

CALIFORNIA TROUT



KEEPER OF THE STREAMS

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April 20, 1992

Mr. Donald C. Tuttle, Manager
 Environmental Services
 Humboldt County Department of Public Works
 1106 Second Street
 Eureka, CA 95501-0579

RE: DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT ON GRAVEL REMOVAL
 FROM THE LOWER EEL RIVER

Dear Mr. Tuttle:

California Trout submits the following comments on the Draft EIR on Gravel Removal from the lower Eel River. Additional comments from California Trout's Streamkeeper, Mr. Fred Neighbor, are being submitted in a separate letter, and this letter incorporates those comments by reference.

California Trout is a non-profit, charitable, conservation organization with 4,200 dues-paying members and sixty three affiliated angling clubs statewide. Several hundred of our members reside within twenty-five miles of the project area identified in the DEIR, and these members, in addition to our San Francisco Bay Area members, recreate extensively on the Eel River, both in the project area and in tributaries upstream from the project area.

Since the 1960s California Trout (CalTrout) has worked to protect and restore wild trout, native steelhead, and their waters in California, and to provide high quality angling for the public's enjoyment. CalTrout has been especially active on the Eel river since it galvanized efforts to defeat the proposed Dos Rios Dam in the late 1960s. Most recently, in February 1992, California Trout co-sponsored with the American Fisheries Society and the California Department of Fish and Game a symposium on the environmental threats facing the Eel River.

CalTrout is concerned about the proposed project's possible impact on the integrity of the river channel. The reaches of the Eel and Van Duzen Rivers in the project area serve a variety of purposes that are key to the survival of salmonids in this area. These purposes include providing a migration corridor for salmon and steelhead, holding areas for adult fish returning to spawn upriver, and rearing areas for juvenile fish that may spend up to two years in these reaches before migrating out to the Pacific Ocean.

CalTrout is not categorically opposed to the extraction of

gravel from riverine areas. CalTrout is opposed to the removal of gravel from streams when such operations place the integrity of the stream channel in jeopardy, and thus pose a threat to salmonids that reside in the stream. It shouldn't need pointing out that California's anadromous salmonids are in the historically most depressed state ever. In the face of the recent closure of the commercial salmon season on the North Coast it would be insanely irresponsible to permit any land use activity that threatens salmon and steelhead populations.

In theory it is possible to extract gravel from a stream and not upset the delicate balance between stream flows and the quantities of bedload that over time have defined the river system that is used by salmonids. This theory is, however, quite general and in need of substantial corroboration by scientifically appropriate empirical data. CalTrout believes the County of Humboldt has not provided such data in the DEIR; in fact it is this organization's opinion, based on discussions with at least two expert fluvial geomorphologists, that there is still no consensus among the experts about an accurate method for assessing the potential to extract gravel instream on a sustained yield basis.

CalTrout believes the repeated references to the Dames and Moore report are scientifically inappropriate for the purpose of analyzing the annual recruitment of gravel. The purpose of the Dames and Moore report was to provide a worse case scenario for scouring flows with respect to the placement of a pipeline in the river bed. The Dames and Moore report makes assumptions based on a statistically spurious extrapolation of the 1964 flood event to postulate volumes of water in 100 year events which CalTrout finds extremely unlikely. The overall effect of the DEIR's application of the Dames and Moore data is to exaggerate the Eel River's potential gravel supply rate, and, at the same time, underestimate the effects of instream gravel extraction.

CalTrout also finds the putative benefits from instream gravel extraction operations to the Eel River estuary spurious, even misleading. The DEIR fails to substantiate a functional relationship between the gravel extraction operations and the enlargement of the tidal prism.

CalTrout suggests that the County has put the cart before the horse in the preparation of this Programmatic DEIR. Modeling (as opposed to the mere reuse of the inappropriate Dames and Moore data) should have been done and included in the DEIR. It would be wrongheaded to programmatically approve permits for instream gravel extraction and expect to amend those permits contingent upon future information. (Not to mention that the monitoring proposed is not extensive enough to be of any value. Cf. Dunne, Thomas & William Dietrich, Neil Humphrey, & Donald Tubbs, "Geologic and Geomorphic Implications for Gravel Supply", in Salmon Spawning Gravel: A Renewable Resource in the Pacific Northwest? Pullman, 1981.)

In closing California Trout strongly recommends that the

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County extend the period of public review of this document, and submit the document to peer review by experts in the fields of fluvial geomorphology, hydrology, fisheries biology, and riparian ecology. California Trout will be glad to help the County in identifying experts in these fields. CalTrout is concerned that not enough talent is being focused on a programmatic document that could make, break or do nothing for the Eel River. The anadromous fisheries of Eel River are simply too valuable a resource to be compromised by land use practices permitted with too little useful information.

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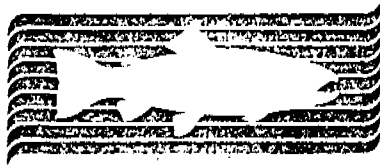
California Trout thanks the County of Humboldt for this opportunity to submit these comments.

Sincerely,



James Hamilton
Conservation Director

CALIFORNIA TROUT



KEEPER OF THE STREAMS

April 20, 1992

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TIC 4/20/92	

Mr. Donald Tuttle
Environmental Services Manager
1106 Second Street
Eureka, CA 95501

Re: DEIR for Gravel Removed From the
Lower Eel River/Van Duzen River

Dear Don:

California Trout appreciates this opportunity to submit comments regarding the above-referenced project. We know you have personally put great effort into this matter. We commend your effort, given the time constraints, financial constraints and the political climate in which you've had to work.

At the onset, we want to emphasize the importance of the Eel River as an anadromous fishery resource. It was primarily for this value that it was designated a Wild and Scenic River by both the federal government and our state. It hosts the largest run of summer steelhead in California in it's middle fork reach, which for years has precariously hovered at a population between 500-1200 fish. The project section of the Eel River is historically one of the most frequented angling areas for salmon and steelhead in our state. In the late 40's and early 50's, this portion of the Eel River was nationally famous for its fantastic sport angling. In 1980 your own Department deemed the annual value of Eel River King salmon alone to our local economy, in excess of \$22 million dollars. Add in the steelhead sport angler's costs, and this figure would go up considerably.

For many reasons, the anadromous salmonid fishery has recently experienced serious declines. We no longer have the luxury or "cushion" of sheer numbers of fish when assessing adverse impacts. It's come to a point when any number of "straws" can break the camel's back. It is with this in mind that we offer our comments.

I. PROJECT DESCRIPTION.

An accurate project description is the "sine qua non of an informative and legally sufficient EIR." (County of Inyo v. City of Los Angeles, 71 C.A. 3d. 185, 193) The DEIR description of the project lists eleven gravel operations as the components of the project and the volumes of extracted material from each site. We question the accuracy of the stated volumes. For site "2", the DEIR lists 200K cubic yards, however, we are aware that the County

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has recommended approving extraction of volumes of up to 350K cubic yard for this site. Similarly, we understand that Mr. Hansen, at site "8", has requested a vested right for extraction of 100K cubic yards. We question the validity of the volume for site "4". In light of the fact that this site is being operated without any county or state use or SMARA permits, we have reservations as to the stated amount.

Further, the DEIR fails to include Arcata Readimix's proposed extraction on Singley Bar for the amount of 150K cubic yards. These projects alone account for additional extraction volumes in excess of 300K cubic yards of the volume stated in the DEIR.

The project description and related impact assessments should also account for reasonably foreseeable future phases of proposed projects. (Laurel Heights Improvement Association of San Francisco v. Regents of the University of California., 47 Cal. 3d. 376) As indicated by the recent application by Arcata Readimix, which has had to seek new sources of river gravel due to the conditions on the Mad River, it is reasonable to assume that there will be more gravel projects planned for the Eel and Van Duzen River systems. Only four years ago, Eureka Southern applied for a permit to extract 1 million cubic yards of gravel from the Eel River. Most recently the County entertained bids to lease the Worswick Bar for extraction of gravel which required that it be sold and transported out of the County. We feel that the DEIR is deficient in addressing these reasonable developments.

The project description is unclear as to the amount of water that the processing operations utilize. In one section the DEIR states such plants will use 200 gallons per hour and at another, 200 gallons per minute. This should be clarified as the discrepancy has significant environmental repercussions.

We feel that the DEIR is silent as to what the lifetime of this project is. We realize that the lifetime is linked to the hydraulic dynamics of the river, but essentially, there is no discussion about the time parameters of this project.

We also feel that haul routes and associated truck and equipment transportation has the potential to adversely impact access to the river and the recreational benefits of the river. In this regard we feel that the DEIR has inadequately assessed the magnitude of traffic impacts (particularly in the riverine environment). Page 65 of the DEIR estimates 200 trucks per day for site "6" alone. Arcata Readimix's proposal estimates 75 trips a day. Thus, from only 2 components of the project, almost 300 trips per day are generated. This amount is substantial and requires further assessment.

II. ENVIRONMENTAL SETTING.

Of critical importance to this project is a valid assessment of gravel recruitment in the project area. The project extraction volumes are all based on certain assumptions of what the river will yield. Overestimating the river's potential could result in significant adverse impacts. Further, the Humboldt County General Plan specifically requires that instream gravel extraction be undertaken on a sustained yield basis. While the term "sustained yield" is not further defined by the General Plan, the plain meaning of the term would require extraction volumes equal to what is recruited to the harvest areas. As stated by the Department of Conservation's Division of Mines and Geology... "Given the present state-of-the-science of river gravel management, avoidance of significant impacts can best be attained through a sustained yield approach to aggraded gravel...". (Letter to Don Tuttle, 3-27-92.)

Despite the County's General Plan mandate, the DEIR appears inadequate in addressing the issue of "sustained yield". The DEIR relies on criteria from a Dames and Moore study which was used to assess "scour" potentialities regarding the ARCO gas pipeline. It was never intended that this criteria would serve as a formula for determining bedload supply and gravel replenishment amounts. Nevertheless, this study seems to be the primary substantive basis for the DEIR's description of the river's potential to deliver harvestable gravel to the project area. We feel that your reliance on this report has the potential to result in adverse impacts. Much more definite studies are necessary to establish what is actually happening as far as recruitment of harvestable material. We are particularly concerned that other existing studies are not consistent with the apparent conclusions of the DEIR. While Harvey Kelsey's study of 1977 is cited, its substantive findings are not discussed. Dr. Kelsey concluded that... "Destructive storms such as December 1964 are infrequent events. The peak runoff of 1964 flood has a recurrence interval of approximately 100 years (Helley and La March, 1973) but the slope and channel changes caused by the 1964 storm and flood recur less frequently... Hence it appears that major landslide-triggering and sediment transporting storms on the north coast have a recurrence interval of approximately 200 to 600 years... (p. 335, Landsliding, Channel Changes, Sediment Yield and Land Use in the Van Duzen River Basin, North Coastal California, 1941-1975, Harvey M. Kelsey, 1977). This conclusion, that sediment transport occurs very infrequently, is further reiterated in a study by Robert H. Hawkins, (1982) wherein the author states, "...The result of this study indicate a large portion of geomorphic work in northern California coastal streams is accomplished by relatively infrequent flows."

The DEIR needs to assess with much more specificity the potential of infrequent gravel recruitment. Based on the final EIR, and other documentation, the operators will be granted permits entitling them to extract what appears to be definitive amounts of

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gravel. The economics of the gravel business will make it very difficult for operators, three or four years from now, to substantially cut back in their operations, should the river fail to provide sufficient recruitment. Therefore, the DEIR needs to expand its technical assessment and discussion of "sustainability". The CEQA Guidelines at 15125 subd.(b), state that if a particular project is inconsistent with a county's general plans, its impacts would normally be considered significant. Because the DEIR does not provide adequate information to support a finding that the component projects are harvesting at a "sustainable" level, the associated impacts must be considered "significant".

III. UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL EFFECTS.

A DEIR must describe those significant adverse environmental impacts for which either no mitigation or only partial mitigation is feasible. Where the only means of avoiding such impacts would be to impose an alternative design on a proposed project, but the lead agency nevertheless decides not to require such design changes, the DEIR must describe the implications of impacts involved and the agency's reasons for choosing to tolerate them rather than requiring the alternative design. (CEQA Guidelines, Section 15126 subd. (b)).

The DEIR identifies as an effect which cannot be avoided "...the potential for long term lowering of the bed of the river...". While the DEIR only assesses this effect in terms of man-made structures, there is documentation which substantiates that bed degradation can impact the water quality and fisheries of a river.

The DEIR fails to discuss any meaningful mitigation for bed degradation and/or the County's reasons for choosing to tolerate "bed degradation" rather than requiring an alternative design. This failure of the DEIR, again stems from the failure of an adequate assessment of whether the proposed extraction volumes are in harmony with recruitment rates.

In essence, what the County is implicating, is that current information is either non-existent or inadequate to assess the impacts of the project and that further (after approval) studies are necessary. The deferral of environmental assessment until after project approval violates CEQA's policy that impacts must be identified before project momentum reduces or eliminates the agency's flexibility to subsequently change its course of action. (Sundstrom v. County of Mendocino, 202 Cal. App. 3d. 296) Given the precarious condition of the Eel River anadromous fishery, it would seem prudent that all potential adverse impacts should be assessed now.

IV. FISHERY HABITAT AND THE FISHERY OF THE EEL RIVER.

The Heritage Conservation and Recreation Service, in its 1980 evaluation report on the eligibility of five California rivers, commented that..."the Eel River is an outstandingly remarkable anadromous fishery...The main Eel is especially important for providing the migration route to the middle fork of the Eel for the largest spring-run of steelhead in California." (P. II-27) "...The Eel River estuary and adjacent lands are especially noted to be excellent wildlife habitat...". (P. II-28)

It was primarily for its value as an anadromous fishery that the Eel River was included in both the state and federal Wild and Scenic River Systems. However, since its inclusion, the anadromous runs have precipitously declined. The AFS report of 1991 (Nehlsen, et. al.) lists all species of anadromous salmonids of the Eel as "stocks of concern", with the Van Duzen and the North Fork Eel summer run steelhead listed at a "high risk of extinction". Given these conditions, and the unique status of the Eel and Van Duzen Rivers (Wild and Scenic designation) we feel that potential adverse impacts to the fishery must be thoroughly assessed. We do not feel the DEIR has presented a thorough assessment. | 178

The DEIR states that Chinook runs are estimated at 103,000 fish and Coho at 42,000. Are these figures historical estimates? What is the current estimate of these fish populations? | 179

The U.S. Forest Service has deemed the summer run Middle Fork Eel steelhead as a "species of concern". The California Department of Fish and Game has enacted special regulations to protect these fish. The DEIR devotes all of one sentence to this critical stock. | 180

I know from personal experience and discussion with other anglers, that summer steelhead are caught in the area between the mouth of the Van Duzen and 12th Street hole, as late as July. Thus, these fish are moving through the project site during the period of peak operation. What potential impacts are there in this regard? | 181

We feel that the DEIR's statement that the lower Eel is of "little significance for spawning..." (P. 29) is without substantiation. Where is the authority for this conclusion? Despite current fishery conditions, did the lower Eel historically provide spawning habitat? This question needs to be assessed as it is the policy of our state to enhance all our anadromous fisheries. Also, the project area includes two projects, #10 and #11, which by California statute are deemed to exist in a "spawning area". (Fish and Game Code Section 1505 includes those areas above Yager Creek on the Van Duzen River as salmon spawning areas.) Thus, the DEIR's conclusions are erroneous with respect to these areas. | 182
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Recent field assessments on the Smith River indicate that spawning takes place in the main Smith River below Dr. Fine Bridge and down to the mouth of Rowdy Creek (Pers. Com. with Dr. Bill Trush and Dr. Terry Roelofs). For a long time the general consensus was that the lower Smith was also nothing but a "migratory route". But these recent findings challenge this assumption. More evidence is necessary to document the DEIR's conclusion that no significant spawning occurs in the lower Eel River. | 18'

We also have serious reservations regarding the DEIR's treatment of downstream smolts and their utilization of the river in the project area. Studies contradict the DEIR's conclusion that smolts, like adults, only utilize the project area as a migration route. Steelhead have been found throughout the summer in the riverine habitat at the top of the tide water on the Eel (Puckett, 1977). Murphy and DeWitt (1951) found that steelhead remained in residence in pools and riffles below the Van Duzen. Chinook showed a peak in abundance in the riverine subsystem in June and July (Puckett, 1977) during outmigration. Murphy and DeWitt (1951) describe schools of 50-100 chinook feeding in Singley and Dungan pools throughout the summer.

This information would indicate that the project area may serve as an important component in smolt rearing. It may therefore be important to provide suitable habitat and food sources in these areas. The DEIR fails to assess this matter. Particularly in light of recent extraction by trenching and the future prospect of "pitting", an accurate assessment of smolt utilization of this project area is critical. | 18'

It is our understanding that squawfish have been found as low as tidewater in the Eel River. Thus, it's very likely they would utilize the project area in suitable habitat areas. We are concerned that trenching or pitting extraction would result in creating still/warm water habitat which is preferred by the squawfish and remove riffles and runs. We think this potential impact needs more assessment. | 18'

V. WILD AND SCENIC RIVER STATUS.

In 1980, the Eel River was included in the Federal Wild and Scenic Rivers System. At the time of inclusion it was mandated that "the values which cause the river to be qualified for the National System must be assured of permanent protection and management by or pursuant to the state statute...the state must adopt a program of action which will provide permanent protection for the natural and cultural qualities of the river...". (DEIS for Inclusion of Five Northcoast Rivers, U.S. Dept. of Interior, 1980). Specifically, the state statute requires that..."no department or agency of the state shall assist or cooperate, whether by loan, grant, license or otherwise with any department or agency of the

federal, state or local government, in the planning or construction of any dam, reservoir, diversion, or other water impoundment facility that could have an adverse effect on the free-flowing condition and natural character of the river segments designated in 5093.54 as included in the system." (Public Resources Code Section 5093.56)

It is clear from the project description and the various extraction methods used by the gravel operators, that trenching, pitting and even skimming result in a man-made diversion and to some extent impoundment of the river. Certainly these operations alter the free flowing and natural character of the Eel River.

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Particularly in permitting trenching and pitting, we feel the County, as a state agency, is violating the provisions of the Wild and Scenic Rivers statutes.

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Clearly, trenches over 1,000 feet long, to which the river flow is intentionally diverted constitutes a man-made diversion. The active/natural river channel is left high and dry. The flora and fauna of the active channel die off and the river is funneled through a sterile trench. This activity seems to strike at the heart of Wild and Scenic River law and policy. The DEIR fails to assess in a meaningful way this issue. It can be argued that the mere preparation of the DEIR which contemplates the permitting of trenching and river diversion is illegal under Wild and Scenic River law.

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In this same vein, the State Constitution grants the public a constitutional right to fish in all the waters of the state and a corresponding right of access over state lands to get to the water (State v. San Luis Obispo Sportsman Ass'n., 22 Cal. 3d. 440). California Trout has long been an advocate of the public's right to fish. We feel that under various scenarios, in which all the component operations of the project were operating at full capacity and utilizing trenching and/or pitting operations, that such operations in themselves would impede the public's implied right of access to the river. The public has a right to fish the natural river. By diverting the river into trenches and/or pits, this right is significantly impaired. The DEIR needs to assess this.

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Thank you for your consideration in reviewing these comments.

Sincerely,

Fred Neighbor
California Trout

Some additional small discrepancies have been noted which in combination with others that have undoubtedly been overlooked may add up to significant amounts. For example, Charlie Hansen is requesting a vested right determination for an annual 100,000 cubic yards rather than the 75,000 cubic yards indicated on page 15 of the DEIR, and Pacific Lumber is requesting an exemption from SMARA and a County Use Permit for extraction of an unspecified amount of gravel from sites on the Eel near Scotia.

2. DATA ANALYSES, INCONSISTENCIES & ASSUMPTIONS

On page i. of the summary it is stated that "If all seven of the gravel processing plants were operating at once, this would require 0.052 cfs, which is equal to about 0.05% of the low summer flow occurring in this particular stretch of the Eel River." while on page 10 it is stated that "The water demand can reach 200 gallons per minute which equals 0.4456 cubic feet per second. ...this would equal 3.12 cubic feet per second which represents about three percent of the low summer flow volume in that portion of the Eel River. In addition to the sizeable discrepancy in numbers, the important topic of potential effects of the water withdrawals on the fisheries is not addressed at all, either with original collected data or citeable references.

page ii. There are no assessments of how many years extraction can occur at the projected levels of 1,220,000, or the more realistic projections of 1,500,000 to 2,000,000, at current conditions before the integrity of the bridge piers would be endangered. This is a serious omission, as it would be an important safeguard and ingredient in determining the extent and duration of any County issued extraction permits or contracts. To admit that the problem is foreseeable, yet suggest that the only feasible or best mitigation measure is to study and monitor it further, is inadequate.

page ii. The potential impacts on fishery habitat from skimming operations is seriously understated. Continued skimming operations are likely to have a significant effect on channel morphology and flow depth. And although it may not have a direct impact on that particular season's low flow channel, it is highly likely to be affecting the low flow channels of subsequent years. I would think that potential effects of this nature had been reasonably well documented in Collins, Brian and Dunne (1990) and elsewhere

The possibility that deeper pools, and enhanced habitat in the gravel operating areas would or would not improve the overall fisheries of the Eel is a topic that is unfortunately given scant treatment in this DEIR, although at several points it is noted that the Calif. Dept. of Fish & Game think that it might have an enhancing effect. Is there no extant data which weigh the probabilities in one direction more so than another in your estimation?

Is there a possibility that the channel through this stretch of the river would be more highly used if in fact it were better habitat and what contribution are or could the gravel operations be making to either degrade or enhance this possibility? Throughout this DEIR,

this important question (given project objective #5) is avoided. Perhaps the data bearing directly on the question is poor and sketchy, but then its deficiencies should at least have been addressed and remedial suggestions for data collection bearing directly on habitat values noted. Addressing the question directly, and with supporting data would appear to me to be essential. For example, the DEIR proposes no informed guesses or estimates of whether gravel extraction by trenches will enhance or impact fishery habitat, suggesting that until a significant storm comes along it will be impossible to say even if gravel recruitment occurs or not. Sadly, unless a proposal for measuring impact on habitat values independent of simple gravel recruitment is proposed in this EIR and subsequently used, it will prove to be impossible to estimate impact values on habitat even after the expected significant storm and large flow event. Gravel recruitment figures are not a simple one-on-one correlate for habitat value, but throughout this report they seem to be treated as if they are.

In addition, data from sources not cited in the DEIR indicate that the habitat value of this section of the Eel River was not always simply a passageway to somewhere else for anadromous fish. Higgins (1991) indicates that Murphy and DeWitt (1951) described schools of 50-100 juvenile Chinook feeding in Singley pool throughout the summer. Steelhead were reported as resident throughout the summer in the stretch between the estuary and the mouth of the Van Duzen. By 1977, however, schooling and feeding yearling Chinook were no longer reported to be using these pools after downstream migration in early summer. And early outmigration of salmon juveniles is known to have a very substantial and deleterious effect on anadromous fish survival in the ocean.

Higgins also reports that Eulachon may have used the lower reaches of the Eel river for spawning when clean pea gravel substrates were more extensive or abundant in the area. Is there no possible or potential linkages between gravel extraction in the lower reaches of the Eel and the presence of clean pea gravel substrates in the lower reaches of the Eel River for Eulachon? Impacts on possible, potential, or historical sturgeon spawning are also totally ignored in this DEIR.

Inconsistency ---- pg. iii. "Each year ...various types of annual plants grow sporadically on the gravel bars. There are about 2,700 acres of dry gravel bar with this type of vegetation between the mouth of the Van Duzen and mouth of the Eel River. Seven out of the nine operations on the Lower Eel River could conceivably disturb up to 105 acres of this type of vegetational community. This represents about 4% of the existing."

First we believe that the characterization of this habitat as merely places where annual plants grow sporadically is to misunderstand the dynamics of succession and natural changes in the morphology of rivers. Second the figures do not square with the facts. For example, on page 27 of the DEIR it is indicated that some 200 acres are likely to be disturbed in a skimming operation in a single year by just one of the proposed operations (Worswick Bar). By itself this is double the acreage figure quoted above.

Semantics --- At times this DEIR seems to be bending over backwards to avoid describing and labeling a significant impact in a neutral and easily understandable fashion. A good example occurs in the summary (iii). In that section, noise levels generated by gravel operating plants are described as "not enhanc(ing) the riparian area adjacent to them ...". The issue of enhancement is clearly not appropriate in this context, the issue of a significant negative impacts are.

Overall gross gravel recruitment seems to have been placed in a pronounced central position in this DEIR. Although it is an issue of importance, it's central position may be somewhat overemphasized, because at best it only defines the parameter of absolute maximum amounts available for extraction. It says nothing about where gravel and sand could best be taken out of the riverbed, nothing about the best or least damaging and disturbing methods of extraction, and certainly relates only in the most minimal and indirect way with specific effects on habitat values, groundwater discharge, flood damage control, agricultural soil replenishment, etc..... Yet despite its spotlighted and elevated status in this DEIR, the topic of overall gravel recruitment seems to have eluded both satisfactory analysis or qualified even tentative conclusions.

The Dames & Moore model is described in considerable detail. Its relevance, given a very unusual set of assumptions, is not all that clear except to indicate that bedload transport of gravel in sufficient quantities to result in aggradation does not ordinarily occur at significant levels except when very large storm events occur (the 80 to 100 year storm event). This inappropriate model, developed to estimate maximum scour, seems to be being used in this DEIR to suggest that great quantities of gravel may still be available for extraction. The facts seem to belie that possibility. Actual measurements at points that have been monitored, e.g. at the bridges appear to show minor degradation of the river, i.e. more gravel either transported past or excavated than has deposited over the last 50 years despite the occurrence of the unusual storm events of 1964, 1972 and 1974. The discussion of this matter in the DEIR could be clearer, and the actual cross section data taken at Fernbridge should have been provided for the reader to be able to assess the situation first hand. But it remains unclear to me what exactly the description of Dames & More model has added of relevance to the discussion of whether the proposed gravel mining program will result in aggradation or degradation of the Eel River, and whether that will mean an enhancement or impairment of environmental values.

In contrast, the best estimate of annual average bedload described in this DEIR are far lower than the projected excavation levels of 1.25 million cubic yards and even further below the more realistic projection of 1.5 million cubic yards. The estimate of approximately 234,400 cubic yards of annual bedload derived from Appendix #1 of the cited 1970 USDA publication is some 20% of the projected extraction levels. And the annual bedload estimate of 1,994,241 cubic yards on page 27 of the DEIR which is very much large seems to be based on a simple arithmetic error. The multiplication is

faulty. One percent of 19,942,412 cubic yards equals 199,424 cubic yards of annual bedload transport.

In sum, the sounder estimates of bedload sediment indicate that continuing gravel extractions anywhere near the scale contemplated in this DEIR is unsustainable, and may result in potentially serious damage and degradation in the not too distant future. Indeed the DEIR seems to admit as much on page 78. Consequently, the prudent approach would seem to be to both limit the amount extracted and establish a comprehensive monitoring and analytic program. Only if the results of a monitoring plan indicate unambiguously that gravel replenishment was occurring at greater rates than extraction should amounts greater than the historic averages, not the historic maximums, be permitted. At least that would be the conclusions I would draw from the existing, but admittedly, inconclusive data presented in the DEIR.

3. MITIGATION MEASURES.

Monitoring is not mitigation. It is clear that a monitoring program is required for this gravel extraction program. But discovering that a problem is greater or smaller than was believed, does nothing to rectify or prevent the problem either in the first place or after it is discovered. Mitigation measures should at least specify the steps that will be taken after the problems become more apparent, if the assessment is made that they are not at that stage already. If that is not done, the major purpose of an EIR would be nullified. For example, if monitoring should discover that gravel replenishment to Worswick Bar was insufficient to replenish the amount extracted in the first year a meaningful mitigation measure would be that the contract would automatically be cancelled. A provision could then be written into the contract at a time when it would be binding and the lessee would be forewarned. The same would hold for designing conditions of project approval for other gravel operations. Mitigation measures of this type would make monitoring meaningful rather than simply an exercise in data and salary collection. Realistically, as proposed in this DEIR, that is all your mitigation-monitoring measures amount to.

For some acknowledged significant impacts no mitigation measures appear to have been proposed. For example, pg. iv.it was determined that long-term (130-years) cumulative impacts on riparian vegetation along the eastern side of the Eel River from Fernbridge to the mouth of the Van Duzen river is significant. Of interest, the amount of riparian vegetation remaining along the west side of the river in 1991 is greater than that which existed in 1940." No mitigation measures are proposed to deal with the cumulative impacts of lost riparian habitat on the eastern side of the river. Considering that one of the most recent losses of significant riparian habitat appears to have occurred on the County's property which it proposes to lease for gravel extraction it is difficult to see why more positive mitigation measures for riparian losses are not proposed in this DEIR. Presumably even small measures might mitigate for small losses and relieve the obviously large cumulative effects somewhat.

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209

Nor is it clear why no significant mitigation measures have been proposed for the significant impacts on recreational use as the result of increased noise levels, changing aesthetics of the river bed, and decrease in the accessibility to some parts of the river channel etc. The assumption that putting standard mufflers on the trucks and extraction equipment would reduce the noise impacts to insignificance is unsupported by any data including data that would indicate that the trucks are currently operating without mufflers. If your observations lead you to believe that they are operating without mufflers, perhaps the imposition of significant fines or loss of operating permits would actually have a significant effect on the noise level and might qualify as a mitigation measure if formulated in an enforceable manner. 21

The issue of safety impacts on fisherman and recreational boaters by trenching, extraction equipment and trucks, summer bridges etc. seems to have been given at best only superficial attention. Responsibility seems to have been relegated to other agencies.

4. ALTERNATIVE PROJECTS

The list of project alternatives seems to be particularly skimpy in this DEIR. Proposed are regulating overall amounts of gravel extracted based on unspecified and undescribed analyses of annual monitoring of gravel recruitment. This hardly seems to qualify as an alternative to the proposed project. Perhaps it is better characterized as a minimal monitoring arrangement required under AB 3180, if the project as proposed could be approved. It would seem to be that a non-monitoring alternative might be illegal if it were true as stated in the DEIR that bridge structures could be affected by excessive gravel extraction. Moreover, as the County General Plan requires that "extraction of instream sand and gravel is not to exceed the average annual replenishment level (annual bedload)" [Section 2553(9)] it would seem that a monitoring plan ought to have been legally required, and in place since at least 1985. To claim that monitoring would be either a mitigation measure or a project alternative is stretching these CEQA concepts beyond permissible bounds. 21

Decreasing allowable amounts of gravel extraction volumes without monitoring, seems to be the chief alternative presented in the DEIR. It would appear that unless the overall reduction in quantities extracted would be very drastic, a possibility not discussed in this DEIR, proceeding even with a reduced overall extraction quantity, without monitoring, is likely to be illegal so its feasibility is nil. Moreover given the status of enforcement and current lack of monitoring on the river, it is probably not realistic to expect that a reduced quantity policy could be effectively implemented without a monitoring program. 21

Since one of primary advantages of a Program EIR is supposed to be the opportunity it provides for a more exhaustive consideration of alternatives than would be practical in an individual project EIR, the short list of constrained alternatives is disappointing in another sense. At least one of the alternatives should have explored a

program designed with the primary purpose of directly enhancing fishery habitat values. Dredging portions of the estuary or other means of directly expanding the scope of the tidal prism would seem to be an obvious example of a type of alternative which could have been at least outlined. 213

Although, as noted above, monitoring should be a legal requirement of any gravel extraction program and project, regardless of size, and the costs of such a program borne by the operators, financing it through a simple yield tax as outlined in the DEIR will not work properly. Tying the amount of funds generated for monitoring to the amount of gravel extracted will invariably result in pressures to increase the amount to be mined to support an increasing important monitoring program whose findings will inevitably be biased in favor or more funding rather than decreased extractions. A yield tax is not a bad idea, but the levy should be sufficient great to generate funds far in excess of what is actually needed for an unbiased monitoring program. The excess could go toward fishery enhancement measures, purchase of easement accesses, replanting of riparian corridors etc. if these values were being impacted by gravel extraction.

Substantial financial support of a comprehensive monitoring program is obviously a primary requisite. Linking it too directly to the quantity of gravel to be extracted would be a serious error.

5. SIGNIFICANT & NONSIGNIFICANT IMPACTS

From *Citizens to Preserve the Ojai v. Board of Supervisors* (1985)
 "...it is vitally important that an EIR avoid minimizing the cumulative impacts. Rather, it must reflect a conscientious effort to provide public agencies and the general public with adequate and relevant detailed information about them." ... A cumulative impact analysis which understates information concerning the severity and significance of cumulative impacts impedes meaningful public discussion and skews the decisionmaker's perspective concerning the environmental consequences of a project, the necessity for mitigation measures, and the appropriateness of project approval. .. An inadequate cumulative impact analysis does not demonstrate to an apprehensive citizenry that the governmental decisionmaker has in fact fully analyzed and considered the environmental consequences of its action."

For certain determinations, the discussion of significant and insignificant impacts by local and state agencies, for approvals within their designated areas of responsibility, must take into account that the Eel has been designated a Wild and Scenic River and sustains a significant fishery resource. It is assumed that impacts on fisheries and recreational uses would then become major issues. But these matters are inadequately discussed and definitely not resolved in this DEIR.. With respect to fisheries, our comments on the inadequacy of the analyses were noted above, with respect to recreation, it is clear that issues of important concern, with the single exception of noise levels were slighted in this DEIR. 214

For example on the question of gravel operations impairing public easements to river access, no assessment seems to have been made of any potential problems or mitigation measures with the exceptions that shorter excavated trenches might provide easier access in some instances and the provision of a phone number and name of a contact person at the State Lands Commission in San Francisco (pg. 48).

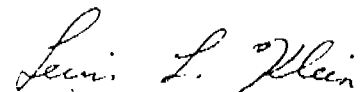
Likewise the implications of other bits of information within the DEIR are neither discussed or explained. For example, on page 34 it is indicated that "The North Coast riparian forest has a high inventory priority as designated in the List of Communities of the Natural Diversity Data Base. It was noted that it may be possibly threatened, but that more information was needed in order to give it a proper designation." The obvious questions follow up questions are not addressed in this DEIR: If it were listed what significance would this have for gravel operation approvals in this area? What significance might it have for restoration of riparian habitat on the east and north banks of the Eel?

On page 47 of the DEIR it is mentioned that "It is unknown at this time what the impacts of trenching will be as there was no analysis done or CEQA document prepared prior to the initiation of trenching." It would seem to me that a very appropriate place for such a CEQA analysis of trenching would be in this DEIR. But the analysis seems to have again been put off to some point after project approvals. | 21

Obviously we do not think this document fulfills its CEQA responsibilities as a program EIR, and our tone has been censorious. Yet I would like to repeat what was suggested at the beginning of these comments: we are truly amazed at how much you have achieved in such a short time, and with such limited resources. Unfortunately the task of reconciling a healthy and progressive economy with healthy and sustainable natural systems is not an easy one, and seems to require more time and energy than any of us can easily afford.

Thank you for your attention to these at times discursive and critical comments.

Sincerely,



Lewis L. Klein
for the Conservation Committee
1361 Azalea Ave.
McKinleyville, CA 95521
(707) 839-1535

volumes, it is not possible to assess impacts, particularly cumulative impacts, which is an issue of major concern. The final EIR needs to describe the project and assess its impacts within the expected scope of operations and volumes, or, perhaps, more appropriately, within the scope of what has been determined as sustainable and environmentally acceptable.

21

The project description covers the eleven operations in less than three pages; this is hardly adequate for meeting CEQA which requires a general description of a project's technical, economic, and environmental characteristics. [Guide, p. 180] Without a more comprehensive description of those operations which constitute the larger project, it is not possible to adequately display and assess potential impacts or outline mitigation measures.

2

The objectives of gravel mining are listed on page seven. Certainly the first three objectives are correct, i.e., economic return, jobs, and development. However, I doubt seriously whether operators would propose mining projects simply to meet objectives 4 and 5, which have to do with enlarging the estuary and enhancing fish habitat. If environmental restoration were to be the primary objective of gravel mining operations and economics\development simply a spinoff benefit of the first objective, then the manner in which operations are conducted would, I suspect, be far different than the way they are currently conducted. Data gathering and research would be required before project initiation to determine just what methods, sites, and amounts would be beneficial for the fish. Under present management of gravel mining, no data are required and no research is needed for operators to dig rows of trenches 1,000 feet long, 60 feet wide, and 20 feet deep, or skim large areas of river bars. It is simply not possible to make any predictions, whatsoever, as to the beneficial nature of such an operation on fish habitat. The objective of these gravel mining operations is solely economic return and not restoration of fish habitat.

2

The summary section states that historic maximum amounts of gravel removed from the project area appear to range from 700,000 cu.yds to 1,000,000 cu.yds. [p.ii] Pages 38-44 contain a detailed description of aerial photo review, but, unless I missed it, there is no documentation of extraction quantities to substantiate the given range or to indicate trends. Since the County has been theoretically overseeing gravel mining since 1963, it should have a record of the quantities taken out of the lower Eel annually during the past thirty years. This information in graph and table form would be extremely helpful to our understanding of the size of previous operations and trends that indicate what should be expected in the foreseeable future.

2

Since the numbers are so nebulous and low-flow conditions have been the rule for the past five years or so, it is not possible to predict the environmental significance of proposed mining on the river's morphology based on the past thirty years. [p. ii] This is particularly so because the volumes proposed for removal and the

volumes that we can anticipate will be removed in the future far exceed past levels. If 700,000 cu.yds. represents the annual extraction level up to 1987, then what is currently being proposed is more than double historic levels. The impacts of that level of mining on the river's morphology could be significant and might not show up for some years to come and only after a few years of normal rainfall or a major storm event.

The DEIR proposes a monitoring program as a way to "minimize and control potential significant adverse effects from lowering of the river bed due to over extraction above replenishment." [p. vi] Does this mean that the amount that any one operation could remove in a summer would be based on the amount of replenishment from the previous winter? If so, this assumes that the baseline data used in the first year of monitoring is the "correct" condition, i.e., that this is the way the river channel should be and an objective for management. Do we know enough about the river--its channel morphology and its historic uses by fish and other aquatic life--to make such a decision? Is it appropriate to work from and towards a condition that represents a severely impacted ecosystem, rather than from a historic vision? 22

From the face of the plateau, above and near the forks of the river [Van Duzen and Eel], the view was perhaps the most favorable we could have had. It embraced the mountains and the sea. Below us meandered through rich bottoms, the clear Eel river sinuous as its name, all the alluvial margin fringed with a growth of alder....The Eel river is at present quite a slender stream, averaging about 40 yards in width and fordable in places....Near its mouth it opens into a lagoon of considerable size, constituting something of a harbor....[The Daily Alta California, 26 Aug. 1851]

The DEIR is unclear about annual bedload [pp. 25,26], but if we were to assume that the 234,400 cu.yds. figure on page 25 is reasonably accurate, then the proposed removal of 1.5 million cu.yds. is obviously excessive--more than six times replenishment! Since the DEIR acknowledges that removal of gravel without regard to the previous season's replenishment could lower the bed of the river to a point that could "endanger the integrity of the bridge piers," [p. ii] what justification could the County use, already knowing that proposed operations would exceed bedload replenishment, to approve mining projects on the Eel? 22

The DEIR cites the Dames and Moore report, prepared as part of project development for the ARCO pipeline. I do not have the expertise to critique the Dames and Moore models, but I find it difficult to understand how the three scenarios presented in Table 2.1 (p. 19) relate to real conditions experienced by the Eel river. Sediment movement is associated with peak flows, not steady flows 22

and is a 100-year storm event likely to last for fifteen days? I can't even comment on the third scenario because I don't understand it. Dames and Moore uses a figure of 18% to determine the bedload portion of total sediment; Tom Lisle indicated that 10% might be more appropriate. In any event, sediment deposition is not the same thing as sediment transport and deposition is the issue of concern. 2

"Like the requirement to describe mitigation measures within an EIR, the requirement to set forth project alternatives within the document is also crucial to CEQA's mandate that avoidable significant environmental damage be substantially lessened or avoided where feasible." The DEIR must describe a range of reasonable alternatives and evaluate the comparative merits of each. [Guide, pp. 201,202]

Alternatives in the DEIR are discussed in the space of about one page. [pp. 76,77] Three of the four alternatives address various levels of extraction; the fourth is the use of upland quarries, which is dismissed as infeasible due to local geology. The purpose of developing alternatives is to explore all the reasonable possibilities which meet project objectives while reducing or avoiding environmental impacts. For gravel extraction, there needs to be an alternative that looks at various sites within the bankfull channel, assuming that extraction at some sites is more harmful or less harmful than at other sites. It is vital to the objective of minimizing impacts that alternative methods of extraction be fully discussed and analyzed. A river alternative should be developed that uses gravel operations as part of a long-term strategy for protecting and restoring the river and its ecosystem functions. 2

I believe this last approach is the only acceptable way to manage river mining. A vision of what these rivers once were, documented through historic research, can provide us with a vision of what they can be again and objectives for management. River management plans, based on the goal of restoration, would determine whether mining can contribute to that effort and, if so, how and where it will occur.

Although noise, traffic, and visual impacts are highly important consequences of gravel mining projects, these issues pale when the health of the river and its ecosystem functions are considered. The anadromous fishes of the Eel are a priceless gift which we have shamefully squandered. The description of fishery use of the project area and the estuary [pp. 29-33] and of project impacts [p. 59,60] is woefully inadequate because there are no data. The statement is made that the lower river is of little or no significance for spawning. [p. 29] Is this the historic situation or the current one? When was the last time anybody looked at possible spawning use of the lower river? What does history say? 2

Estuary use by juvenile fish is extremely important for growth and enhanced survival in the ocean, as demonstrated by studies on Redwood creek, the Mattole, and the Klamath. There is no reason to

think that the Eel's estuary is not used in a similar manner by downstream migrants; certainly this important area is far more than a migration corridor. And there are other organisms associated with the estuary. 22.

Limiting operations to the period between May 1 and October 1 and assuming that this adequately protects the fish in the Eel from any mining impacts avoids the crying need for good information on fish use of the river and its estuary, historic conditions, and the impacts of mining. The complexity of a river system, especially one with tidal waters, makes assessment of impacts very difficult. It may not be possible, given the state of current knowledge, to predict with any reasonable confidence what the effects of the project will be over the long term and whether cumulative effects, resulting from past, present, and future operations, will cause major detrimental changes to the system's physical and ecological characteristics. But one thing we do know is that human activities have had a devastating effect on the anadromous fish stocks of the Pacific coast. To imply that the proposed gravel operations, which are conducted solely for economic purposes, pose no significant risk to the river system and its fisheries or that they will actually "enhance" fishery habitat is totally unsubstantiated. 228 229

Recreational use of the project area is significant as anyone who has been there during the fall and early winter months will attest. Salmon support that use and it was this value that qualified the Eel as a component of both the State and Federal Wild and Scenic Rivers systems. The DEIR is significantly lacking in its failure to discuss the legal mandates that Wild and Scenic status provides or the compatibility of gravel mining with such a designation. 230

Section 10 of the federal act requires that each component of the system shall be administered in a manner that protects and enhances the values which caused it to be included in the system. That places a special responsibility on managers, including the County, to ensure that they permit no activities which will impact the salmon and the recreational use of the river. Philosophically, one could certainly ask whether heavy equipment, truck traffic, 20-foot-deep-1000-foot-long trenches, processing plants, dust, noise, lights, and the removal of a million and half cubic yards of gravel from the bankfull channel are compatible with a river that has been selected because it possesses "outstandingly remarkable...values... [and]...that shall be protected for the benefit and enjoyment of present and future generations?"

I fully appreciate the fact that neither time nor money was adequate for preparing this DEIR and the result is a document that is not CEQA sufficient. Furthermore, it fails to supply the information County decisionmakers need to determine whether mining activities should be conducted on the Eel river and, if so, how and where they should be conducted to protect and restore the river. 23

Thank you for consideration of these comments.

Sincerely yours,

Susie
Susie Van Kirk,
Conservation Chair

Comments on EIR on Gravel Removal in the Lower Eel and Van Duzen Rivers

Estimation of bedload supply to the Lower Eel: Annual yields of bedload sediment taken from several literature sources are presented without evaluation. I suspect that the lower values, e.g., the 230,000 tons from USGS data, are most accurate. The soft sediments of the Franciscan Formation tend to break down rapidly in transport over relatively short downstream distances, reducing gravelly bedload to sand and silt carried as suspended load. In light of data from smaller rivers, e.g., Redwood Creek at Orick which transports approximately 10% of its load as bedload, I strongly suspect that 18% is a large overestimation of the bedload fraction of the lower Eel. Furthermore the 1970 USDA sediment paper, which gives a large value for bedload, is widely disregarded by many professionals in northern California. For example it ascribes the most voluminous source of sediment to deer. Accurate estimates of annual bedload yield could be derived from the flow record at the Scotia gaging station in combination with a two-dimensional bedload transport model. It would be instructive to estimate the rate of channel erosion due to the annual deficit in gravel supply caused by future mining. It would also be instructive to estimate how much gravel has been mined up to the present, since an argument has been made that impacts up to the present have been slight.

232

2. Effects on fish populations: The most threatened resource is the valuable fisheries of the Eel system. It is highly probable that the estuary is a critical habitat for juvenile salmonids maturing before they enter the ocean. While the nature of effects of riverbed mining are unknown at this time, particularly on juvenile salmonids migrating into the estuary over the summer and using it as rearing habitat, this does not justify disregarding this issue. No relevant studies have been conducted or are planned and there is no measurements of fish or their habitats included in the monitoring plan. How would morphological changes affect fish passage? How would the substrate and water quality of the estuary be affected? What organisms live in the intergravel environment and what is their importance to fish ecology? Most importantly, how, where, and when do fish use the Lower Eel and its estuary.?

233

3. Monitoring of channel changes: Measuring sediment extraction with aerial photos is an appropriate approach. Cross sections at mining sites to ground-truth air-photo measurements of volumes extracted is also sound. However, it is also important to survey cross sections upstream and downstream of the sites in order to monitor the response of the riverbed to depletion of sediment.

234

4. Exporting Eel River gravel: It seems inappropriate to me to be exporting gravel when impacts of riverbed mining may be hurting fisheries and threatening bridges in the Eel, Mad, and other rivers. Plans to export gravel negate the argument that Humboldt County needs to mine riverbeds in order to support local construction. The monitoring program should be financed from a tax on gravel mining.

235

Thomas E. Lisle, PhD.

APR 3 1992

Dept. of Geology
HLSU

PUBLIC WORKS	
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TIC 4-30-92

1699 I Street
Arcata, California 95521
April 1, 1992

Humboldt County Public Works Department
Natural Resources Division
1106 Second St.
Eureka, California 95501

PUBLIC WORKS		
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TCH-36-92

Hello:

I am responding to the Draft Program Environmental Impact Report on Gravel Removal from the Lower Eel River dated February 1992. As a geologist who has worked in Humboldt County for 14 years, I feel I have the experience to address some of the issues raised in this document.

In general, I could see there was much information gathered for this report, but some of the reports used were outdated (for example, U.S. Department of Agriculture, 1970) and more recent information was not used. Much of the hydraulic analyses were based on a Dames and Moore study used for a proposed gas transmission pipeline crossing the Eel River. Without being able to read the report itself, I am assuming the numbers reported are correct; however, I am hesitant that a report designed for a localized pipeline project is adequate to evaluate cumulative effects of gravel mining over a long reach of river.

236

I have several specific comments on the report, listed in no specific order of importance. Dames and Moore estimated 100 year floods based on the existing period of record. Those numbers could be checked by independent methods, such as comparing the estimated discharges in cfs/mi2 with other known peak discharges in adjacent watersheds. The basis for their hypothetical sequences of flows was unclear. Bedload discharge is very sensitive to the magnitude of peak flows, so assuming a dominant flow of 9000 cfs for 360 days will not

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replicate what really happens in a river. Likewise, a 100-year event lasting 15 days is unlikely. Another sequence of flows was used by multiplying by a constant of 1.34, for reasons unknown to me (p. 18). The estimated flow velocity during a 100-year flood was 22 ft/sec, which approaches the maximum ever measured in the United States in steep gorges. Is this realistic for the Eel, and what assumptions about changing bed roughness during high flows were used? It is stated that sediment discharge is closely related to high flows (p. 22); however sediment discharge is not to be confused with sediment deposition, and the resulting hypothesis ("...major floods should result in channel aggradation and degradation would occur during periods of moderate flows with relatively clean water") may not hold.

237

The USGS measured suspended sediment discharge. An assumption that bedload represented 18% of the total suspended load seems too high to me, based on my experience in other rivers. It is stated that the Eel River's gradient is 4.44 ft/mi. Based on the gradient, the friable nature of the bed material, and USGS bedload measurements in other areas, I think 5-10% is a more reasonable estimate of bedload. Because I have problems with the assumptions that went into the flow modeling, I don't put much faith in the estimated changes in bed elevations listed in Table 3.2, nor those in Table 3.5.

238

Water requirements for crusher plants were listed as 200 gallons/minute on page 10, but were reduced to 200 gallons/hour in the summary. This translates into a decrease of 3% of summer flow (which may locally stress aquatic life) to a 0.05% decrease (not significant). Which is correct?

239

The February 1986 flood was mentioned as the only good-sized flow in recent years. What is the recurrence interval of that flow for the Eel River? It is difficult to put effects of that flood in perspective without knowing the relative importance of the flow.

On page 51 the document states that "sediment moves as long linear waves." Although that may occur in some basins, such waves may very well be nondiscernable in the Eel River, especially when several influences (land use, floods), and several inputs from many good sized tributaries have combined effects in a large basin like the Eel. Considering past changes in the Eel River, I would hesitate to call on "equilibrium" (p. 52) for smoothing out slopes, especially when the "natural" river channel is not a smooth slope, but a series of riffles and pools. It is implied that aggradation will increase meandering. In

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fact, braiding of a river channel is the more common effect of aggradation. One possible effect of trenching was not mentioned. If at high flows the trench becomes the main channel and the old main channel is abandoned, the channel length is shortened, channel gradient becomes steeper, the river then has more stream power to transport sediment, and less deposition would occur than predicted. The implications of trenching may be much broader than just a loss of invertebrate habitat. Paragraph 2 on p. 52 discusses the lack of bedload reaching the County-owned site unless there is a 15-20 year frequency flow. What is the expected gravel transport during such flows?

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243

It was unclear what the impacts of pit mining were. What high flows occurred after pit mining (p. 52) and what was meant by "integrity of the stream bed"?

244

Bed degradation was considered a probable result of gravel mining, and yet the only concern was the scour of bridge piers. Although that is indeed a concern, many other effects are possible. Downcutting can lead to bank erosion and loss of riparian vegetation. It can cause changes in pool-riffle distributions and channel geometry. It can cause a change in the size distribution of bed material. A broader look at the implications for fish and other aquatics should be taken. One of the reasons for the proposed mining is to improve fish habitat, especially in the estuary, and yet there was little supporting data or discussion on this topic. How much would the tidal prism be enlarged? Will that area be usable habitat in terms of cover, bed material, etc.? How will a decrease in bedload transport into the estuary affect estuary dynamics? Would short-term increases in fines affect the estuary?

245

Predictions of the effects of removing 1,220,000 million yards of sediment annually are partially based on effects of past mining; however, past mining intensity didn't approach this value except in a few years. Recent mining has not been put to the test of a decent flow, and it is very much an unknown as to how the Eel River will respond to the next high flood.

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I congratulate the County on insisting on a monitoring program for gravel mining. I would suggest that in addition to cross sections located on the mined gravel bar that cross sections be established upstream and downstream of the mined reach. Will there be any sampling of size distribution of bed and bar material? How will trenching be evaluated in terms of success? How soon will the monitoring results be available so that the County can evaluate the effects of mining?

247

Due to the lack of data for the Eel River estuary, these studies may shed some light on the use and importance of the Eel River estuary to juvenile fish.

An objective of the proposed gravel extraction is to enhance the quality of the fish habitat in the lower Eel River. However, the fisheries issues and conditions were not well addressed in the report. I am not sure how the gravel extraction will improve the quality of the fish habitat. What specific species are of concern and what life stage? What is the condition of the present fish habitat and what is the expected increase in the quality of the fish habitat? Will this also be monitored?

The most obvious problem I see with the proposed gravel extraction is that the proposed volume of 1,220,000 cubic yards is five times the estimated annual bedload transport (234,400 cubic yards, pg 25). This has serious implications. If annual gravel replenishment rates are low and extraction is in excess of replenishment rates then bed degradation will occur. Adverse impacts of lowering of the bed elevation are: 1. undermining bridge supports and in-channel structures, 2. change channel morphology, riffle-pool sequences and channel geometry, 3. create bank instability and loss of riparian habitat, 4. lower the water table which may kill riparian vegetation. All these changes can affect the riparian and aquatic resources of the stream.

The analysis of past gravel extraction impacts does not necessarily represent future impacts that might occur due to a sustained annual extraction of 1,220,000 cubic yards of material in the lower Eel River. While historic maximum amounts of gravel appear to range from 700,000 to 1,000,000 cubic yards, these large amounts only occurred in two isolated time periods. In addition, the trenching technique has only been employed in the last two years. The impacts of this type of gravel extraction and channel modification has not been addressed because the trenches have not been tested by moderate to high winter flows.

The EIR states that the impacts of past gravel excavation has had no significant change on channel morphology of the river. However, the EIR also states that some operators had to switch from skimming to the trenching method because the gravel bars had run out of available volume of gravel above the 2-3% line (pg 52). This indicates that replenishment rates are lower than the extraction rates and has serious implications as mentioned previously. If there is no available gravel above the 2-3% line perhaps no extraction should occur.

Alternative forms of gravel extraction other than skimming and trenching should also be addressed. Perhaps new extraction methods could be investigated which would have less impact on the aquatic habitat.

Will gravel size distribution be monitored? Will gravel extraction result in changes in the grain size distribution in the reach?

It is essential to develop a sound monitoring program that can be used to manage gravel extraction from rivers. The Gravel Harvest Monitoring Plan in Appendix A is well thought out. I would like to see the monitoring expanded to the gravel bars immediately upstream and downstream of the mined reach. It is critical that the monitoring data is analyzed immediately and results interpreted and presented in a usable form to the county and regulatory agencies in a timely fashion. Annual monitoring results should be received by the county by a set deadline or due date. Gravel monitoring results should be used to determine the appropriate rates and location of future mining operations.

While it is important to establish a sound monitoring plan, it is equally important for one agency, the county, to be responsible and committed to analyzing the data to address cumulative impacts of multiple operations on the channel. It is easy to let monitoring data pile up and it is essential that personnel be assigned to analyze the data and address the above issue in a timely fashion.

The county needs to assign some level of acceptable risk criteria to gravel extraction. If cumulative impacts can be documented, the county needs to determine what is the acceptable level of risk of the expected long-term effects on the stream resources.

I am concerned that the proposed funding for the monitoring program is based solely on the total amount of sediment mined from the river each year. While I think it is appropriate that the mining operators pay for the monitoring program, the level of monitoring will be tied to extraction rates. Monitoring will potentially become prey to a feast or famine funding source. I think to adequately address the management of gravel extraction in rivers, a stable funding source should be established for the monitoring program.

I appreciate the opportunity to review the draft EIR. I am pleased that the county is beginning to address gravel mining issues and mining impacts on the lower Eel River.

Sincerely,

Vicki Ozaki
Vicki Ozaki

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Federal taxes. Almost the entire \$2 million will circulate within Humboldt County several times before leaving, and each time a portion is spent by an employee or by the leasor, a portion of the sales taxes is rebated to the County.

The same does occur for current operations, and will occur for future operations. Because of the significant impact, I think this subject should be more completely addressed in the Final Environmental Impact Report.

In addition to the significant economic impacts, it might be well to include a paragraph on the social impacts of job creation, and perhaps the impacts of having these materials made available at a favorable cost. For instance, what would be the impacts on the public on your department alone if there were no gravels available locally for road construction and repair, and this material had to be imported from other jurisdictions?

Sincerely,



Douglas R. Ketron

255

April 5th, 1992

Don Tuttle
HUMB. Co. Public Works
Eureka, Calif

RE: FISH RIVER DRAFT
management R.I.R.
comments.

Dear Mr. Tuttle:

In response to comments, I would like to submit the following:

- 256 | 1. Aerial photos (~~1964~~ 1968) as alluded to in draft show previous activity on site 10 suggesting vested gravel extractions.
- 257 | 2. Current estimates of 4000 cubic yards at site 10 may be increased as recruitment amounts are determined, after initial dewatering channel excavation is accomplished.
- 258 | 3. 1975 Federal study and U-2 flights have addressed the need for retention on the CAN system.

I offer the following subject to further oral statements at the public hearings.

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TRINITY RESTORATION ASSOCIATES INC

RIVERINE, FISHERIES AND WETLAND RESTORATION

APR 20 1992

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April 20, 1992

COMMENTS TO THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT ON GRAVEL REMOVAL FROM THE LOWER EEL RIVER, February 1992.

ALTERNATIVES (page 76):

259

The project described in the DEIR is the "proposed removal on an annual basis of a total of 1,308,000 cubic yards from the Eel River system." Specifically the description should be limited to the Lower Eel River system. The alternatives discussion in the DEIR is inadequate, it has not explored sufficiently alternatives to the project, nor discussed potential significant impacts or there lack of in each alternative. The DEIR discussion does not include currently feasible alternative extraction methods, aggregate sources or locations. Alternatives to the proposed project such as those that are currently utilized elsewhere by the aggregate industry of Northern California and available to the aggregate industry in Humboldt County, should be evaluated.

Implied in the DEIR discussion of the proposed project is that aggregate extraction will be conducted on a sustainable basis. of a frequent nature Yet the alternative discussion does not explore non sustainable mining as opposed to sustainable harvesting or sustainability on less frequency such as 10, 25, 50 or 100 year events.

260

The methods, location and equipment discussed and evaluated in the alternatives discussion should not be limited to what is proposed by the existing operations.

261

A brief overview of some potential but not all potential alternatives not discussed but which could accomodate the project description are;

A. Extraction of aggregate from other than active and dynamic river channel of the exposed gravel bars from the low flow waters edge to the ordinary highwater mark (bankfull channel) should be considered. This would mean extracting aggregate from areas less frequently inundated such as storage sites of alluvium from 3 to 100 year events. Extraction impacts from these areas are more quantifiable and possibly mitigatable. This would mean a departure from "sustainable harvest" of aggregate from annual bedload transport. This would reduce or eliminate the need to measure and quantify bedload rates and volumes, hence eliminating predictions based on models of limited empirical data and vulnerable assumptions of bedload modeling. Extraction in this area of the river environment would allow for other extraction methods such as borrow pit mining. There would be a host of potential impacts to wildlife and riparian habitats that would need to be addressed.

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B. Extraction from geological recent deposits of Eel River alluvium in the valley portion of the lower Eel River. Extraction of aggregate in other areas of Northern California have exhausted in river sources for a variety of reasons. However,