm/hr is essentially zero percent survival.

Comment 10.20. “...in the Garcia River final TMDL, EPA notes that the percent fines in upper Redwood Creek in 1994 was measured at 32.2%<0.85mm, and 57.9%<6.5mm. Outmigrant trapping in upper Redwood Creek in 2000 and 2001, coupled with redd counts, has documented an egg-to-downstream migrant survival rate of about 85% (Sparkman 2001). This survival rate is near the top of the scale and strongly supports the ability of salmon to ‘cleanse the gravels.’...”

Response 10.20. EPA finds it difficult to correlate fine sediment data collected in 1994 with outmigrant trapping and redd counts data collected in 2000 and 2001, due to high annual variability in both data sets. EPA acknowledges that adult fish alter gravel particle size distribution during the process of redd construction.

Comment 10.21. “...EPA endorses the development of specific hypotheses to be used as indicators and targets for the middle mainstem reach of the Trinity River. Hypotheses are developed to be tested, not to be used as targets or indicators. This is a wholly inappropriate use of the scientific method and should be removed from the TMDL document.”

Response 10.21. EPA will change the statement regarding hypotheses in Section 3.1 as follows, “EPA endorses the testing of specific hypotheses through the AEAM process; the results of which can serve to refine the indicators and targets for the middle mainstem reach of the Trinity River, during future iterations of the TMDL.”

Comment 10.22. “Targets relating to fine sediment, embeddedness, etc. should account for salmon’s ability to remove fine sediment during redd construction (Chapman 1988).”

Response 10.22. EPA is aware of the phenomenon of gravel cleaning, however, we do not conclude that this negates the legitimacy of using fine sediment indicators. EPA notes that even if salmonids clean gravel prior to spawning, subsequent deposition of fine sediments during the egg growth period prior to emergence may adversely affect survival (see Kondolf, et al., 1993.)

Comment 10.23. “The section on Legacy and Mining Erosion ignores the significant ongoing contribution of historic terrace mining in EF Trinity River and Indian Creek. These are tremendous, well recognized past, present and future sediment sources within the Trinity River System.”

Response 10.23. EPA evaluated legacy sources of erosion to the extent possible given the constraints of availability of existing information, time and resources. It is difficult to accurately determine sediment delivery from historic terrace mining.

Comment 10.24. “...the load allocations and overall TMDL should focus on the major sources of sediment impairment in the Trinity river system. These clearly are the lack of snow hydrograph peak flows, summer low flow variation, Hoopa Reservation, New River, Eagle Creek, Coffee Creek and Canyon Creek...Ignoring these sources dooms any other sediment source management reductions to abysmal failure."

Response 10.24. EPA is not ignoring these issues and sources. The Hoopa Valley Tribe, while not subject to this TMDL, is developing a Water Quality Plan in accordance with all the requirements of the Clean Water Act, including the development of TMDLs and implementation programs to control sediment and other pollutants. The TMDL calls for the following reductions of management-related sediment in the areas identified by the commenter: Eagle Creek in Upper Trinity Subarea - 46%; Coffee Creek in the Upper Reference Subarea - 25%; and Canyon Creek - 87%. The sediment source analysis determined that the New River has a very low management-related sediment delivery rate compared to non-management and therefore no further reductions are feasible or called for in the TMDL.

Comment 10.25. The commenter submitted the following reports (Appendix C): 1) Memo to Tom Walz from Doug Baker (B&H Development) regarding slumps located on SPI property in Indian Creek; 2) Slide Stability, Erosion Prevention, Sediment Control Plan - Coal Pan Slide Trinity County prepared by SHN for SPI; 3) Memorandum for Department of Mines and Geology to Craig Anthony (CDF) regarding Engineering Geologic Review of THP 2-92-266 TRI(4). The commenter then stated, "These reports [Appendix C] contest the assignment in the draft TMDL of several slides to 'management caused' as opposed to 'background'. These reports will also aid the EPA in validating the work by Matthews and Associates, in terms of volumes of sediment and causes. We suspect that many slides were inappropriately assigned to 'management caused' when in fact they were 'naturally caused' or 'background sources'."

Response 10.25. Before responding to each report identified in the comment, EPA would first like to make an overall point regarding the availability of information on SPI land. In January, 2001, EPA requested SPI's permission to access their land in order to field verify the size and causal mechanisms of certain landslides that were identified via aerial photo analysis. SPI denied that request. In March, EPA sent a letter to SPI requesting any sediment-related information such as landslide mapping, in order to maximize the accuracy of the assessment. SPI did not provide any information until they submitted the three landslide reports at the end of the public comment period. If EPA had received the information earlier and had access to field verify the slides, the reports submitted by SPI could have been more useful in determining causal mechanisms. As it stands, EPA requested reviews by geologists from the California Department of Mines and Geology and the Regional Water Quality Control Board of the information provided by SPI. Based on this input, EPA has made the following assessment of the three reports in the order in which they were presented.

1) The B&H Development report does not illustrate the location or distribution of the slides very well nor is it helpful in answering the questions of natural versus anthropogenic causes of the landslides. "...it is quite possible that the timber harvesting activities carried out in Section 21 could have influenced the degree to which mass movement took place or even triggered some sliding that would not have otherwise occurred. Unfortunately, the B&H Development report does not address the manner in which or degree to which the recent or preexisting timber harvest operations, such as silvicultural prescription, yarding method, and alignment, design, and drainage of existing and recently built roads, might have affected on-going or potential landslide activity. Consequently, the degree to which timber-harvesting operations or other anthropogenic activities may have affected the rates of landsliding cannot be determined from the subject document" (Michael Wopat, CDMG, personal communication, 12/12/01). CDMG also notes that the B&H Development report does not appear to have been prepared by a registered geologist. California law requires any geologist providing consulting services in California to

be registered by the State of California. Based largely on CDMG's review, EPA is sticking with GMA's original determination that the slides are related to management activity.

2) With regard to the SHN report on the Coal Pan Slide, the North Coast Regional Water Quality Control Board reported in a memo dated March 1, 2001, that the "proximate (main) cause of the subject landslide was the clearcutting of the hillside above the slide area and especially on the slide body itself." For this reason, EPA is sticking with GMA's original determination that the slides are related to management activity.

3) EPA does not question the credibility or accuracy of the DMG Report (June, 1997). However, the survey was conducted prior to the availability of the recent aerial photographs (2000). The 2000 photos provide a more up-to-date assessment of the magnitude of the slide and they identify a potential road feature at the head of the landslide, which has not been field inventoried, in addition to the obvious mid-slope road. In the absence of a more recent field investigation and thorough review of past management activities in the area, EPA is sticking with GMA's original determination that the slide is road-related.

Comment 10.26. "Sediment reduction targets should not be developed using a subjective split between 'management related' and 'background' sources. Total sediment is what counts to the fish."

Response 10.26. The TMDLs are expressed as total sediment loads, according to each subarea (Section 5.2). EPA is required to allocate the total load (TMDLs) to sources of sediment. Most other TMDLs approved by EPA for the North Coast of California have included specific allocation categories between management and natural sources, such as road-related landslides, harvest-related landslides, skid trails, road surface erosion, etc. For the Trinity TMDL allocations, EPA chose to use two broad allocation categories, management and non-management. EPA did not further subdivide the management allocation of this TMDL by source category, as was done for other TMDLs. Rather, EPA used more specific geographic subdivisions (subareas). See also response 7.1.

Comment 10.27. "...we expect the comments at the public meetings provided by Sierra Pacific Industries employees, as well as all other public participants, to be fully addressed by the EPA in finalizing this TMDL."

Response 10.27. EPA held two public meetings during the public comment period. At both meetings, EPA staff stated that the purpose of the meetings was to clarify the contents of the draft TMDL and that, while those EPA staff present at the meetings would certainly listen to any comments that might be made, EPA could ensure a formal agency response to a comment only if it was submitted in writing by the close of the comment period. Nonetheless, the Trinity County Resource Conservation District was generous enough to take notes at the public meetings, and this responsiveness summary includes the comments made at the public meetings, based on their notes.

Comment 10.28. "This draft TMDL must be changed to focus on the major sources of identified sediment problems, namely the 2 dams and their management, the Hoopa Reservation, New River, Eagle Creek, Coffee Creek and Canyon Creek. In addition, loads and allocations should be calculated in a manner similar to past TMDLs, and not based on subjective assignments of sediment sources. To salmonids, sediment is sediment. To get the most reduction in sediment, the major sources should be targeted, not just those most amenable to regulation."

Response 10.28. See responses 7.1 regarding management versus natural sediment, 10.17 regarding the dams and 10.24 regarding major sources.

11. Timber Products Company. Comments submitted in writing 10/29/01.

Comment 11.1. "... The historic hydraulic mining that occurred until 1939 (TMDL pg.21) and numerous high flow floods including 1997 have created watersheds that have a range of habitat conditions. Coffee Creek, Stuart Fork and Manzanita Creek reference watersheds still support abundant fish populations following these manmade and natural disturbances."

Response 11.1. Comment noted.

Comment 11.2. "Within the Lower Middle Assessment area several reference watersheds support strong trends of summer steelhead (TMDL pg.25) The New River supports one of the larger populations in California (TMDL pg.26). The New River has had '...high levels of historic mining activity' (TMDL pg. 26. The '...USFS found a range of 5 to 44 percent of the gravel or cobble in the New River, including tributaries, were embedded more than 50% (TMDL pg. 34). However, this 50% embeddedness violates the proposed numeric target of 25% embeddedness."

Response 11.2. As described in the TMDL (Chapter 3, page 28), EPA expects the targets to be evaluated using a "weight of evidence" approach. No single indicator adequately describes water quality related to sediment, so a suite of instream and watershed indicators is identified. When considered together, the indicators are expected to provide good evidence of the condition of the stream and attainment of water quality standards. In the case of the New River, even though there are some high embeddedness values, several other indicators suggest that the New River is supporting beneficial uses.

Comment 11.3. "The New River also has historic and current water temperatures that are considered impaired by EPA and NCRWQCB (Farber et al., 1998)."

Response 11.3. Although EPA appreciates the identification of additional water quality information (i.e., temperature) in the Trinity River Basin, the current TMDL is focussed on sediment so EPA evaluated sediment-related information.

Comment 11.4. "The New River is another example where a reference watershed which supports abundant fish populations and the watershed instream habitat conditions occur in a range of habitat that even violate TMDL number targets."

Response 11.4. EPA reviewed all of the available information related to the New River. While some values may exceed target levels described in the TMDL, on the whole the data indicate that the New River is supporting beneficial uses. The commenter is suggesting that the targets should be based on the range of natural conditions, presumably such that a target would only be exceeded if the value was outside the natural range. While this is one way to account for natural variability, establishing the range of natural variability would be difficult and EPA is taking a different approach. We have decided that it is preferable to identify target values that best approximate the desired condition. We account for natural variability by identifying a suite of indicators with the expectation that they will be evaluated using a weight-of-evidence approach. While we recognize that not all indicators will be met at all locations at all times, we believe that when data on all of the indicators is evaluated as a whole, it will give a good indication of the extent to which the stream is achieving water quality standards.

Comment 11.5. "From the scientific information provided in the TMDL, 'properly functioning' conditions should be conditions where abundant fish populations are found? Right?"

Response 11.5. EPA considers properly functioning conditions and the attainment of water quality standards more broadly than just the condition of fish populations. The beneficial uses of concern in this TMDL are focussed on supporting cold water ecosystems, the preservation or enhancement of aquatic habitats, and high quality habitats suitable for reproduction, early development and migration of aquatic organisms (described in Section 2.1 of the TMDL and defined in the Water Quality Control Plan for the North Coast Region "Basin Plan"). Certainly, fish populations are an important indicator of the health aquatic habitats and ecosystems, but must be evaluated along with other aquatic dependent species and habitat conditions. This is especially important for areas below the dams, where anadromous fish are present, because factors other than freshwater habitat affect anadromous fish populations.

Comment 11.6. "According to the TMDL, 'properly functioning' conditions are '...the professional judgement to the following indicators that reflect the expression of watershed condition: floodplain connectivity, water quality, water quantity, riparian vegetation, channel stability, and aquatic integrity" (TMDL pg.20). In fact, the TMDL is based on resource professionals preconceived notion of what is "properly functioning' and not based on where abundant fish populations are found. EPA needs to disclose the instream habitat conditions within each of the reference watersheds. From the instream habitat conditions of the reference watersheds an acceptable <u>range of habitat</u> conditions can be determined."

Response 11.6. The identification of reference streams in the TMDL is based on the best available information, which, for much of the basin, was the US Forest Service's watershed condition assessment information mentioned in the comment. This methodology does include consideration of aquatic species, including fish populations, as one of the evaluation criteria. In addition, EPA considered other available fish population and aquatic habitat information as referenced in Table 5-1 of the TMDL. See also response 11.4.

Comment 11.7. "The TMDL references the Trinity River Restoration Program (TRRP) goals of 62,000 inriver spawner for fall chinook salmon (TMDL pg.13). This annual average goal of 62,000 is compared to the pre-1962 Trinity Lake reservoir dam annual average return of 45,600. The EPA acknowledges that Trinity Lake reservoir dam blocks an estimated 59 miles of chinook habitat and 109 miles of steelhead habitat (TMDL pg. 13). With the loss of habitat, the goals for inriver spawning are not likely to ever be achieved whether instream habitat targets or load allocations are achieved. The EPA should reconsider the use of instream numeric targets as indicators of successful salmonid inriver spawning if fundamental limitations (ie. Trinity Lake reservoir dam) to inriver spawning are present."

Response 11.7. For clarification, EPA referenced the TRRP goal for purposes of characterizing existing conditions in the watershed, not as a TMDL target. The average inriver escapement of naturally produced fish (11,932 from 1982 to 2000) is still well below the 45,600 level identified by the commenter. EPA recognizes that other factors besides the instream and watershed indicators identified in the TMDL influence fish populations.

Comment 11.8. "...during the sediment source assessment (Table 4-1, TMDL pg.48) no mention of the temporal scale is discussed. This is in [direct] contradiction to some of the scientific assumptions made to create the assessment. As an example, surface erosion rates for post-1974 timber harvest were allocated an erosion rate of 4 tons/mi2/year. Surface erosion rates for pre-1974 were allocated an erosion rate of 12 tons/mi2/year. This very high erosion rate allocated to historic timber harvests may be responsible for much of erosion currently allocated to timber harvest. If surface erosion is assessed pre-1974 and post-1974 many watersheds may be already under TMDL load allocations due to the limited current timber harvest. The EPA should reassess the sediment source assessment to recognize the temporal scale of the scientific assumptions in the calculations."

Response 11.8. The temporal scale is accounted for in the TMDL. Surface erosion from harvest areas was assumed to only occur in the decade in which the harvest was mapped. EPA believes the TMDL already accounts for the commenter's statement that many watersheds or subareas are already under TMDL load allocations due to the limited current timber harvest (e.g., New River).

Comment 11.9. "The EPA should include the reference cited GMA 2001(a) and GMA 2001(b) as part of the Trinity River TMDL so that landowners, stakeholders and the public can understand the methodology and assessments completed by EPA."

Response 11.9. EPA has made these documents available to individuals upon request.

Comment 11.10. "The TMDL needs to disclose how the EPA correctly identified between different traffic and climate conditions and how extremely sensitive calculations were performed using a remotely collected data...On Timber Products Company ownership two cooperative road inventories have been completed with 10% and 1% of the total road miles found to be insloped (TRCD, 1998) (SFCRMP, 2000). Use of incorrect road prism information for the calculation of road erosion quantities could create errors over 500% (WDNR 1995). The EPA needs to disclose in the TMDL how extremely sensitive road erosion calculations were performed using a remotely collected data."

Response 11.10. The TMDL (section 4.1) summarized the methodology to calculate road erosion estimates. Road erosion rates were based on sediment delivered to the channel from the roads. Road sections that were outsloped and didn't deliver sediment to a channel, would contribute to lowering the overall "average" rate developed for that road type/surface in a given geology, since the total delivered sediment was divided by the road miles to come up with a rate. For more details on the methodology, EPA refers the commenter to the Sediment Source Analysis by GMA. For a copy, please contact EPA at (707)825-2311.

Comment 11.11. "The TMDL assumption in the calculation of surface erosion from historic pre-1974 timber harvest is that every acre is equivalent to an unsurfaced truck haul road? This assumption is not scientifically supported and field examinations within the watershed do not support the assumption."

Response 11.11. GMA (2001) used 12 tons/ac for total pre-1974 erosion from a harvest acre, which includes all surface erosion over the life of the disturbed site until it is effectively revegetated, typically 5-10 years. Since this is a total surface erosion value, it is inappropriate to compare to road surface erosion which is in tons/road mi/yr, without specifying a particular time frame. Road surface erosion also depends on slope position and geology which were accounted for by GMA in developing their rates.

For example: a typical (average of all geologies) unsurfaced (native) riparian road is estimated by GMA to produce 33 tons/road mi/yr or 16.5 tons/ac/yr since a 16' wide road mile is about 2 acres of land. Over a 10 year period, the acre of harvest (pre-1974) was estimated to produce 12 tons/acre, while an unsurfaced riparian road would produce 165 tons/acre or about 14 times as much.

Comment 11.12. "With very large background erosion rate variability in the watersheds, what scientific studies support the setting one numeric target for fine sediment in all streams, everywhere, all the time? The EPA needs to disclose the scientific process and studies that justify the setting of this one-size-fits-all numeric target."

Response 11.12. The impact of fine sediment on spawning gravel quality is well-documented in several studies and summarized in the TMDL (Section 3.2). EPA is not relying on one numeric target for fine sediment. Rather EPA has included three different particle size classes (0.85mm, 2.0mm, and 6.4mm) as well as two measures of central tendency of a substrate sample (median particle diameter and geometric mean). The purpose of including different measures is to account for the variety of ways that different size classes impact salmonid spawning and early development habitat. With regard to "one-size-fits-all," EPA has included several different types of indicators in addition to fine sediment. As described in the TMDL (Chapter 3), EPA expects the targets to be evaluated using a "weight of evidence" approach. No single indicator adequately describes water quality related to sediment, so a suite of instream and watershed indicators is identified. When considered together, the indicators are expected to provide good evidence of the condition of the stream and attainment of water quality standards.

Comment 11.13. "The TMDL does not describe the technique used in GMA 2001a (TMDL pg.31). Table 3-2 implies that techniques used by Wilcock et al 1995 (Table 3-2 TMDL pg.31) and GMA 2001a are similar. In recent proposals by Graham Matthews and Associates (GMA) within the South Fork Trinity River watershed the collection of bulk samples included the removal of the "first layer of aggregate". Was this sample processing technique used for the samples in the Trinity River TMDL? If so, removal of a portion of the sample has no scientific merit. The long standing studies that directly link salmon egg to fry emergence and levels of fine sediments <u>did not remove portions</u> of the sample. The use of this sample processing technique induces large bias to the samples as the "first" layer size and depth vary greatly from sample to sample. This technique needs to be explained if EPA used or is proposing this sample processing technique."

Response 11.13. The Trinity River TMDL spawning gravel sampling included separate treatment of the surface layer (or armor layer), described as the depth of the largest surface particle, as prescribed in Church et al (1987). The surface and subsurface layers of spawning gravel represent two different populations of gravel and the subsurface is the more characteristic of the gravel conditions experienced by salmonid eggs (albeit somewhat cleaner). If surface and subsurface conditions are combined then it is imperative that depth of sampling be consistent between samples to be compared since the deeper the subsurface sample the less the impact of the cleaner surface conditions on the particle size distribution of the sample. Kondolf (2000) presents relationships between the change in %fines due to spawning and suggests methods of adjusting unspawned sample parameters in order to better use survival predictors.

Church, M.A., D.G. McLean, and J.F. Wolcott. 1987. River bed gravels: sampling and analysis. In Sediment Transport in Gravel-bed Rivers. C.R Thorne, J.C. Bathurst, and R.D. Hey, eds. John Wiley & Sons Ltd. Chapter 3. pp. 43-88.

Kondolf, G. Mathias. 2000. Assessing salmonid spawning gravel quality. Transactions of the American Fisheries Society 129:262-281.

Comment 11.14. "EPA claims '...10% [fine sediment <0.85mm] is achievable based on recent data collected by GMA (2001a) indicating the geologic and hydrologic conditions in the Trinity are generally capable of producing relatively small percentages of finer grain material than other Northcoastal rivers.' (TMDL pg.33). The EPA presents no data in the TMDL that justifies this statement."

Response 11.14. Several samples taken by GMA (2001a), indicate that fine sediment samples (<0.85mm) are below 10%. The complete data tables are provided in GMA (2001a).

Comment 11.15. "Sub-basins with background erosion rates of 2759 tons/mi2/year have never and will never support stream channel reaches with less than 10% fine sediment."

Response 11.15. The commenter did not provide any data to justify this statement, nor is EPA aware of any such data.

Comment 11.16. "...the question is not what level of fines support high levels of egg survival to emergence for salmonids (TMDL, pag.33), the question is what <u>range of fines</u> are produced within the highly variable reference watersheds. If the reference watersheds violate water quality standards, have had numerous and frequent landsliding and floods, it is reasonable to assume that the percent fine sediment that supports abundant anadromous fish populations (i.e. reference watersheds) is not 10% fine sediment. Before setting targets for fine sediment <0.85, <2.0mm and below <6.4mm the EPA should examine and report in the TMDL levels of fine sediments in all the reference watersheds."

Response 11.16. Fine sediment data was not available from which to determine a range of fines within reference watersheds. However, EPA encourages the collection of fine sediment information in reference and non-reference streams which could then be used in future iterations of the TMDL. The TMDL analysis, including instream targets, is based on the best available information. See also response 11.4.

Comment 11.17. "The EPA needs to show how all roads on slope >45% are contributing to the impairment of anadromous salmonids. If the are scientific studies within the geology types of the Trinity River that describe this clear correlation (not USFS opinion) between >45% slope roads and impaired stream sediment conditions the EPA should cite the literature. Otherwise the EPA should remove this non-scientific calculation from the formulation of targets for the proposed TMDL."

Response 11.17. EPA does not mean to suggest in the TMDL that "...all roads on slopes >45% are contributing to the impairment of anadromous salmonids." EPA did reference the USFS watershed condition assessment which included the calculation of miles of roads on slopes >45% as one of several road indicators that, when combined, estimate the degree of watershed risk for sediment delivery. In addition, the sediment source analysis by GMA also factored in the location of roads in relation to slopes. The point is that roads on steeper slopes generally represent a higher risk of sediment delivery and impairment to water quality.

Comment 11.18. "The targets apply to every stream channel reach irregardless of channel gradient, channel confinement, and natural geologic conditions... The body of scientific knowledge including literature cited by EPA is contrary to this 'one-size-fits-all' approach stated by EPA..."

Response 11.18. EPA recognizes that water quality related to sediment is highly complex, with factors such as highly variable seasonal and inter-annual precipitation and landscape response to disturbance, and complexities in geology and sediment routing mechanisms from watershed sources to and through streams (chapter 6). However, information is not available to establish targets for all combinations of factors. Therefore, EPA has identified targets for a variety of indicators based on the available information. Recognizing that some of the targets may not fit a specific stream reach perfectly, EPA expects the indicators to be evaluated using a "weight of evidence" approach. The water quality indicators expressed in Chapter 3 are intended to provide a useful reference in determining the effectiveness of the TMDL in attaining water quality standards, although they are not directly enforceable by EPA.

EPA did not intend for the description of indicators and targets in Chapter 3 to be a detailed monitoring plan that specifies the location, timing and other measurement protocols. However, for several indicators and targets, EPA includes a brief description of various factors to consider when monitoring such as: (1) embeddedness “should be estimated during the low-flow period, generally at riffle heads, in potential spawning reaches;” (2) V* is “not appropriate for large rivers, but in large river systems it is appropriate for tributaries.” In addition, the V* target specifies that it is based on Franciscan Geology types; (3) Turbidity “should be measured during and following winter storm flows, and upstream and downstream of a management activity to compare changes in the turbidity levels that are likely attributable to that activity.” Moreover, EPA established separate geomorphic indicators for the upper middle mainstem, in order to account for the fundamental differences between that stream reach and others in the basin. EPA expects that the State and other resource managers will monitor these indicators in appropriate channel types and stream reaches, in accordance with the appropriate guidance manuals. Additional information from future monitoring and/or new studies can be used to revise the TMDL targets during future iterations.

Comment 11.19. “The EPA should consider the following when setting targets for fish habitat and large woody debris: (a) Percent pool and pool frequency can be influenced by channel gradient, channel width, channel confinement in relation to the flood plain ...” (b) Large woody debris pieces and key pieces are found by lineal stream reach are related to the piece diameter and length, channel gradient, and channel width (Montgomery and Buffington 1993).”

Response 11.19. EPA has inserted these two statements into the narrative descriptions of these indicators in Section 3.2.

Comment 11.20. “The TMDL analysis of sediment for the Upper Trinity assessment area was completed without any recognition of the presence of Trinity Lake reservoir downstream of the area...The sediment source summary (Table 4-1, TMDL, pg.48) does not consider the considerable reduction of sediment caused by sediments settling in the reservoir. Some of these sediments are not delivered to the anadromous salmonid habitat downstream of the dam. The TMDL needs to reflect this fundamental scientific process that is occurring within the Upper Trinity assessment area.”

Response 11.20. The TMDL recognizes the presence of Trinity Lake Reservoir in several sections of the TMDL. Table 4-1 illustrates the <u>sources</u> of sediment not the routing of sediment downstream. The reservoir does not influence the amount of sediment that is produced and delivered from the variety of sources listed in Table 4-1 to the watercourses in the Upper Trinity Assessment Area. In addition, the cold water habitat beneficial uses apply to streams above the reservoir, not just anadromous reaches below the dams.

Comment 11.21. “...the erosion generated by the reservoir shoreline alone is equivalent to 352 miles of 18 foot wide unsurfaced forest road. Or the erosion is equivalent to an additional 5,273 acres of post-1974 timber harvest every year with an average erosion rate of 4 tons/mi2/year. This very large amount of active erosion has not been accounted for in the sediment source summary (Table 4-1, 4-2 TMDL, page 48, 50). The TMDL needs to reflect this fundamental erosion process that is occurring within the Upper Trinity assessment area.”

Response 11.21. Compared to the volume of landslides (in the millions of tons), 20,000 tons/yr is quite small and since it drains directly into the lake, only affects beneficial uses in the lake rather than in stream channels where far more aquatic habitat is present. Since releases from the dam have not increased turbidity levels except after large flood events (1974, 1983, and 1997), it follows that the annual erosion from the shoreline does not contribute to downstream water quality issues. This is not to say that localized runoff from the shoreline does not create localized water quality issues within the lake (just as boat wakes also contribute a considerable amount of turbidity to the lake), but that due to its location and the beneficial uses involved, it is considered a minor source.

Comment 11.22. "The current scientific information described in the TMDL does not support the conclusion that disturbed area and the amount of timber harvest correlate to anadromous salmonid populations."

Response 11.22. EPA did not specifically attempt to correlate the amount of disturbed area to anadromous fish populations. EPA does believe, however, that beneficial uses for coldwater fish habitat are generally being supported in watersheds where management-related sediment delivery is 25% or less of non-management sediment delivery as described in TMDL and Allocations (Chapter 5). In other words, where management-related sediment has accounted for one part compared to 4 parts of non-management, aquatic habitat is generally in a properly functioning condition and can support healthier fish populations. EPA is retaining the indicator for disturbed area in Section 3.2.

Comment 11.23. "During the development of the Trinity River TMDL the EPA did not consider the information, experience and knowledge of local private landowners...The EPA compiled federal agency information from the USFS and other sources and all but ignored the information and concerns of private landowners."

Response 11.23. EPA considered all existing available information including any provided by local private landowners. EPA held public meetings on July 24, 2000, November 17, 2000, August 20 and 21, 2001, October 30, 2001 and November 7, 2001 with an expressed goal of gathering any available information including private landowner information, knowledge and experience. EPA has considered all of the comments and associated information submitted by Timber Products Co., in their letter dated October 29, 2001, and all the other comments received during the public comment period.

Comment 11.24. "As during the South Fork Trinity River TMDL and now with the Trinity River TMDL, EPA has once again considered only the information necessary to fulfill the agencies obligation."

Response 11.24. The commenter did not identify what information EPA should consider beyond the necessary information to fulfill the EPA's obligation to develop a TMDL based on the best available information.

<u>12. Trinity County Board of Supervisors. Letter dated November 16, 2001.</u>

Comment 12.1. "The TMDL sediment source work within the basin clearly indicates that there are areas where human-caused sediment levels need to be reduced; however, the Board is greatly concerned that the TMDL substantially under-estimates the effects of the Trinity's reduced flows on sediment loading. There is a plethora of readily available information documenting that the historically altered Trinity River flows are impeding salmon recovery and sediment transport to a far greater extent than considered in the current draft. We believe that the lack of sediment transporting or 'flushing' flows is the primary and determinant factor in the accumulation of sediment and the loss of cold water fisheries habitat in the Trinity River."

Response 12.1. EPA summarized and referenced the effects of the dams on flow in relation to sediment under Habitat Conditions (Section 2.4), Sediment Budget (Section 4.3), Critical Conditions (Section 5.4) and Implementation Recommendations (Chapter 6) in the TMDL. The TMDL specifically identifies the importance of ‘flushing’ flows under critical conditions (Section 5.4). EPA believes this level of consideration for flow is appropriate in the context of a sediment TMDL. Also, see Response 1.1.

Comment 12.2. “The TMDL process completely ignores the impact of flow restriction on the rivers ability to effectively move sediment through the system.”

Response 12.2. See response to previous comment.

Comment 12.3. “We are concerned that the proposed targets and allocations within the TMDL fail to address the actual problems of reduced flows and sediment loads within the river. It is the position of Trinity County that the proposed targets cannot be met until the ROD for the Trinity River, or a similar flow regime is fully implemented. Although the Draft TMDL does indicate that the higher flow are necessary, it does not recognize the fact that there is currently a federal preliminary injunction against the implementation of theses flows pending the completion of a supplemental EIR/EIS that more fully analyzes impacts to power and water users as well as to endangered species. For this and other reasons detailed in the following comments, we request that the EPA re-evaluate their assumptions regarding sediment source and the degradation of the river system.”

Response 12.3. EPA has included a statement in the TMDL report recognizing that there is currently a preliminary injunction limiting additional water releases into the Trinity River to implement the ROD to 28,600 (the amount in the ROD for critically dry years) acre feet over the statutorily-mandated 340,000 acre feet. However, EPA does not believe that this constitutes sufficient reason to reevaluate the sediment sources and the TMDL. The federal district court's Memorandum Decision and Order granting the preliminary injunction was based on the California energy crisis and biological opinions concerning species outside of the Trinity River basin; it did not question the science supporting the need for more flows to restore Trinity River fisheries, and gives us no reason to alter our opinion that the Trinity River Flow Evaluation on which the ROD was based is the best scientific analysis available of Trinity River flow issues. See also response 1.1.

Comment 12.4. “The targets and allocations proposed in the TMDL substantially under-estimate the effects of the river’s reduced flows on sediment loading and therefore do not accurately reflect an achievable end.”

Response 12.4. EPA disagrees. The commenter has not provided any additional data regarding flow, nor any specific explanation of why EPA’s analysis of existing data is inaccurate.

Comment 12.5. “The TMDL acknowledges that the beneficial use cannot be met without increased flows, but it does not go far enough to provide specific recommendations to the State of California to provide increased releases from Trinity and Lewiston dams to lower fine sediment in the mainstem Trinity River to levels which would not harm the targeted beneficial use of coldwater fisheries.”

Response 12.5. EPA’s analysis does indicate that additional flow is needed to attain fisheries-related beneficial uses in the mainstem directly below the dams. EPA would encourage all authorities with jurisdiction over water allocation in the Trinity River to work together to ensure adequate flows to protect beneficial uses.

Comment 12.6. “The TMDL states that the Trinity River ROD flow should be provided, but fails to note that those flows cannot be implement due to a federal preliminary injunction which requires preparation of supplemental EIS. The outcome of that process is years away, and there is no guarantee that the science-based ROD flows will ever be implemented."

Response 12.6. See responses 1.1 and 12.3 above.

Comment 12.7. "The listing of cold water fisheries as the only impaired beneficial use is inappropriate as it inaccurately depicts a direct relationship of sediment to fisheries without recognizing the role of other causal factors in fisheries decline including blockage of historic habitat above lewiston Dam, flow diversion, predation, harvest, poaching, disease, migration barriers, oceanic conditions, estuary conditions, and climatic changes."

Response 12.7. The TMDL recognizes that salmonid populations are affected by several factors, in addition to sediment in the freshwater environment (Section 2.3). However, TMDLs are developed to address pollutants. The Trinity TMDL is focussed on sediment, the pollutant for for which the Trinity River is listed according to Section 303(d) of the Clean Water Act. EPA recognizes that achievement of a sediment TMDL, "will facilitate but not guarantee, population recovery" (Section 2.3). EPA acknowledges and supports the variety of authorities and programs that are charged with addressing the other factors listed by the commenter including poaching, harvest, migration barriers, etc.

Comment 12.8. "The TMDL assumes coho population numbers and trends based on inappropriate data sources, using CDF&G estimates based on chinook salmon surveys done in the Trinity River. The TMDL incorrectly infers that coho use the main stem river habitat to a greater extent than they do the tributaries. The CDF&G studies were also timed for chinook runs while coho runs occur over a long period in the fall/winter and often in higher flows and more turbid conditions where sampling is less effective."

Response 12.8. EPA has received similar comments from other sources and has revised the TMDL to reflect that coho utilize tributaries as well as the mainstem in the upper middle area (section 2.2).

Comment 12.9. "The Geomorphic Indicators, Targets, and Beneficial Use within the TMDL (Table 3-1, P. 30) as well as the following Sediment Indicators: Spatially Complex Channel Geomorphology, Frequently Mobilized Channelbed Surface, Periodic Channelbed Scour and Fill, V Star, and Pool Riffle Distribution and Pool Depths of Table 3-3 (p.32) are all flow dependant and should not be incorporated into the Load Allocation or Implementation Plan unless increased flows are also part of the Load Allocation and Implementation Plans. Many of the indicators are directly affected by river flushing flow rather than by tributary stream sediment contributions."

Response 12.9. The targets referenced in this comment are influenced by both flow and sediment input and, consequently, are useful in determining the effectiveness of the TMDL as well as other management actions. EPA has not assigned load allocations for flow, nor are the loading capacity (TMDL) and allocations dependent on any particular flow regime. EPA has included a recommendation that the flows called for in the ROD be provided to facilitate the functions of a healthy alluvial river system necessary to protect beneficial uses, but the development of implementation measures is the responsibility of the State of California.

Comment 12.10. "To some extent the following Sediment Indicators are flushing flow dependent and a sediment target may be difficult to achieve: Balanced Fine and Coarse Sediment Budgets, Periodic Channel Migration and Spawning Gravel Quality."

Response 12.10. These indicators are influenced by both flows and sediment input, and consequently are appropriate as indicators of the effectiveness of the TMDL. As described in the TMDL (Chapter 3), EPA expects the targets to be evaluated using a "weight of evidence" approach. No single indicator adequately describes water quality related to sediment, so a suite of instream and watershed indicators is identified. When considered together, the indicators are expected to provide good evidence of the condition of the stream and attainment of water quality standards.

Comment 12.11. "The use of Large Woody Debris (LWD), as a Sediment Indicator is not an appropriate target for the Main Stem TMDL. ...The Trinity River does not function similarly to coastal streams...."

Response 12.11. See response 15.9. to a comment by the U.S. Fish and Wildlife Service regarding the role of LWD on floodplains and off channel wetted areas of larger streams. EPA has clarified the function of LWD with regard to the mainstem in Section 3.2 of the TMDL.

Comment 12.12. "The turbidity in the river below Lewiston Dam is double what it was prior to the flood of January 1, 1997. The Lakes appear to be a repository of high turbidity that does not clear as quickly as in the tributary streams. The TMDL should be revised to adequately address the effects of dam management on turbidity."

Response 12.12. EPA acknowledged that discharges from the reservoirs have had high turbidity levels for extended periods during and following high flow years, such as 1997 (Section 2.4, page 22). EPA anticipates that the achievement of the TMDLs and Allocations for the subareas draining to the reservoirs (Chapter 5) will reduce turbidity levels in the reservoirs. The commenter did not provide any new information that would necessitate revising the TMDL and allocations.

Comment 12.13. "Using a measure that rewards a percentage reduction of tons of sediment per square mile of upland area is meaningless in assessing the impact on fisheries. Such absolute measures penalize upland users that have been diligent in controlling sediment and give a free ride to abusers who have had a conversion experience and are now conscious of potential impacts."

Response 12.13. The TMDL does not penalize diligent land managers. To the contrary, on a subarea basis, diligent land managers who are generating less sediment relative to background, do not need to reduce as much sediment as those land managers who are producing higher levels of sediment compared to background. In other words, those landowners in subareas that are close to or below 25% above background, have to reduce less sediment than those that significantly above background levels. The State has the responsibility to develop implementation measures for this TMDL. All comments regarding implementation, including this one, will be forwarded to the Regional Board for its consideration when developing an implementation strategy. The commenter did not provide any recommendations for expressing the load allocations in an alternative manner. See also response 7.1.

Comment 12.14. "The TMDL fails to incorporate an adequate review of the changes in land use activities, conservation measures and regulations that have become effective since the Pacific Coast Federation of Fishermen's Associations, et al v. Marcus, was originally filed in 1992. Many restoration efforts and programs have been implemented in the interim. Currently, migration barriers are being removed, roads are being modified, relocated or abandoned to accomplish water quality improvements, and in-stream structural habitat improvements such as riparian revegetation, bank stabilization and similar actions are being undertaken by conservation organizations, restoration specialists, timber companies, and counties. The draft TMDL did not consider these factors in its allocations and conclusions."

Response 12.14. EPA evaluated the effectiveness of land use activities, conservation measures and regulations by determining the amount of sediment delivered to the watercourse from the multitude of land management sources. The results of EPA's sediment source assessment indicate that the Trinity River Basin contains many areas where these programs may currently be effective and several areas where dramatic improvement is needed. For example, the restoration program in Horse Linto Creek (HLC) is likely one of the reasons why HLC has a low proportion of management-related sediment compared to non-management levels. The EPA applauds all the restoration efforts that have taken place since 1992 and years prior. However, the TMDL assessment along with other assessments (e.g., County Roads Erosion Inventory) strongly suggest that sediment reduction from certain practices and in specific locations will have to be made to protect water quality (Chapters 4 and 5). EPA expects the State to develop an implementation strategy that properly acknowledges the effectiveness and/or weaknesses of existing programs in order to protect water quality.

Comment 12.15. "The TMDL does not specifically evaluate the economic implications that the sediment source reduction requirements may have on private landowners within Trinity County. The Board is concerned that many small landowners within the watershed may end up bearing a disproportionate amount of the costs involved in the TMDL implementation program when the majority of the sediment problem is the result of the federal CVP operations."

Response 12.15. The State has the responsibility to develop implementation measures for this TMDL. All comments regarding implementation, including this one, will be forwarded to the Regional Board for its consideration when developing an implementation strategy.

Comment 12.16. "The TMDL references and targets for roads rely on PWA's 1994 Forest and Ranch Roads Manual, which is appropriate for seasonal and low use forest and ranch road systems. County and State roads within the Trinity River operate on significantly different design, access, speed and safety criteria."

Response 12.16. EPA welcomes additional references and targets for County and State road, in addition to those included for the forest and ranch road systems. At this point in time, those references are not readily available.

Comment 12.17. "The County is also deeply concerned that the federal government is the major impediment to river restoration and that the TMDL does not sufficiently address this fact. The Bureau of Reclamation controls the river flows and cannot initiate the process necessary to begin recovery and improvement of in-stream habitat conditions. The federal EPA proposes rule making in the form of load allocations that do not address the principle Federal government created problem within the basin."

Response 12.17. EPA is addressing the sediment-related problems of the Trinity River by developing TMDLs for sediment in accordance with a court ordered deadline. Please also see Response 1.1.

Comment 12.18. "We strongly recommend that the Sediment Indicators be modified to address hillslope, rather than in-stream targets. In-stream monitoring will continue to gauge past natural and management contributions, while the use of hillslope monitoring will more accurately gauge current sediment source recruitment and delivery. In-stream trend monitoring should be done to document flushing or sediment accumulations within pools but hillslope management should be the focus to assure compliance for current practices."

Response 12.18. EPA believes it is appropriate to include both instream and hillslope indicators because: 1) instream indicators track the trends of sediment accumulation in the channel and impacts to beneficial uses; and 2) hillslope indicators track sediment sources and effectiveness of management measures. Since the purpose of the TMDL program is to achieve water quality standards, it is essential to include indicators of instream conditions as well as hillslope conditions, as described in Chapter 3. The purpose of the indicators is to provide a basis for determining the extent to which water quality standards related to sediment are in fact attained.

Comment 12.19. "USEPA should recommend in the TMDL that the State of California hold a water right proceeding to meet not only geomorphic targets in the TMDL, but also related Basin Plan water quality objectives, as indicated in State Water Resources Control Board Order No. WQ 89-18, (never fulfilled), which states as follows: 'It is further ordered that the Division of Water Rights shall initiate proceedings for the State Board to consider modifying the Bureau's permits for the Trinity River Unit of the Central Valley Project to set appropriate conditions to maintain water quality in the Trinity River.'"

Response 12.19. EPA recommends that the State, when it develops implementation measures for this TMDL, carefully consider the relationship between flow and sediment loads. Additionally, we are recommending that DOI implement the science-based flow regime called for in the ROD.

Comment 12.20. "USEPA has previously stated that in regard to diversions from the Trinity to the Sacramento River are 'controllable factor' for water quality, as defined in the Basin Plan and that: 'Section 313 of the Clean Water Act requires that activities conducted by the Bureau of Reclamation comply with all applicable water quality standards. We believe that it would be inconsistent with the State's obligation to protect beneficial uses to voluntarily limit its authority over diversions if in fact those diversions contribute to water quality degradation on the Trinity River.' (Letter from Daniel McGovern to SWRCB, 3/13/92). USEPA has an obligation to disclose not only problems and load allocations, but also to make clear and firm recommendations which will restore the salmon fishery, by increasing Trinity River flows below the CVP dams. Since the federal process to provide those flows has bogged down, it is inherent on USEPA to make appropriate recommendations to the State of California to fulfill the State's obligations under not only the Federal Clean Water Act, but also the Porter-Cologne Act, the Public Trust Doctrine, the state and federal Endangered Species Acts and last, but hardly least, the Tribal Trust obligation of the U.S. Government to the Hoopa Valley and Yurok Tribes to proved them with a meaningful salmon fishery. The requirement of the SWRCB Order 89-18 to hold a Trinity River Water Right proceeding to maintain Trinity River water quality has languished for 12 years. It is clear that the TMDL is the trigger to initiate that process. USEPA should include the SWRCB order 89-18 recommendation in this TMDL. To do otherwise will assure the failure in meeting Trinity River TMDL and Basin Plan water quality objectives."

Response 12.20. See response to previous comment and response 1.1.

Comment 12.21. "The TMDL discussion and targets should be modified to clarify the different designs and targets for the various road types (County and State roads vs. private or federal resource managmeent). This will necessitate revisions for the targets to address County and State roads design criteria that are not compatible with the PWA manual referenced in the draft document."

Response 12.21. EPA needs additional information regarding specific design criteria for County, State and private roads. EPA expects that the State will consider such information when developing the implementation plan.

Comment 12.22. "The TMDL should clearly indicate conservation measures instituted by the County can be used as an Implementation Plan of county facilities and roads."

Response 12.22. The TMDL does generally acknowledge County conservation procedures under Implementation Recommendations (Chapter 6) of the TMDL. The State is responsible for developing implementation measures for the TMDL. EPA expects that the State will consider conservation measures instituted by the County and other entities during the implementation planning process.

Comment 12.23. "The Trinity River Adaptive Management group will be overseeing the development of a Supplemental EIS/EIR for the flow decision. One of the criteria that must be considered in the supplemental document is the carryover storage in Trinity Lake and the effect of winter spills on sediment accumulation in the mainstem. TMDL levels should only be set after the massive amount of data on the Trinity River is integrated with the TMDL work. Anything less is just an expedient way to meet a bureaucratic requirement without regard to the extensive studies that are ongoing, and the planned mechanical restoration of the main stem that is the implementation of the flow study."

Response 12.23. In accordance with the consent decree in *Pacific Coast Federation of Fishermen's Associations, et al. v. Marcus*, December 2001 is the deadline for establishment of this TMDL. EPA has developed this TMDL based on the best information available at this time. EPA supports and encourages the collection of additional information. Any relevant new information collected after the TMDL is adopted can be utilized in future iterations of the TMDL.

Comment 12.24. "We ask that no TMDL be assigned to the Trinity River in advance of the completion of the Supplemental EIS/EIR. This will allow a full description of the existing conditions in the context of planned flows. Any decision made before the facts have been collected and analyzed will cause a general lack of confidence in the results, and the regulators."

Response 12.24. See response to previous comment. In addition, to EPA's knowledge, the Supplemental EIS/EIR is intended to focus on energy issues and ESA considerations outside of the Trinity Basin not on the science supporting the need for increasing Trinity mainstem flows for fishery restoration. EPA believes the existing body of information is an accurate characterization of existing conditions and restoration needs with regard to the mainstem flows.

<u>13. U.S. Bureau of Indian Affairs. Letter FAXed on November 19, 2001.</u>

Comment 13.1. "Page 2 states that the TMDL does not apply to lands under tribal jurisdiction. We agree with and support this approach because it recognizes the Hoopa Valley Tribe's inherent sovereignty..."

Response 13.1. Comment noted.

Comment 13.2. "Federal policy exists to recognize and foster the special legal and political relationship between Indian tribes and the Federal goverment...."

Response 13.2. Comment noted.

Comment 13.3. "The Hoopa Valley Indian Reservation (HVIR) is situated at the most downstream reach of the TMDL Assessment Area. Even though the HVIR is excluded from the TMDL, the HVIR shares tributary watersheds and the mainstem Trinity River that will be regulated by the TMDL. The

EPA needs to fully consider the indirect effect the TMDL may have on tribal resources or activities. This is to ensure that the TMDL does not impose a regulatory burden on the Hoopa Valley Tribe or threaten the attainment of water quality standards contained in the Tribe's Water Quality Control Plan."

Response 13.3. EPA believes the implementation of Trinity River TMDL allocations and sediment reduction levels will enhance the protection of beneficial uses and attainment of water quality standards within the HVIR and Yurok Reservation. The TMDL does not impose a regulatory burden on either of these tribes.

14. U.S. Bureau of Reclamation. Letter dated November 19, 2001.

Comment 14.1. "We appreciate the extent to which you made use of the information contained in the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report, and your recognition of the provisions of the Record of Decsion (ROD), in your analysis."

Response 14.1. Comment noted.

Comment 14.2. "Reclamation's main concern and recommendation is that you fully consider the uncertainty associated with implementation of the ROD's flow schedules, resulting from Judge Wanger's ruling in Westlands Water District v. United States Department of the Interior, and that you retain the maximum flexibility in your analysis as a result of that litigation. As you are aware, Reclamation has initiated a Supplemental Environmental Impact Statement to address the issues identified in that decision."

Response 14.2. EPA has added a statement to the TMDL recognizing that there is currently a preliminary injunction limiting additional water releases into the Trinity River to implement the ROD to 28,600 acre feet (the amount in the ROD for critically dry years) over the statutorily-mandated 340,000 acre feet. However, EPA does not believe that this constitutes sufficient reason to reevaluate the sediment sources and the TMDL. The federal district court's Memorandum Decision and Order granting the preliminary injunction was based on the California energy crisis and biological opinions concerning species outside of the Trinity River basin; it did not question the science supporting the need for more flows to restore Trinity River fisheries, and gives us no reason to alter our opinion that the Trinity River Flow Evaluation on which the ROD was based is the best scientific analysis available of Trinity River flow issues. EPA encourages the Department of Interior to retain, in the SEIS, the years of scientific analysis that supports flow levels and management actions that will protect cold water habitat beneficial uses in the Trinity River. See also response 1.1.

Comment 14.3. "...the above comments suggest that the extensive mitigation measures constructed in recent years, e.g., Buckhorn Dam, were either not taken into account in the development of the sediment source analysis and budget, or are considered to be ineffective. A more detailed explanation of this subject would be appropriate."

Response 14.3. EPA did not specifically evaluate the effectiveness of Buckhorn Dam or the Hamilton Ponds in trapping sediment delivered to Grass Valley Creek. However, Buckhorn Dam traps much of the sediment (all bedload and a portion of suspended sediment) for 26.6% of the watershed (6,300 acres vs. 23,674 acres total). BLM (1995) estimated a long-term trap rate of 8,000 yds3/yr at Hamilton Ponds.

Clearly these structures are controlling a large amount of sediment that would otherwise be deposited in the mainstem. However, the TMDL sets allocations with the goal of reducing sediment at its sources, because the TMDL is designed to attain water quality objectives for sediment in the tributaries as well as the mainstem. EPA has footnoted tables 4-3 and 5-3 in the TMDL to clarify that the sediment delivery rates do not account for the amount of sediment trapped by Buckhorn Dam and Hamilton Ponds.

Comment 14.4. "Will the Trinity River TMDL Implementation Plan support the flow schedule identified in the ROD?"

Response 14.4. Based on the best available information at the time of development of this TMDL, EPA recommends the implementation of the flow schedule identified in the ROD and associated restoration measures in order to establish mainstem geomorphic conditions that support the protection of cold water habitat beneficial uses. The State is responsible for developing implementation measures.

Comment 14.5. "If the flow schedules were insufficient to move the sediment (see above), would the TMDL standards require future increases in Trinity River flows from Lewiston Dam beyond those identified in the ROD?"

Response 14.5. As noted in the Summary Response to Flow-related Comments (1.1.), this TMDL does not require a specific flow regime. However, EPA supports the implementation of the flow schedule identified in the ROD in order to protect cold water habitat beneficial uses, and in that regard notes the Department of Interior's responsibility to comply with Clean Water Act requirements under Clean Water Act Section 313. Additionally, the TMDL can and should be revised in the future to incorporate new studies and information regarding the effects of sediment on water quality standards.

Comment 14.6. "Are the allocations truly realistic and achievable in the overall context of private landowner capabilities and public land management agencies staffing and budgets?"

Response 14.6. The allocations are established at the level necessary to meet water quality standards. While staffing and budgets are not specifically considered in setting the allocations, there are several cost-effective techniques for reducing sediment delivery from management activities, particularly from roads (Weaver and Hagans 1994). In addition, many land management entities have programs in place and/or are already required to implement sediment control practices. The TMDL provides information that will assist land managers in prioritizing locations and relative intensities of sediment control necessary to protect beneficial uses.

Comment 14.7. "...the recommendations included in Chapter 6 - Implementation and Monitoring measures, should be as specific as the analysis permits, both in location (subarea) and type of sediment management or restoration activity. This will be more meaningful to individual property owners, agency program managers, and the Trinity River Restoration Program, than broad programmatic statements. For example (reference p. 66), 'Evaluate and limit effects of suction dredge operations in stream reaches that overlap spawning sites' is more useful than ' Continue cooperative watershed restoration with local watershed groups, TCRCD, and TMC.'"

Response 14.7. EPA agrees that more specific recommendations are more useful to resource managers. However, at this point in the TMDL development process, EPA defers more specific implementation discussions to the State, which is responsible for developing implementation measures for the TMDL. EPA expects the State to use a collaborative planning process to develop implementation measures that address the TMDL allocations in an effective and efficient manner.

Comment 14.8. “Several items in Chapter 5 ... appear to be position or policy statements that will likely influence the implementation measures eventually developed by the State. As such, they should be carried forward into Chapter 6... and any executive summary or decision documents....” The commenter provided examples of such statements. “...Combined with the recognition that the TMDL is an estimate, and to be compatible with the Trinity River Restoration program, an adaptive management approach should clearly acknowledge the potential and the process for modifying the TMDL, if new information warrants a change.”

Response 14.8. EPA agrees that the TMDL can and should be revised if new information warrants a change.

Comment 14.9. The commenter recommended replacing “Up to 90% of water flowing into Lewiston exported to Sacramento River” with “Up to 70%...” on page iii, Trinity River TMDL Summary: under “Major Features.”

Response 14.9. Due to differing comments regarding the exact percentage of water exports out of the basin, EPA has revised the statement as follows: “Significant water exports from the Trinity to the Sacramento River since the early 1960's.”

Comment 14.10. “Page 12, Chapter 2, Section 2.1 - Water Quality Standards: The last paragraph describes two prohibitions to nonpoint source activities related to discharge or placement of materials in streams or watercourses. It might be more accurate to describe these as actions that require permits from the Water Quality Board or other agencies.”

Response 14.10. We have retained the language from the draft TMDL because the Water Quality Control Plan for the North Coast Region (“Basin Plan”) describes these actions as “prohibitions.”

Comment 14.11. “Page 16, Chapter 2, Section 2.2 - Decline of Fish Populations: The last paragraph does not seem to adequately support the concept of a decline in juvenile fish populations. The reference to Canyon Creek densities of juvenile Chinook salmon being lower than those observed by other researchers working in other states appears to be a questionable basis for comparison.”

Response 14.11. The available data indicate that the chinook population has declined.

Comment 14.12. “Page 31, Chapter 3, Section 3.2 ... in the next to the last paragragh, after the last sentence ‘ ...upstream of the sampling site.’ consider adding, ‘and the mechanical introduction of spawning size gravel as part of mainstem restoration efforts.’ Also, on page 34, under ‘V*’, first paragraph, the last sentence, states ‘ V* is not appropriate for large rivers...’ Can it be used on the Trinity River mainstem since it is controlled by the upstream water projects?”

Response 14.12. Lisle and Hilton (1992) state that the V* method is “easily accomplished in small- to moderate-sized stream channels.” The size of the mainstem channel would probably limit the feasibility of using V*.

Comment 14.13. “Chapter 4... Is there any consideration given to setting TMDL targets in tributaries based on the type of sediment they would input to the system? For example, Grass Valley Creek contributes much higher percentages of fine sediments than Rush Creek, which is a significant provider of spawning size gravel to the mainstem. This does not appear to be addressed in the document.”

Response 14.13. Although gravels from Rush Creek may help offset the retention of upstream gravels behind the dams, EPA is establishing load allocations to attain water quality standards in the tributaries as well as the mainstem. After considering all of the public comments, we still believe that the best way to do this is based on the background loading rates for each subarea. Nevertheless, we would encourage the State, during development of the implementation measures, to consider giving priority attention to areas where sediment delivery is causing the greatest impact.

15. US Fish and Wildlife Service. Letter Dated November 19, 2001.

Comment 15.1. "Besides anadromous fisheries, non-anadromous fish are impacted by excessive sediment. Additionally, recreational use has increased dramatically on the Trinity in recent years and has a positive impact on the local economy. Although these may not be of primary concern, they may warrant some mention."

Response 15.1. The TMDL does include a brief description of non-anadromous fish (last subsection under 2.2) and recreational uses (section 2.1) and the potential impact of sediment to these beneficial uses. EPA obtained much of the information on fisheries and recreation from the Trinity River Mainstem Fishery EIS.

Comment 15.2. "Although anadromous fish species are the primary concern, resident fish species including Klamath Smallscale Sucker, Speckled Dace and Sculpin are also impacted by excessive sediment. These species play an important role in the overall ecology of the Trinity, and fluctuations in their populations can affect anadromous populations. Sucker and dace fry may both be food sources for juvenile salmonids that reside in the Trinity for extended periods (e.g., coho salmon and steelhead.)

Response 15.2. EPA was not able to obtain information regarding the degree to which sediment may be impacting these populations in the Trinity. EPA expects the TMDL allocations to sufficiently protect these species, in addition to anadromous salmonids, unless new information indicates otherwise.

Comment 15.3. "Another concern regarding excessive sediment is the effect on overwintering habitat for steelhead and possibly coho salmon. Interstitial spaces in clean cobble are critical for overwintering juvenile steelhead. If excessive sedimentation fills cobble interstices, suitable cover may be lacking which can lead to negative impacts on this species. There may be similar impacts to coho, depending on extent of sedimentation."

Response 15.3. The TMDL (Section 3.2) includes spawning gravel indicators for fine sediment that are intended, in part, to address the need for interstitial spaces in clean cobble.

Comment 15.4. "Even though the Trinity begins to approach a pre-dam morphology below the North Fork confluence, there are still obvious effects such as riparian berm formation, sedimentation in spawning gravels and pool filling."

Response 15.4. Comment noted.

Comment 15.5. "Are there any references with which to compare the permeability numbers in the Trinity basin? If permeability levels in several tributaries were quite low, what rates would be good by comparison? This may help the reader to better understand permeability as it relates to the Trinity and tributaries."

Response 15.5.   EPA agrees that a thorough literature review of permeability data in similar rivers would be useful in identifying potential thresholds. At this time, EPA was unable to complete such a review.

Comment 15.6.   "The Ten Attributes developed by McBain/Trush may have been specifically developed for Trinity River restoration efforts, but these are attributes of any healthy, unregulated alluvial river. You may want to mention this to lend more credibility to the attributes."

Response 15.6.   Comment noted.

Comment 15.7.   "The second to last line in this paragraph that states '...0% survival at the Evans Bar site...' is somewhat confusing because of the previous statement that few studies have related permeability to egg survival. Is it assumed that survival is probably 0% because permeability is close to zero? Did conditions improve downstream of Evans Bar, or is survival still assumed to be 0% Figure 3-1 appears to show an improvement in permeability, but this isn't mentioned in the text."

Response 15.7.   Chapman (1988) presents survival to emergence of coho salmon in natural redds and of chinook in laboratory gravel mixes in relation to gravel permeability. Based on this analysis, a permeability measure of 50 cm/hr is essentially zero percent survival.

Comment 15.8.   "In addition to deeper pools, overhanging banks or logs, cobble interstitial spaces also provide important cover for salmonid and other fry at a critical and vulnerable time in their life history. The quality and availability of these interstitial spaces are directly related to sedimentation rates and the ability of the river to scour fine sediment."

Response 15.8.   EPA has added the following statement to the first paragraph under Spawning Gravel Quality (section 3.2): "In addition, interstitial spaces in clean cobble also provide important cover for salmonid and other fry at a critical and vulnerable time in their life history."

Comment 15.9.   "Although LWD probably plays a greater role in small stream morphology than in large streams, it still plays a role on floodplains and in off channel wetted areas of larger streams. Since channels that flow during high river flows can be greatly affected by LWD as it relates to sediment routing in these areas. These side channels are important both as spawning and rearing areas. Additionally, LWD plays an important role in nutrient cycling when it is deposited on floodplains, partly broken down by natural processes and then reintroduced to the river channel during the next flood event. LWD that becomes buried by excessive sediment may be effectively removed from this process for long periods of time if flows can't scour sediment."

Response 15.9.   EPA has included a statement about LWD to address this comment in the TMDL indicators description (Section 3.2).

Comment 15.10.   "Although the 3 components listed may be appropriate to achieve the target of preventing sediment delivery, the requirements are somewhat ambiguous. Target (1) ends with 'the need for the road is clearly justified.' Is there a definition of 'clearly justified' that can be used for the purposes of this TMDL? Target (2) 'road surfacing, drainage methods, and maintenance are appropriate to their use...' Again, is there a definition of 'appropriate' that can be used for this TMDL?"

Response 15.10.   EPA expects that these and similar issues will be worked out by the State as it develops implementation measures for the TMDL.

Comment 15.11. "Although process of bank erosion has been affected in certain parts of the Trinity from various activities, it may be worth mentioning that bank erosion is a natural process in alluvial rivers and can be an important part of the formation of habitat complexity."

Response 15.11. Comment noted.

Comment 15.12. "The authors cite a target of 125% of background sediment delivery but fail to fully discuss and describe the theoretical justification. This section needs to be expanded to address this omission."

Response 15.12. EPA compiled information related to aquatic habitat conditions and compared this to information on sediment delivery and watershed disturbance. The information for the reference streams is summarized in Table 5-1 of the TMDL. Upon examination of this information, EPA concluded that there was a much better correlation between aquatic habitat condition and sediment delivery expressed as a percent of background, than between aquatic habitat condition and sediment delivery expressed as a specific numeric value. As described in the TMDL, EPA concluded that 125% of background was the appropriate way to estimate the loading capacity of a subarea, rather than extrapolating the loading rate for a reference watershed. EPA has used 125% of background to estimate the loading capacity in other TMDLs, although the basis was somewhat different than in the Trinity. EPA first estimated the loading capacity as 125% of background in the South Fork Eel sediment TMDL, where the use of 125% was supported by information for the Noyo River which showed that salmonid populations were relatively high during a period when sediment delivery was about 125% of background. EPA has also used 125% of background in the Ten Mile and Navarro River sediment TMDLs, and in the recently proposed TMDLs for the Albion and Gualala Rivers. See also response 7.1.

Comment 15.13. "The line stating that 'a certain percentage of management-related slides would occur, at least to some degree, even without management' is somewhat confusing. A 'management-related slide' should only occur if there is management, but some slides in areas where management occurs would still occur even if management did not occur there?"

Response 15.13. EPA has reworded the statement in the final TMDL.

16. U.S. Forest Service Shasta/Trinity. Verbal comments over the phone November 19, 2001.

Comment 16.1. The commenter recommended changing "healthy summer steelhead populations" to "healthy steelhead populations" in Table 5-1.

Response 16.1. Change made.

Comment 16.2. Explain why road-related sediment delivery is so high for Canyon Creek (Table 4-4).

Response 16.2. The volume of sediment attributed to road-related landslides in Canyon Creek was based on the Mainstem Trinity River Watershed Erosion Investigation by Department of Water Resources (1980). EPA refers the commenter to this document for more specific information.

17. Yurok Tribe Environmental Program. Letter, dated November 19, 2001.

Comment 17.1 "Given the federal government's role in developing this TMDL and its related/dependent federal regulations and management implications (Trinity ROD, ESA, Northwest Forest Plan, etc.), the USEPA is required to consult with the Yurok Tribe under Executive Order 13175 Consultation and Coordination with Indian Tribal Governments."

Response 17.1. EPA is cognizant of its responsibilities under Executive Order 13175 and also the Executive Memorandum of April 29, 1994, on Government-to-Government Relations with Native American Tribal Governments. EPA communicated frequently with both the Yurok and Hoopa Valley tribes during preparation of this TMDL. Specifically, EPA presented updates and invited input on development of the TMDL at several Trinity River Task Force meetings and Technical Advisory Committee meetings, at which representatives from both Tribal Governments were present. EPA met specifically with staff from the Hoopa Valley Tribe water quality programs on two occassions. Additionally, both tribes received copies of the public review draft of this TMDL, and EPA has considered all the comments submitted, as set forth in this comment responsiveness summary.

Comment 17.2. "The statement, 'It (TMDL) does not apply to lands under tribal jurisdiction' needs further explanation and justification. There should be more discussion as to why this TMDL is not applicable to tribal lands and what exists in place of a tribal TMDL. There is analysis of the Mill, Tish Tang, Campbell and Supply Creek watersheds (which lie considerably in tribal jurisdiction) but there is no clear statement as to whether this analysis includes the tribal portion nor any comparison of the impacts that exist between the tribal and non-tribal lands."

Response 17.2. This TMDL is being established to satisfy the requirements of the consent decree in *Pacific Coast Federation of Fishermen's Associations, et al. v. Marcus*, in which EPA agreed to assure that TMDLs would be established for several waterbodies which had been listed on the State of California's Clean Water Act 303(d) list of impaired segments. Therefore, this TMDL only applies to waters under State jurisdiction. The Tribes may certainly use this TMDL as guidance for tribal water quality decisions or actions. With regard to watersheds identified by the commenter, the sediment source analysis by GMA determined erosion rates from both the tribal and non-tribal areas within these watersheds. However, only erosion rates for areas outside tribal boundaries were utilized to calculate the TMDLs since the TMDLs do not cover tribal land. The sediment source summary for the Lower Trinity Assessment Area (Table 4-5) and TMDL and Load Allocations for the same area (Table 5-5) specify that the area does not include tribal land.

Comment 17.3. "A final opinion by the service should be issued and included in this TMDL prior to further finalization or adoption of this document. It is important to the Tribe that the Services findings on the proposed TMDL be available for further review and interpretation by the Tribe."

Response 17.3. EPA has initiated consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service on the TMDL, but the consultation has not been completed. EPA believes it is unlikely that the Services will conclude that the TMDL violates ESA Section 7(2)(a), and we have added language to the TMDL describing the reasons why. However, EPA retains the discretion to revise the TMDL if the consultation identifies deficiencies in the TMDL or allocations.

Comment 17.4. "This section needs further discussion addressing the lack of enforcement associated with the two narrative standards. Why haven't these narrative standards been upheld and how will the TMDL change the way they are enforced. The major sources identified in this TMDL originate from logging practices which are not directly enforced by the NCRWQCB but rather the BOF/CDF. This regulatory nexus (or lack thereof) is the main crux of the problems identified by the TMDL. If the analysis shows that a significant amount of management related sediment is due to current practices, then either the practices need to be more protective (i.e. Forest Practice Rules amendments) or enforcement of the current rules need to be addressed."

Response 17.4. The State is responsible for developing implementation measures for the TMDL as well as enforcing other provisions of the CWA. EPA expects the State to develop implementation measures that address the critical source categories and subareas identified in the TMDL as needing management-related sediment reduction in order to protect beneficial uses.

Comment 17.5. "Although the beneficial uses of the Yurok Tribe are significantly impacted by the water quality of the Trinity there is no mention of their dependence on Trinity River resources. The proposed TMDL has a direct impact on Yurok resources."

Response 17.5. EPA has added the Yurok to the statement: "The Trinity River fishery has been a cultural and subsistence mainstay of the Hoopa and Yurok people for several thousand years" (Section 2.2). EPA believes the implementation of Trinity River TMDL allocations and sediment reduction levels will enhance the protection of beneficial uses and attainment of water quality standards within the HVIR and Yurok Reservation. The TMDL does not impose a regulatory burden on either of these tribes.

Comment 17.6. "...There needs to be clarification on whether point sources do not exist at all or only at insignificant levels. Further, there needs to be clarification whether point sources do or will exist if the allocation is set at zero. This would imply that no placement of fill could occur under any state or federal permit (CDFG 1603 or USACE 404). If this were the case, the TMDL could not allow the deposition of '10,000 yds3 of properly graded gravel material... to the reach immediately below the dam...' (Page 64)."

Response 17.6. EPA has clarified that: "Although nonpoint sources are responsible for most sediment loading in the watershed, point sources may also discharge some sediment in the watershed. Current and prospective future point sources that may discharge in the watershed and are therefore at issue in this TMDL include:

- CalTrans facilities that discharge pursuant to the CalTrans' statewide NPDES permit issued by the State Water Resources Control Board, and
- construction sites larger than 5 acres that discharge pursuant to California's NPDES general permit for construction site runoff.

The draft TMDL set wasteload allocations at zero. On further consideration prompted in part by public comments, however, EPA has determined that it is more accurate to consider the rates set forth in this TMDL as load allocations to also represent wasteload allocations for point sources in the watershed, as discussed below.

This TMDL identifies wasteload allocations for point sources and load allocations for nonpoint sources as pollutant loading rates (tons/square mile/year) for subareas within the Trinity Basin. The source analysis supporting these allocations evaluated sediment loading at a subarea scale, and did not attempt to distinguish sediment loading at the scale of specific land ownerships. Nor did the source analysis specifically distinguish between land areas subject to NPDES regulation and land areas not subject to NPDES regulation. Therefore, the TMDL includes separate but identical load allocations (LAs) for nonpoint sources and wasteload allocations (WLAs) for point sources that are identical for each subarea. (See US EPA, 2001 for additional details concerning the WLAs.)

Identifying WLAs as well as LAs in this TMDL does not result in an increase in allowable loading from that set forth in the draft TMDL, because the allowable loading is expressed as a rate of tons/square mile/year. Rather, this change from the draft TMDL merely clarifies that the same rate applies to the existing and potential point sources noted above (CalTrans and construction sites) as to nonpoint sources."

Comment 17.7. "There needs to be further discussion on the importance of this TMDL's incorporation into the California Forest Practice Rules and local regulations in order for it to be effective."

Response 17.7. The State is responsible for developing implementation measures that will result in the achievement of the TMDL allocations, including load reduction from management activities covered by the Forest Practice Rules.

<u>18. Yurok Tribal Fisheries Program. Letter, dated November 19, 2001.</u>

Comment 18.1. "The mouth of the Trinity River lies entirely on the Yurok Reservation and Yurok ancestral lands extended well up the Trinity River into the Weitchpec Gorge. The importance of the Trinity River fishery to the Hoopa Valley Tribe is recognized throughout the draft TMDL document, but little or no mention is made of the Yurok Tribe's reliance on Trinity fisheries. The fishery resource of the Trinity River are of paramount importance to the Yurok Tribe. The Yurok Tribe typically harvests 85 to 90 percent of the total annual Klamath-Trinity Indian fall chinook harvest allocations set forth by the Pacific Fishery Management Council (PFMC)."

Response 18.1. See response 17.5.

Comment 18.2. The U.S. Forest Service and Pacific Coast Federation of Fishermen's Associations (PCFFA) were the two primary partners in establishing chinook rearing facility on Horse Linto Creek.

Response 18.2. Comment noted.

Comment 18.3. "The U.S. Fish and Wildlife Service emigration estimates at their Willow Creek trapping site effort are indices of abundance only - not true quantified estimates of the number of juveniles. They serve as valuable indices for year-to-year comparison but they are not intended to be used as quantified abundance estimates. As an example, in 1992 the Trinity Hatchery released approximately 2.3 million chinook smolts and 1 million chinook yearlings. In 1994 they released approximately 2.1 million chinook smolts and 1 million chinook yearlings. Hatchery releases alone in both of these years exceed the 'almost 2,000,000' maximum juvenile chinook abundance upstream of Willow Creek weir reported in the draft.."

Response 18.3. Comment noted.

Comment 18.4. "Additionally, the Willow Creek trapping site used by U.S. Fish and Wildlife Service is well downstream of the Willow Creek weir operated by CDFG and the Hoopa Valley Tribe. They are not co-located as is suggested in the Draft."

Response 18.4. Comment noted.

Comment 18.5. "Steelhead generally migrate further up tributaries than other anadromous species, but summer steelhead do not likely extend any further than winter or fall races of steelhead."

Response 18.5.   EPA changed the statements in the TMDL to which this comment relate as follows: “Of all the anadromous species, steelhead extend the furthest up the tributaries. Summer steelhead hold over during the summer months then spawn in the following late winter or early spring.”

Comment 18.6.   “Change to ‘Trinity River Mainstem Fishery Restoration EIS’.”

Response 18.6.   Change made.

Comment 18.7.   “There is much uncertainty about green sturgeon populations status and trends in the Klamath Basin.”

Response 18.7.   Comment noted.

Comment 18.8.   “Change to ‘Deposits of these finer sediments can also prevent the recently hatched fry from emerging from the redds, resulting in entrapment.’”

Response 18.8.   Change made.

Comment 18.9.   “Change to ‘An imbalance of fine or course sediment supply and transport rate can also adversely affect the quality and availability of salmonid habitat by changing the morphology of the stream.’ Helps address sediment deficits suffered in the mainstem downstream of Lewiston Dam.”

Response 18.9.   Change made.

Comment 18.10.   “Pools provide good feeding stations for juvenile salmon, however, most of the food production in a steam comes from riffles. The depth of water in pools can prevent or inhibit photosynthesis.”

Response 18.10.   Clarification made under the Pool Distribution and Depth Indicator (Section 3.2).

Comment 18.11.   “Chronic turbidity can also reduce productivety by impeding photosynthesis.”

Response 18.11.   Comment added to the discussion on Turbidity and Suspended Sediment Indicator (Section 3.2).

Comment 18.12.   “This entire section is italicized in the Draft suggesting that maybe it was copied from another document, but no reference is given. Deep pool habitat has been reduced by sediment filling in mainstem pools, but not entirely eliminated. And summer steelhead and spring chinook likely shared some pools upstream of Lewiston prior to construction of the Lewiston and Trinity Dams.”

Response 18.12.   The section was inadvertantly italicized. The italics have been removed in the final TMDL.

Comment 18.13.   “the riparian berms limit access to shallow, low velocity stream margin habitat - not side channels.”

Response 18.13.   Change made.

Comment 18.14.   “The TMC and subcommittees are indeed developing specific hypothesis and appropriate methods to test relative to the restoration program. But they are not necessarily developing these to address every one of the 'ten attributes of healthy alluvial rivers' reported in the Flow Evaluation Report or the EIS."

Response 18.14. Comment noted.

19. Public Comments from Informational Meeting in Weaverville, CA on October 30, 2001. Notes taken by the Trinity County Resource Conservation District

On October 30 and November 6, EPA held public meetings during the comment period on the draft TMDL. At both meetings, EPA staff stated that the purpose of the meetings was to clarify the contents of the draft TMDL and that, while those EPA staff present at the meetings would certainly listen to any comments that might be made, EPA could ensure a formal agency response to a comment only if it was submitted in writing by the close of the comment period. Nonetheless, the Trinity County Resource Conservation District generously took notes at the public meetings, and EPA has prepared the following responses to the comments made at the public meetings, based on their notes.

Comment 19.1. A concern was expressed about "judgement calls" used in determining whether a landslide was considered management or non-management related. The commenter asserted that these determinations then result in unrealistic load allocations for management activities, particularly in certain streams such as Reading and Brown Creek.

Response 19.1. The technical consultant for this TMDL (Graham Matthews and Associates) used professionally accepted methods when analyzing air photographs to determine whether there was any association between the landslide and land management activities. Air photo analysis is a commonly used methodology for a large scale, basin-wide inventory. The landslide data was combined with other field surveys of plots, roads and mining ditches, etc. to determine relative contributions of sediment between the various source categories. EPA acknowledges that the assignment of the erosional features as either management or non-management related affects the calculation of the loading capacity (TMDL) and load allocation for each category (expressed in Chapter 5). However, EPA does not believe, as stated by the commenter, that the allocations for management activities are unrealistic. They are based on the level deemed appropriate to attain water quality objectives for sediment.

Comment 19.2. How will you measure compliance of the TMDL? In five years are you going to walk same roads and same number of miles to determine if there is an improvement?

Response 19.2. EPA anticipates that the State will evaluate the effectiveness of the TMDL in several ways: 1) an evaluation of the instream and watershed indicators using a "weight of evidence" approach; 2) an assessment of the allocations by conducting a sediment source analysis following a similar methodology as GMA; and 3) compliance with the implementation measures as developed by the State.

Comment 19.3. Will the TMDL implementation plan embody the flow regime spelled out in the flow decision and have more legal authority to the decision?

Response 19.3. The development of implementation measures is the responsibility of the State. See also response 1.1.

Comment 19.4. Will the Aquatic Conservation Strategy of the Northwest Forest Plan become part of the water law if adopted into the North Coast Basin Plan?

Response 19.4. EPA does not anticipate that the ACS will be specifically adopted into the Basin Plan. Rather, the ACS may be used as a tool by the US Forest Service to achieve the requirements set forth in the TMDL implementation measures which will be developed by the State.

Comment 19.5. Are the terms “sediment delivery” and “sediment yield” interchangeable?

Response 19.5. EPA has attempted to use the term sediment delivery consistently throughout the TMDL to reduce confusion.

Comment 19.6. How was the percent load reduction (76%) calculated on Indian Creek?

Response 19.6. The percent load reduction for Indian Creek was calculated incorrectly. EPA has changed it to 96%.

Comment 19.7. Many targets in Chapter 3, especially hillslope targets, need to be carried over into implementation recommendations. The Summary Table on page 66 mentions hillslope targets for the Forest Service but no mention is made for the private industrial timber land.

Response 19.7. EPA has included hillslope targets in Table 6-1 in the private industrial timber category.

Comment 19.8. A recommendation was made for implementation timetables for the TMDL since implementation has taken so long on the South Fork TMDL.

Response 19.8. The State is responsible for developing TMDL implementation measures. EPA has encouraged the State on several occasions to implement TMDLs in a more timely fashion.

Comment 19.9. How do you get copies of KRIS system mentioned in the TMDL?

Response 19.9. The Trinity County Resource Conservation District can distribute copies.

Comment 19.10. Were the allocations established by land use activity or by ownership?

Response 19.10. The TMDL allocations are established for management-related sediment on a subarea basis, not to specific ownerships.

Comment 19.11. The Summary on page 2 does not mention square miles covered by this TMDL.

Response 19.11. The Trinity River TMDL covers approximately 2000 square miles.

Comment 19.12. How do you apply the Garcia River implementation plan approach (options 1, 2, and 3) to watersheds with different problems. For example, one person has to reduce sediment by 10% and another person has to reduce sediment by 90%, yet they have the same options.

Response 19.12. This is an appropriate question for the State to consider and address in the implementation planning process. EPA will forward this question to the State.

Comment 19.13. How does the TMDL take into account flow and how does it address it clearly in the document?

Response 19.13. See response 1.1.

Comment 19.14. The data about Coho is questionable and misleading. The Department of Fish and Game surveys were for Chinook not Coho.

Response 19.14. EPA has clarified the second paragraph of Section 2.2 regarding coho utilization of the upper middle tributaries as of 1990. However, this information does not change the TMDLs and Load Allocations called for in Chapter 5.

Comment 19.15. Why are salmonids the only beneficial use addressed? Physical and biological data should be considered.

Response 19.15. The beneficial uses of concern in this TMDL are focussed on supporting cold water ecosystems, the preservation or enhancement of aquatic habitats, and high quality habitats suitable for reproduction, early development and migration of aquatic organisms (described in Section 2.1 of the TMDL and defined in the Water Quality Control Plan for the North Coast Region "Basin Plan"). In assessing these beneficial uses, EPA did evaluate physical and biological data as described in Chapters 2 and 3. Rather than make specific determinations as to whether other beneficial uses are impaired (e.g., recreation), EPA made determinations that the fisheries-related beneficial uses are impaired and that they are the most sensitive to sediment impacts. Thus, EPA concludes that impairment of beneficial uses caused by excessive sediment will most likely be addressed by attainment of the loading capacity determined by consideration of fisheries-related beneficial uses.

Comment 19.16. There needs to be better communication between Clean Water Act programs and the Department of Fish and Game 1603 permit program. North County residents are getting fined when they remove sticks that hold sediment.

Response 19.16. EPA agrees that communication between the various agencies regarding Clean Water Act programs, California Fish and Game Codes and other related programs could be improved. EPA supports the formation of groups such as the Trinity Management Council, Trinity Resource Conservation District and other watershed groups that can facilitate communication between agencies and landowners.

Comment 19.17. What do the targets mean officially in the TMDL?

Response 19.17. As described in Chapter 3 of the TMDL, the indicators and their associated target values will provide a useful reference in determining the effectiveness of the TMDL in attaining water quality standards, although they are not directly enforceable by EPA.

Comment 19.18. How fast will the state develop the implementation plan?

Response 19.18. The State representative in attendance at the meeting indicated a timeframe of 2-3 years.

Comment 19.19. Are TMDLs an official priority of the water board?

Response 19.19. EPA cannot answer that question for the board.

20. Public Comments from Technical Information Meeting in Weaverville, CA on November 6, 2001. Notes taken by the Trinity County Resource Conservation District.

Comment 20.1. Is there a schedule for implementation?

Response 20.1. See response 19.18.

Comment 20.2. Can we achieve allocation goals with just mechanical restoration on mainstem? What about flow? Why isn't EPA setting allocations for flow as they are for managment activities?

Response 20.2. See response 1.1.

Comment 20.3. Won't mechanical restoration change the indicators used to gage the health of the river?

Response 20.3. EPA would expect that the purpose of any mechanical restoration activities conducted in the mainstem would be to facilitate the achievement of the healthy river attributes, some of which are included in the TMDL. Therefore, any mechanical restoration should contribute to the attainment of the indicators.

Comment 20.4. Assuming EPA indicators were only used as guidelines and aren't absolute, isn't it up to the state to determine the absolute indicators?

Response 20.4. The water quality indicators in the TMDL are intended to assist in determining the extent to which implementation of the TMDL is successful in attaining water quality standards. It is up to the State to adopt measures that will implement the TMDL.

Comment 20.5. The TMDL doesn't consider other factors affecting salmon population (e.g., predation). What other links are there between cold water fisheries and population decline?

Response 20.5. The TMDL recognizes that salmonid populations are affected by several factors, in addition to sediment in the freshwater environment (Section 2.3). However, TMDLs are developed to address pollutants. The Trinity TMDL is focused on sediment, the pollutant for for which the Trinity River is listed according to Section 303(d) of the Clean Water Act. EPA recognizes that achievement of a sediment TMDL, "will facilitate but not guarantee, population recovery" (Section 2.3). EPA acknowledges and supports the variety of authorities and programs that are responsible for addressing the other factors including poaching, harvest, migration barriers, etc.

Comment 20.6. A concern was expressed that management activities will be pushed into less stable areas with high natural sediment rates because the management load allocations are higher there.

Response 20.6. The comment seems to be based on the assumption that use of 125% to estimate the loading capacity is more stringent when the soils are very stable. This assumption would not be correct. While it is true that the management allocation might be lower in a watershed with very stable soils, it would also be true that management activities (including operation of roads) would be expected to generate less sediment in such a watershed than similar activities on less stable soils. Thus, while the allocation for mangement-related sediment delivery would be lower on more stable land (all other factors equal), the amount of human activity associated with that level of sediment delivery may well be comparable. Please note, however, that while use of 125% neither discourages or encourages activity on stable watersheds relative to unstable watersheds, at the watershed level, the TMDL contains a water quality indicator (section 3.2) that encourages activities in unstable areas within a watershed to be avoided or eliminated. .

Comment 20.7. The 97% reduction set for Grass Valley Creek doesn't take into account recent work in Hamilton ponds.

Response 20.7. The TMDL sets allocations with the goal of reducing sediment at its sources, because the TMDL is designed to attain water quality objectives for sediment in the tributaries as well as the mainstem. EPA has footnoted tables 4-3 and 5-3 in the TMDL to clarify that the sediment delivery rates do not account for the amount of sediment trapped by Buckhorn Dam and Hamilton Ponds.

Comment 20.8. Does the TMDL consider that management activity levels have dropped since 1993 resulting in greatly improved conditions?

Response 20.8. EPA evaluated the effectiveness of land use activities, conservation measures and regulations by determining the amount of sediment delivered to the watercourse from the multitude of land management sources. The results of EPA's sediment source assessment indicate that the Trinity River Basin contains many areas where these programs may currently be effective and several areas where dramatic improvement is needed. For example, the restoration program in Horse Linto Creek (HLC) is likely one of the reasons why HLC has a low proportion of management-related sediment compared to non-management levels. The EPA applauds all the restoration efforts that have taken place since 1992 and years prior. However, the TMDL assessment along with other assessments (e.g., County Roads Erosion Inventory) indicate that sediment reduction from certain practices and in specific locations must be made to protect water quality (Chapters 4 and 5). EPA expects the State to develop an implementation strategy that properly acknowledges the effectiveness and/or weaknesses of existing programs in order to protect water quality.

Comment 20.9. Is there a mechanism to adjust certain TMDL standards if later found to require adjustment?

Response 20.9. Yes. The State can revise the TMDL in the future based on new information, studies, monitoring results, etc.

<u>The following comments were directed to EPA's technical consultant, Graham Matthews</u>. <u>The following responses are a summary of how he responded at the meeting.</u>

Comment 20.10. How can you determine the rate of landslides in undisturbed areas from a 1944 photo?

GMA Response 20.10 One must analyze the photos to determine if there are natural disturbances and then calculate the number of slides per area.

Comment 20.11. Do timber harvest plan (THP) areas mapped represent actual disturbed, cut areas or just blocks submitted for THP approval?

GMA Response 20.11. A blend of both. CDF has plans in the next 5-10 years to digitize the actual undisturbed areas. Forest Service harvest areas and management activities weren't included since the data was not available in a digitized form. The Forest Service provided some records of harvest acreages.

Comment 20.12. When did Grass Valley Creek background levels or conditions change to reflect management impacts?

GMA Response 20.12. Conditions changed when Highway 299 was built. Since amounts of sediment are higher near roads, it can be assumed that roads lead to sediment transport.

Comment 20.13. After the 1997 flood, the mainstem was very visibly turbid. GMA data doesn’t reflect that.

GMA Response 20.13. The observed turbidity was due to very fine particles that weren’t represented in the data.

Comment 20.14. Are you saying that even with higher ROD flows, sediment deltas/piles near the dam won’t be moved?

GMA Response 20.14. Not in my opinion. You would need mechanical removal, which could then be maintained with higher flows.