

RESPONSES TO COMMENTS RECEIVED

ON DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

FEDERAL AGENCIES

Corps of Engineers - Letter No. 1/Response to Comment Number:

1. Objectives 4 and 5 were deleted from the Draft Environmental Impact Report (DEIR). Upon reading this comment it was decided that the project was the extraction of gravel. We agreed that it has not been proven that beneficial impacts to the estuary will occur from proposed gravel extraction.
2. Additional information and analysis has been added to the DEIR in response to this comment. The request to analyze terrace mining is rejected because that would cause irreparable significant adverse and environmental effects, particularly in the lower Eel River which contains some of the finest dairy lands in the world. Mining gravel bars at alternative locations on the Eel River has been added to the document.
3. Oblique aerial photos and site maps have been added to the document to better describe the study area.
4. The sections on environmental setting and potential impacts have been revised to increase the clarity as suggested in the comment.
5. The main purpose of the Program EIR is to describe the project and potential effects. A River Management Plan which would include a monitoring program should be a separate document from the EIR.
6. Additional data has been included in the FEIR describing the existing channel elevations particularly at the bridges. Predicted bed level changes are discussed throughout the Program EIR.
7. Page 10 was corrected to reflect 200 gallons per hour as noted.
8. The estimated 700,000 to 1,000,000 cubic yards only occurred a few times and was not an annual quantity.
9. This suggested change was made in the document.
10. We agree and have changed the document as requested.
11. It is agreed and true that a monitoring plan would only identify effects of the gravel removal. The remedial action would consist of actions by agencies with

jurisdiction following review of the data collected. The River Management Plan will require the County Planning Department retain annual review authority over all extraction projects.

12. The decreased extraction rate alternative has been changed and redefined as an alternative that would involve determining the new amount of gravel stored at each site each year following the winter flows. Following determination of the amount of gravel stored above some slope line, such as 1.5 to 3 percent. That would be the actual amount of gravel that would be permitted to be extracted.
13. We agree, and as noted above, an action plan would have to be included in the River Management Plan to assure that changes were made to reduce identified impacts.
14. Most of the Dames & Moore calculations were removed from the DEIR.
15. This table was removed from the DEIR.
16. This error has been corrected in the FEIR. As noted from further studies, attempts at predicting bedload in the Eel River range so widely that they are probably not very useful and only indicate qualitatively that the Eel River does produce a tremendous amount of bedload.
17. Channel morphology is illustrated in the final EIR through the addition of several oblique aerial photos of the project area.
18. The riparian vegetation shows up well in the new aerial photos added to the FEIR. We do not agree that a detailed description of the riparian habitat was necessary for this document.
19. We agree with this comment and have changed all of the conflicting names to one name for each species of fish.
20. This typographical error has been corrected.
21. Additional discussion has been added to the FEIR on birds, mammals, reptiles and amphibians. Historically, long lists of birds, mammals, amphibians, etc., used to be contained in EIR's. Over the past 20 years it has been concluded that long lists were really not useful to the reader. A list of vertebrate species detected by the biologist in the field has been added to the FEIR. We believe it most important to identify and discuss species of concern and those that are threatened and endangered or candidate species.

22. This contradiction has been corrected and additional information has been added to the FEIR.
23. Additional information has been added to the FEIR for all candidate and listed species contained in the U.S. Fish & Wildlife Service letter of January 24, 1992.
24. New information on air quality was added to the FEIR.
25. We do not agree that a valuation of the impacts of historical floods is necessary.
26. This question was not clear. We can only recommend the author read paragraphs on page 37.
27. All of the noted contradictions have been clarified through a rewriting of most of the paragraph mentioned in this comment.
28. Many of these points mentioned in the comment are covered in the FEIR.
29. The entire statement was deleted from the DEIR and the paragraph rewritten.
30. The sentence mentioned in the comment was deleted from the DEIR.
31. The discussion of channel degradation was added to appropriate sections of the FEIR so the impacts of channel degradation to anadromous fish, riparian vegetation, groundwater and wildlife could be considered.
32. This table has been removed from the FEIR.
33. This cross-section was removed from the FEIR.
34. This portion of the FEIR has been rewritten to reflect changes in channel morphology that have occurred.
35. As mentioned earlier, the River Management Plan should be a document separate from the EIR. We agree that fisheries habitat monitoring should be fully explained in that document which will be prepared separately at a later date.
36. The substantiation for benefits from an increased size in estuary has been added to the FEIR.
37. In response to this comment, several paragraphs and additional information were added to the DEIR.
38. Additional paragraphs were added to the DEIR to quantify the incremental benefit of increased flood control.

39. Additional information was added to the FEIR following discussions with the North Coast Unified Air Quality Management District.
40. Cumulative impacts to fish and wildlife have been added to the FEIR.

U.S. Fish & Wildlife Service - Letter No. 2/Response to Comment Number:

41. Twelve additional gravel removal operations volumes within the Eel River Watershed were added to the DEIR. These can be seen in Table 1 which also was added to summarize volumes of gravel proposed or permitted throughout the basin.
42. The no project alternative has been redefined to read, "The no project alternative would have to be defined as no expansion of the gravel volume of 557,000 cubic yards per year currently under permit".
43. A field survey was made following publication of the DEIR to respond to the concerns of the U.S. Fish & Wildlife Service. The results of that survey are included in the FEIR.
44. Additional analysis and discussion of potential impacts on the Green Sturgeon and Western Snowy Plover have been included in the cumulative impact section of the FEIR. Additional discussion has been added to the FEIR regarding impacts on the White Footed Vole, Pacific Fisher, California Wolverine and Western Big Eared Bat.
45. The multitude of surveys for the candidate species listed could take 12 months or longer and involve several different biologists. As there are no funds for this at this time we can only state that the service may have to require these surveys conducted as part of the Supplemental EIR's in the future on individual projects.
46. Additional information was added to the wildlife section of the EIR regarding the possibility of nest sites and activity centers of the Northern Spotted Owl.
47. We agree with this comment and have rewritten the DEIR section with this assumption. It is important to note that there is no historical data in existence to show population trends of avian species over the past 40 years during which gravel has been extracted from the project area.
48. It would be very expensive to monitor some 210 avian species and their populations in the project area. Monitoring the instream aquatic invertebrate community

would be more feasible. Monitoring wildlife utilization patterns of all wildlife species in the adjacent riparian habitat could become very expensive. Again, this may require a wildlife biologist to virtually live on the ground for several months. Many different types and sizes of traps would have to be set and checked daily.

49. The current time schedule does not permit the County to submit a revised DEIR for review by the staff of the U.S. Fish & Wildlife Service.

National Marine Fisheries Service - Letter No. 3/Response to Comment Number:

50. Much additional information has been added to the FEIR in an attempt to provide sufficient scientific information describing potential impacts of current gravel operations and proposed operations and various alternatives.
51. The main function of the Program EIR was to describe the proposed project and the potential effects it may have on the environment. We have decided that it is not proper to attach a River Management Plan to the EIR. We think that the plan should be prepared immediately after the Program EIR, as a separate document.
52. Additional information on the gravel mining projects near Garberville will be contained in supplemental environmental documents. These projects are mentioned in the Program EIR.
53. This project has been submitted to the Planning Department. Additional information and analysis will be required in a supplemental EIR in order for the Planning Department to accept the application as complete.
54. We believe it would be infeasible for the County to develop a bedload sampling program that would provide reliable estimates of bedload. To date all of the literature we have read and all of the consultants we have spoken to have indicated there is no acceptable method for measuring bedload.
55. It is probable that the County Planning Department will manage gravel extraction during years when no gravel replenishment occurs by allowing only gravel that exists above an imaginary plane to be removed. If there is no gravel above that 1.5 to 3 percent sloping plane, then no gravel would be permitted to be removed. Permits will have to be reviewed on an annual basis.
56. Skimming is the current preferred method of gravel removal. Trenching is so new that only the results of one or two years are available.

57. We agree that a River Management Plan should be developed for the lower Eel River. The plan may cost more than is economically feasible depending on how complicated the plan could be. We estimate it would cost around \$250,000 to prepare this plan. Funds are not available in the County coffers for this nor has a sinking fund been developed by charging each gravel operator in the past some nominal amount per cubic yard.
58. The monitoring program has been removed from the DEIR. Again, the County believes it would more appropriate for the monitoring program to be included in a River Management Plan developed as a separate document.

STATE AGENCIES

California Coastal Commission - Letter No. 4/Response to Comment Number:

59. We agree with the comment and added the language contained in the letter to the final EIR.

Regional Water Quality Control Board - Letter No. 5/Response to Comment Number:

- 60, 61, 62, 63 & 64. We agreed with these comments and replaced previous language on pages 45, 46, and 47 with the language suggested in this letter.

Department of Transportation, Division of Structures - Letter No. 6/Response to Comment Number:

65. This alternative was added to the FEIR. It should be recognized that this alternative would have a very significant adverse economic effect on the general economy of Humboldt County. The gravel industry provides the necessary material that drives much of the construction industry. The money generated by the gravel industry has a multiplier effect of around 2.8. The second problem is that it would be difficult for the County legally to deny use of Conditional Use Permits and Vested Rights that have already been granted for some 557,000 cubic yards.
66. The second alternative did not mean to indicate that permissible amounts of gravel to be extracted each year were based on predicted replenishment. It is actually based on the amount of gravel that was stored the prior season as reflected in the detailed cross-sections that would be run prior to the initiation of gravel extraction at the beginning of the new season.

67. The second paragraph of comment of #66 is exactly what we had in mind. The third alternative was deleted from the EIR and replaced with a new one. The new one involves searching other areas of the Eel River and its tributaries for gravel bars that contain stored gravel above an agreed upon base line and sloping imaginary planes and for valleys that were buried during the 1955 and 1964 floods.
68. A new alternative was added to the EIR discussing alternative sources of rock and the problems involved with that rock in meeting Caltrans Standard Specifications.
69. This part of the draft EIR has been changed because additional analysis indicated that measurements at the bridges, particularly those on the Van Duzen, do indicate a trend towards lowering of the bed.
70. We agree and have changed the draft EIR to reflect these measurements and cross-sections.
71. We agree that the potential lowering of the bed and the resulting impacts to these bridges must be avoided. The only way to avoid this is to tie the Conditional Use Permit to the River Management Plan. The River Management Plan would be based on the results of detailed monitoring of the bed each season.
72. We agree that a monitoring program consisting of cross-sections and profile thalweg would only delineate the affects of gravel removal. As mentioned above, these measurements would have to be tied to the River Management Plan, which in turn have to be linked to the conditional use permits granted by the Humboldt County Planning Commission. Discussion on this concept has been added to the FEIR.
73. We agree that estimated yields or rates of replenishment in the literature do not substantiate the proposed volumes that may be removed from the project area. For this reason the EIR does not rely on calculated replenishment rates. Instead the concept of actually measuring in the field what occurs during each winter season is the best method to determine volumes available for extraction.
74. The hydrology section of the draft EIR was re-written and corrected. The 1986 FEMA Flood Insurance Study was utilized and we believe the estimates in there to be more accurate than those that were determined by Dames & Moore.

75. We agree with this comment and have removed all of the material from the draft EIR that was based upon the HEC-6 model.
76. We agree and have included these sites.
77. The Arcata Readimix project has been included in the Final EIR.
78. This detailed type of information will have to be supplied in supplemental environmental documents.
79. We agree with this concept and have tried to describe a procedure to be included in the River management Plan which would be prepared as a separate document.
80. We understand the problem that may be caused at various bridge piers by gravel extraction. We believe it might be hard to prove the nexus or linkage between gravel extraction and the scouring or lowering of the bed around the piers.

Caltrans, Local District - Letter No. 7/Response to Comments Number:

81. The final EIR contains new sections identifying the gravel hauling routes for each extraction site and the potential effects on capacity and level of service at the intersections of identified haul routes. The new information was obtained through discussions with the Traffic Division of Caltrans, District 1, in Eureka.
82. The draft EIR has been corrected to consider traffic noise as a steady source.

Department of Conservation, Division of Mines and Geology - Letter No. 8/Response to Comment Number:

83. We agree with the comment regarding requirements of information to be put into the River Management Plan.
84. The River Management Plan can be based on some acceptable limit for channel degradation over a general reach of the river. It should be recognized that elevations of this section of the Eel River have varied over time, particularly following the large floods of 1955 and 1964. What often happens is that immediately following the floods 10 to 15 feet of gravel is added to the main thalweg portion of the river and then over the following 10 years the river slowly trends back to the equilibrium elevation. Because there has not been a flood in several years, the physical limit of the lowering of the bed should be limited to 4 or 5 feet until better information has been collected.

85. The quantity limit of physical change we believe to be acceptable until better information is collected, is 4 to 5 feet.
86. We believe the limit acceptable to channel lowering along the channel thalweg should be between 4 and 5 feet.
87. It should be pointed out that in the past there have been statements made about deep pools existing along certain portions of the lower Eel River which provided habitat for anadromous fish and green sturgeon. If the River Management Plan is too restrictive, it may be that these deep pools would never be recreated. Therefore caution is advised as to being held strictly to a 4 to 5 feet lowering limitation along the entire stretch of the thalweg.
88. The final EIR notes the changes in sediment supplies due to mining will cause adjustments in the general channel morphology.
89. We agree in general with this concept and plan to implement a safe yield approach through identification of a baseline thalweg and imaginary plane at something between 1.5 and 3 percent slope emanating out from the baseline.
90. Depths of gravel ranging from 18 to 62 feet were measured in the ARCO report 1/4 to 1/2 mile south of the mouth of the Van Duzen River across a point where the main Eel River first enters the delta. There is a ridge line east and west of the seismic refraction line indicating that the main Eel River has cut through a rapidly uplifting portion of land and therefore one would expect the gravel to be relatively shallow. For exact location of the seismic refraction line see Plate No. 1 in Appendix B of the ARCO Report.
91. Additional paragraphs were added in the Final EIR to note that within the last 3 years large amounts of gravel were removed, utilizing the trenching method. The final EIR focuses on the proposed amount of gravel to be removed, i.e. 923,000 cubic yards, which obviously far exceeds historical annual amounts.
92. The County-owned Worswick gravel bar will be excavated by skimming because trenching will trigger the requirement for a Section 404 permit from the Corps of Engineers. It is not known at this time whether the Corps of Engineers will approve trenching. It could be that in the 404 environmental review process the Corps may determine that an EIS is required. This could delay gravel removal from the Worswick bar for two years or more.

93. The comment assumes that trenching will be permitted. It is the intent of the County to adopt a safe yield approach based on a different concept. We have discussed various concepts with operators that have trenched on whether they would be willing to accept lower amounts of extraction in order to allow material to move downstream to another gravel operator. So far we have not been able to determine a fair and reasonable approach.
94. The final EIR includes new material addressing the economic feasibility of utilizing alternative upland materials and notes the limitations on certain material to meet Caltrans specifications.
95. The hydraulic evaluation by Dames & Moore utilized in the draft EIR has been deleted from the final.
96. The River Management Plan can include provisions for tracking this minor effect.
97. The second paragraph on page 58 of the draft EIR stated what would need to be done to properly answer the question of whether the bed levels have changed over time. That paragraph did not say that cross-sections taken in 1900 had actually been found. Elevation data does exist on maps published by the Corps of Engineers in early 1937 and mid 1942. These maps have been added to the final EIR and can be used by authors of supplemental environmental documents on specific sites. For example, when cross-sections are taken of the gravel bed at site #9, the elevations shown on the map published June 20, 1942, can be compared to the new elevations to ascertain changes in the river bed over 40 or 50 years. The elevations and cross-sectional data in the January 6, 1937 map could be compared to the cross-section shown in the Arcata Readimix application, provided that the cross-sections in the Arcata Readimix application are tied to either MSL or mean lower low water datum. It is not clear in Exhibit 4 of their application whether the cross-sections are tied to a known vertical control. If the vertical control of the +10 line is based on MSL, then the present day elevations of the gravel bar on the Arcata Readimix site appear similar to those that existed in 1937. It should be noted that sections appearing in the January 7, 1937 report would have actually been taken in 1935 or 1936 prior to the 1937 flood.
98. In reviewing the Surface Mining and Reclamation Act of 1975 it is noted that the legislative intent was to create an effective surface mining and reclamation policy to assure that adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a useable condition which is readily adaptable to alternative uses. They also intended that the production

and conservation of minerals are encouraged while giving consideration to values relating to recreation, watershed, wildlife, range and forage and aesthetic enjoyment. The final EIR contains additional information added under permits expanding on the use and concept of the reclamation plan.

Department of Fish & Game - Letter #9/Response to Comment Number:

99. The rest of the gravel operations within and outside of the project area have been disclosed and included in the document.
100. See pages 50 and 51 in the draft EIR.
101. See pages 59 in the DEIR.
102. See pages 65, 66, and 67 in DEIR.
103. Additions have been made to the section on alternatives.
104. The Department of Public Works has no knowledge of nor information on timber company operations within the Eel River watershed. Also, we no information on Humboldt Bay Gravel's proposal to relocate its equipment to an area next to the Humboldt Creamery.
105. The comment is correct.
106. Current volumes contained in the table summarizing volumes and extraction are based on numbers supplied by the various operators to the Planning Department. In some cases operators do not remove the maximum permitted volume each and every year.
107. The DEIR has been changed to state that there has been changes in river morphology over the last 30 years.
108. We agree with the comment.
109. See pages 50 and 51 in the DEIR.
110. We have no information on APN 106-111-11. It appears to be somewhere near the mouth of the Van Duzen River.
111. See page 52 in the DEIR, third paragraph.
112. See page 59 in the DEIR, last paragraph.
113. A discussion of the effects of water temperature resulting from the two known extraction techniques has been added under Water Quality.

114. We are not aware of any water diversions taken directly from the river for the 13 operations covered in this FEIR. Of the water diversions observed in the field, they were all existing in isolated pits dug specifically for that purpose. This removes the chance of sucking in any fish fry or fingerlings.
115. We do not agree that gravel extractors should shoulder the responsibility of replacement of riparian vegetation removed over the last 140 years. Gravel extraction operations have removed a very small percentage of riparian vegetation relative to that removed from about 1862 through 1890 by the first settlers when they cleared the land and established their dairy ranches. As noted on page 57 in the DEIR, Fred Sundberg stated trees a couple of thousand years old on the river banks fell into the river or were removed by land owners following the filling of the river with silt and gravel. The planting of riparian vegetation on private lands adjacent to the river would require permission from all of the land owners. Most of this planting would have to occur along the south and west bank of the river. A majority of the gravel operations occur along the east bank of the river, much of which consists of a levee upon which no riparian vegetation can be placed.
116. A discussion of impacts from dust on vegetation was added to the DEIR on page 67 after the second paragraph. The actual acres of riparian vegetation affected by dust is low compared to the total acres of riparian vegetation in the project area. This is particularly true of the two operations on the Van Duzen River.
117. Detailed analysis of this project will be contained in the supplemental EIR. This final program EIR can only address impacts to the level of detail known.
118. We have no record of this proposal.
119. A section was added to the EIR regarding impacts on the riparian corridor resulting from truck traffic utilizing the existing haul road.
120. The FEIR contains information on those processing sites that were known. The FEIR covers all of the known sites as of its preparation date.
121. Additional impact discussion was added to the bottom of page 59 of the DEIR. The 1603 agreement should include a condition requiring the operator to check the trench after these low flow fluctuations and to take appropriate measures to assure that fish populations are not stranded.

122. The FEIR contains several additional sections addressing the issue of what happens when there is very little gravel recruitment into the project area. Essentially, the River Management Plan would contain procedures directing that when the monitoring results show that little or no gravel has moved into the area, the condition in the Conditional Use Permit shall require the operator to locate gravel elsewhere in the watershed and apply for a Conditional Use Permit to remove it. An additional section has been added to the section called, "Relationship between local Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long Term Productivity," as requested.
123. The DEIR has gone through a major revision in response to all the comments received.

LOCAL AGENCIES

Humboldt County Planning Department - Letter No. 10/Response to Comment Number:

124. The project description has been rewritten in the main FEIR and also in the summary as requested. Basically, it was noted that the granting of permits and approvals of reclamation plans by the Planning Commission is a project as defined in Section 21065 (c) of the CEQA. It was also pointed out the lease of the Humboldt County owned bar at Worswick constitutes a project as defined in Section 21065 (a) of the CEQA.
125. We believe this table would be too difficult to prepare.
126. This has been done in the FEIR.
127. This has been done in the FEIR.
128. This has been done in the FEIR.
129. A discussion was added in the FEIR regarding the opportunity to remove gravel from some of the buried valleys and streams in the upper portions of the Eel River watershed.
130. Three qualified fishery biologists were consulted.
131. Staff of the Department of Public Works, Natural Resources Division have been involved in watershed management and river analysis for 20 years. In addition, this project has been discussed with other hydrologists and open channel flow experts.
132. It is not practical to return the lower Eel River to its natural condition.

133. As noted above in response 129, there is an opportunity to remove gravel from portions of the upper watershed that were buried under a massive influx of sediment and bedload during the 1955 and 1964 floods.
134. A discussion has been added and included in the FEIR establishing a base line consisting of the profile of the thalweg and an imaginary plane running out both directions at slopes of 1.5 to 3 percent with a maximum permissible lowering of the bed between 4 and 5 feet from its current level.
135. It is not clear whether a lowering of the river bed will improve fishery habitat, particularly during the summer months.
136. This has been done in the FEIR.
137. This has been done in the FEIR.
138. This has been done in the FEIR.
139. The Planning Department provided as many detailed project site maps as they had in their files. For some of the sites detailed maps are not yet available because the applications are still under preparation.
140. This suggestion would require a major reorganization of the document and we decided it would take too long.
141. Much of this section that was contained in the DEIR has been deleted because other agencies had determined that the type of hydraulic analysis utilized by Dames & Moore was inappropriate for this particular project area.
142. This has been done in the FEIR.

Eel River Resource Conservation District - Letter No. 11/Response to Comment Number:

143. We agree with the comment.
144. The potential for bank erosion may occur if mining greatly exceeds deposition into the project area. This type of effect would be identified in the River Management Plan which will contain monitoring requirements and procedures that link back to the Conditional Use Permit to insure changes.
145. We agree with this comment.
146. We agree with this comment.

147. Yes, the gravel operators will bear costs of the monitoring program and preparation of the river management plan.
148. Challenges to causes of bank erosion will be based upon new information gathered during monitoring required by the River Management Program. The new detailed information will permit much better analysis of the probable cause of bank erosion.
149. During preparation of the final program EIR, it was decided that the monitoring program should be in the River Management Plan prepared later as a separate document, not included in the EIR. Suggestions in this letter will be used to develop an appropriate detailed monitoring plan.
150. The present goal is to maintain the current bed elevation until sufficient data is gathered to indicate any general trend toward the continuous lowering of the bed.
151. Facts mentioned in the comments have been added to the FEIR. They are very germane to discussions on whether the estuary would be enlarged following massive gravel extraction.
152. The reason that past extraction or floods has not significantly altered the bed elevation of the river at Fernbridge may be due to the fact that the longitudinal profile of all streams and rivers tends to follow a so-called universal profile. What this means is that if you add a tremendous amount of bedload to a stream it will track towards equilibrium towards the universal longitudinal profile. The same could be said if you extract below this profile the river will tend to fill the bed and trend back towards the universal profile. This is discussed in an article titled "Rivers" by Luna Leopold in a journal called the American Scientist. Our copy was undated but we believe it was written in the mid 1960's.
153. The reason it is unclear which methods of extraction will be utilized is due to the fact that each operator has their own preferred method of extraction. Recently, State and Federal agencies have indicated trenching may lead to the requirement for a Section 404 permit from the Corps of Engineers. This in turn could trigger an EIS required by the Corps which could take up to two years to prepare and even then there would be no promise that trenching would be permitted.
154. The mining method may be determined indirectly by the potential required permits from various agencies. An operator may choose skimming because that method will not

require a Section 404 permit and may be the only method acceptable to other trust agencies.

155. Most of the trenches were done towards the middle of the channel away from banks. It would be easy to require any trenching to be towards the middle of the channel so as not to trigger or lead to bank erosion.
156. We believe structures that constrict the natural bed of the river tend to reduce the deposits of gravel through that area because confining structures create a more energy efficient channel to move bedload material through the restricted area.
157. If skimming is permitted below a 3% imaginary plane, then it could lead to spreading of the flowing river over a wider area. This paragraph did not mean to imply that continued extraction was necessary to maintain a single low flow channel. A flow that has a return frequency of roughly once every two years should be a bank full flow. In that situation the energy of the river is spread fairly evenly over the bed where the channel is 1,200 to 1,400 feet wide. The river behaves differently in the section near Fortuna where the river has wandered over a 6,000 foot wide area.
158. It is possible that the trenches could trap fish in the event that a high flow of brief duration occurs in late October. Normally the barriers at both ends of the trenches are removed as directed by the Department of Fish & Game. The barriers need to be completely removed so that the trenches do not become traps for fish after the flow recedes.

ENVIRONMENTAL ORGANIZATIONS

California Trout - Letter No.12/Responses to Comment Number:

159. We agree that there is no consensus among experts on the proper or accurate methods for assessing impacts from gravel extraction on a sustained yield basis. That is why we are recommending gravel only be removed that is stored above a baseline and imaginary plane sloped up and away said baseline.
160. The analysis done by Dames & Moore has been removed from the EIR.
161. The comment is not clear. It appears that Cal Trout believes removal of gravel from the project area will not decrease the amount of bedload reaching the estuary which has been seriously filled in during the last 20 to 30 years. The FEIR recognizes recent studies which have shown the particle size of material deposited in the

estuary over the past 20 to 30 years is too large to be removed by tidal action.

162. Discussion of the feasibility of attempting to model the lower Eel with other experts indicates that it would be an exercise in futility and a large expenditure of money. A good example of one attempt was that done by Dames & Moore.
163. It will be recommended that a River Management Plan be done following adoption of the EIR. The management plan would contain a monitoring program that would provide necessary data to permit annual amendments to Conditional Use Permits and 1603 Streambed Alteration Agreements to reflect what is actually happening in the river channel from season to season.
164. Since the preparation of the draft EIR, much more talent was consulted during preparation of the FEIR.

California Trout - Letter No. 13/Response to Comment Number:

- 165 & 166. The FEIR has some revised volumes which are based on the best information available for each site.
167. The FEIR includes Arcata Readimix's proposed project.
168. Of the 13 projects that are contained in the FEIR we are not aware of any future expansions or phases of any of the proposed projects.
169. This error has been corrected in the FEIR. The proper number is 200 gallons per hour.
170. The lifetime of each of the 13 projects was impossible to predict or estimate. It will be dependent upon the amount of gravel brought into the area by the river and the economic situation of each operator.
171. Traffic impacts were analyzed and added to the FEIR.
172. Most of the Dames and Moore study was deleted and removed from the draft EIR and is not contained in the final EIR.
173. The assumption that operators will be granted permits entitling them to extract diminutive amounts of gravel forever is incorrect. The River Management Plan will restrict the amount of gravel that can be extracted to that which is available above a base line.
174. It is obvious there will be periods of drought when the river will not contain gravel above the base line. The

issue of sustainable comes out of the County General Plan. It is doubtful that a sustainable level can be ascertained in light of the argument by Kelsy and others that large floods, such as the 1964 flood, occur only once every 200 - 600 years. We believe it is more probable that flood events with recurrent intervals of 20-30 years will move sufficient amounts of bedload to allow the river to trend towards an equilibrium longitudinal profile as detailed by Luna Leopold. However, that does not mean that adequate amounts of gravel will be stored from those events to meet the demands of all of the projects described in this FEIR.

175. The potential for long-term lowering of the bed will only occur if all of the current permitted projects are allowed to continue to remove 557,000 cubic yards per year and proposed projects are also permitted. It is doubtful that many of these projects will be able to receive permits from the Coastal Commission, State Lands Commission, and Corps of Engineers for the amounts of gravel that have been removed during the last 4-5 years. It is true there is documentation that bed degradation impacts water quality and the fisheries of some rivers. Portions of the Eel River, particularly in the upper watershed, were buried with gravel and debris following the flood. Several tributaries enter the gravel at the top end of a valley, go underground, then reappear again downstream. These stream tributaries are totally blocked and clogged with gravel and would be an example where lowering of the bed back to its natural condition would improve the water quality and fisheries. Other areas of the river would be exactly the opposite, so it would be important to know what documentation you have that substantiates bed degradation as having an adverse effect on fisheries. We suspect it is related to the Mad River.
176. The FEIR contains new additional information regarding responses to any bed degradation discovered in the monitoring program which would be part of the River Management Plan. The river management program would have a mechanism that would not permit bed degradation to the point where it would endanger bridge piers. It also would contain monitoring information that would be related to fisheries and invertebrates so that changes in gravel extraction volumes or methods, could be made through the annual review of the Conditional Use Permit by the County and the annual reissuance and negotiation of the 1603 Streambed Alteration Agreement.
177. Historical information such as detailed profiles of the thalweg and cross-sections following each major storm event and following gravel extraction are non-existent. That is why this information was not in the DEIR. The

FEIR covers all potential adverse impacts as they are known.

178. We believe that potential adverse impacts to the fishery have been assessed in the FEIR.
179. These numbers are from a report written in 1980 and were the best estimates in that year.
180. It is not clear why the Department of Fish & Game does not list the Middle Fork Eel River summer run steelhead as a species of concern.
181. Potential impacts on summer steelhead residing just below the Van Duzen in the main Eel as late as July would be related to trenches (if they are still permitted) located immediately adjacent to the low flow channel whereby the barriers blocking the trench from the low flow channel were broken during a small rise and fall in the Eel River due to a summer shower. Potential impacts include the summer steelhead being trapped in the trench after the river recedes. The River Management Plan will have a special section addressing this to insure that trapped fingerlings and other fish are either removed from the trench or at least reconnected to the low flow channel.
182. The significance of the project area for spawning was discussed with Doug Parkinson who snorkeled the area. Pat Higgins Fisheries Biologist; Peter Moyle, Ph.D., Fisheries Biologist; and Larry Brown, Ph.D., Fisheries Biologist.
183. This comment was unclear and therefore, we are not able to respond.
184. We would expect the lower Smith River to be significantly different than the lower Eel River. The Smith River watershed is largely intact and one of the finest, clearest rivers left in the State of California. The watershed also contains a different type of geology than that of the Eel River. The bed of the Eel River has a high sand and silt content coming from its watershed that is generating one of the highest rates of sediment production of any river in the world. It is this high component of silt and clay that makes the bed of the river through the project area so tight that it does not provide good spawning gravel with two to three inch cobbles completely free and clear of fine particles.
185. If trenching is still to be permitted by the trust agencies, additional assessment of smolt utilization should be covered in supplemental environmental assessments related to those specific projects. Based on observations in late May 1992 in the trenches in the Mad

River, smolts may not utilize trenches. However, smolts were utilizing the trench at the Emmerson Bar soon after they were released from the Mad River Hatchery.

186. We agree that squaw fish do prefer warm, still water. It is not clear if water in the trenches connected by ground water to the low flow channel actually exhibit significantly higher temperatures. It would also be tricky for the squaw fish to get over in to the trench unless there were a summer shower causing the low flow channel to rise and connect with the trench due to breakage of the barrier.
187. It is not clear how skimming would create a man-made diversion of the low flow channel, since skimming is always conducted up away from the low flow channel. We agree that trenching and pitting definitely alter the natural character of the river. Historically when pits appeared on aerial photographs, it was noted that, following the winter season, there was no sign of the pit, so the actual alteration of the free flowing aspect of the river may be quite brief during a flood flow or bank full flow.
188. It is our understanding that the Department of Fish & Game permitted the trenching through the 1603 Streambed Alteration Agreement.
189. The FEIR addresses the issue of river channels being left high and dry following diversion into a trench, such as occurred on the Mad River. This phenomenon has not been observed on the Eel River. The main purpose of the draft EIR was to describe a proposed project and its potential effects.
190. The FEIR assesses the impacts on the public access to the river due to the various aspects of the gravel extraction operation.

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191. The FEIR contains much new information which we believe properly states the potential amount of gravel mining that is proposed on the Eel river in the near future.
192. The Arcata Readimix project is now included in the FEIR. The issue of the Worswick lease is such that it is impractical to attempt to remove any amount larger than 200,000 cubic yards. This is because it would take a very long time to prepare all the necessary supplemental studies for a supplemental EIR, then proceed to get a Conditional Use Permit, if possible; a Coastal Development Permit from both the Planning Commission and