# COUNTY OF HUMBOLDT EXTRACTION REVIEW TEAM (CHERT)
# 2007 POST-EXTRACTION REPORT

## *FINAL*

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County of Humboldt Extraction Review Team (CHERT)

For the

Humboldt County Board of Supervisors

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**No comments were received on the Discussion Draft.**
**This version represents the Final 2007 CHERT Post-extraction Report**

# INTRODUCTION

This report presents an overview of the Humboldt County 2007 gravel extraction season, providing information on mining volumes, methods, and success of mine operators in meeting approved plans. The County of Humboldt Extraction Review Team (CHERT) provided site-specific recommendations on extraction designs submitted by the operators and their consultants, as did agencies with regulatory and oversight responsibilities (US Army Corps of Engineers, National Marine Fisheries Service, California Department of Fish and Game). Recommendations were based on field reviews at each site along with reviews of aerial photos and topographic and hydrologic information provided by the operators as required by the US Army Corps of Engineers 2004 Letter of Permission (LOP), and individual permits obtained by several operators.

For background, The Humboldt County Board of Supervisors appointed CHERT in 1992 to provide scientific oversight to Mad River gravel extraction, which had arrived at an impasse over environmental concerns. In 1996 the CHERT role was expanded to include most riverine extraction sites in Humboldt County. Additional details on CHERT's role have been presented in earlier post-extraction reports (accessible at www.county.humboldt.com).

The annual review process consists of visiting sites in the spring with operators and agency staff to observe post-winter conditions, note any undesirable effects from the previous season's extraction, and discuss a possible mining plan for the current season. Later, operators submit air photos, topographic and hydrologic information, and a mining proposal, which is typically followed by a second field review. Then, CHERT issues a written recommendation, which may or may not include suggested changes in a plan to reflect either CHERT's or an agency's concerns. When all parties accept an iteration of the mining plan, it is approved by the Corps and mining can begin. In rare occasions, a field review may be done while mining is taking place due to unexpected circumstances that require an alteration in an approved plan. When mining in completed in late summer or fall, and (hopefully) before rivers rise, post-extraction field reviews are conducted, sometimes with post-extraction topographic data and air photos in hand for comparison with field conditions.

CHERT bases recommendations on two areas of concern: 1) minimizing cumulative effects by ensuring that reach-wide mining volumes do not exceed that which is sustainable, and 2) ensuring that site-specific methods of extraction (skimming, trenching, etc.) are appropriate for protecting local habitat. The concept of 'sustained yield' gravel extraction requires that gravel extraction volumes not exceed mean annual recruitment (an estimate of the long-term average annual supply of gravel to a specific reach of a river). Site-specific measures are also recommended by CHERT to reduce both cumulative and localized effects of mining on riparian and aquatic habitat. These may include, for example, ensuring that skim floor elevations are high enough to maintain low flow channel confinement so that small rises in river stage do not inundate skim surface too readily.

Through time, experience on the rivers, and interaction with regulatory agencies, mine operators, and other stakeholders, the measures taken to protect river habitat and to improve program functioning are continually refined. This feedback process, termed 'adaptive management', is essential to help ensure that gravel mining and management improves with respect to resource protection, the quality of information provided by mine operators, and program efficiency. Problems can occasionally arise, however, when either the river's response to previous mining results in undesirable conditions, or an operator deviated from an approved mining plan. This post-extraction report summarizes information on the 2007 mining season and describes any specific problems encountered and possible solutions.

### *Humboldt County Instream Mine Sites and Extraction Terminology*

Table 1 describes the geographic breakdown of Humboldt County mining reaches used in this report. CHERT classifies extraction techniques into the nine descriptive categories described in Table 2.

Table 1 - Description of river reaches used to sort and report extraction data.

| Approximate Length (miles) | River Reaches |
|---|---|
| 7 | **Mad River:** The Mad River Reach extends approximately seven miles downstream from the Blue Lake Fish Hatchery to just below the Highway 299 Bridge near Arcata. |
| 6 | **Lower Eel River:** The Lower Eel River Reach extends approximately six miles downstream from the mouth of the Van Duzen River to near Fernbridge. |
| 5 | **Lower Van Duzen River:** The Lower Van Duzen River Reach extends upstream approximately five miles from the mouth of the Van Duzen River. |
| 26 | **Middle Reach of Eel River:** The Middle Reach of the Eel River extends upstream from Scotia (River mile 20) for approximately 26 miles to River Mile 46. |
| 17 | **South Fork Eel River:** The South Fork Reach extends from Garberville (River mile 33) upstream to Cooks Valley near the Mendocino County line (River mile 50). |
| 15 | **Trinity River Reach:** The Trinity River Reach extends downstream about 15 miles from near Willow Creek into the Hoopa Valley. |
| | **Isolated Sites:** Five extraction sites are more or less isolated from the rest of project. These are the *Satterlee Bar* on the main stem of the Eel river at Fort Seward, the *PL Bar* on the Van Duzen River, the *Branstetter Bar* on Bear River, the *Charles Bar* on Larabee Creek, and the *Cook Bar* on the North Fork of the Mattole River. |

Table 2. - CHERT extraction methodology terminology and descriptions.

| | |
|---|---|
| **Narrow Shoreline Skim** | A skim where one edge is close to the low flow channel at or above the 35 % flow elevation with a width no greater than 1/3 the width of the unvegetated bar surface. |
| **Wide Shoreline Skim** | Same as above but with a width greater than 1/3 the width of the unvegetated bar surface. |
| **Narrow Offset Skim** | A skim that has a substantial vertical or horizontal offset from the low flow channel and a width no greater than 1/3 the width of the unvegetated bar surface. |
| **Wide Offset Skim** | Same as above, but has a width greater than 1/3 the width of the unvegetated bar surface. Sometimes referred to as a 'horseshoe' skim in the past. |
| **Dry Trench** | A relatively long, linear shallow skim that does not intercept the water table at the time of excavation. |
| **Overflow Channel Skim** | Same as above, but one that is located within a high flow overflow channel |
| **Wet Trench** | A trench that is deep enough to intercept the water table at the time of excavation |
| **Wetland Pit** | A strategically located and designed pit simulating a remnant channel feature, such as an oxbow pond. |
| **Alcove** | A relatively deep excavation designed to simulate naturally occurring shoreline pools that can provide cool water and/or high velocity refuge. |
| **Fish Access Channel** | A relatively small trench designed to temporarily improve fish access. |

# 2007 EXTRACTION SUMMARIES

### *River Reach Extraction Volumes*

In 2007, CHERT reviewed 45 extraction areas distributed among 20 mining sites in Humboldt County (many sites had more than one extraction area). As shown in Table 3, the total volume of gravel approved for extraction in 2007 was 774,694 cubic yards (cy). The total volume actually extracted was 612,132 cy, or about 79% of that approved for extraction.

We also list the sum of all extractions for the Eel River system as a whole at the bottom of Table 3. In 2008, CHERT will begin an updated analysis of Eel River gravel extraction with a primary goal of estimating sustainable gravel yield. The 1992 Eel River PEIR states that the total permitted volume allocated in the Eel River system is upwards of 1.5 million cubic yards annually, a volume that likely exceeds a sustainable level (i.e., a level that minimizes local and cumulative adverse effects). Although actual mining volumes in recent years have been well below 1.5 million cy, it is important to incorporate a reliable estimate of sustainable yield to avoid over-allocation and the suite of negative impacts to river habitat and infrastructure that would ensue.

Table 3. – Humboldt County 2007 gravel extraction summary by river reach.

| River Reach | No. of mined areas | No. of mined sites | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|
| Lower Mad River | 12 | 7 | 165,504 | 153,341 | 93% |
| Lower Eel River | 12 | 2 | 243,097 | 177,334 | 73% |
| Middle Eel River | 3 | 3 | 89,990 | 64,424 | 72% |
| Van Duzen River | 9 | 3 | 152,773 | 113,184 | 74% |
| South Fork Eel River[1] | 8 | 3 | 90,737 | 73,956 | 82% |
| Trinity River | 2 | 2 | 42,007 | 29,893 | 71% |
| Isolated Sites | 0 | 0 | 0 | 0 | n/a |
| **Humboldt County Total =** | **46** | **20** | **784,108** | **612,132** | **78%** |
| **Eel River System Total =** | **32** | **11** | **576,597** | **428,898** | **74%** |

[1] the South Fork Eel River total includes some volume from Mendocino County (see Table 8)

Tables 4-10 list site-specific extraction information for each designated river reach. Table 11 lists the approved and actual extraction surface areas, in acres, of all extraction areas for 2007. As shown, no post-extraction ("actual") acreages were submitted for many sites. Submitting this information is not a regulatory requirement, however, CHERT suggests all operators provide this information as it provides an additional, easily-derived indicator of potential effects of instream mining. Further, we note that the approved and actual acreages are probably nearly identical for most of the sites that did not report the actual acreages.

Following are descriptions of significant deviations from approved plans (if any), monitoring requirements, and other important performance issues encountered in the 2007 extraction season. If no mention of a site or operation is made below, then extraction was implemented consistent with approved plans and no other issues of note occurred.

### *Performance Issues*

Overall, operator performance in conducting their 2007 operations consistent with approved mining plans was very successful. However, there were several sites where gravel extraction in 2007 deviated substantially from approved plans and/or regulatory conditions. These are described below. At all other sites, implementation in 2007 met all requirements.

Miller-Almquist Bar, Mad River (Miller Family Trust, operator): This relatively small bar feature is located within a confined reach of the Mad River a short distance downstream of the Highway 299 bridge. It is typically mined as a wide shoreline skim. The National Marine Fisheries Service (NMFS) requires a vertical offset of skim floors to be at or above the water level estimated to be prevalent when the local river discharge is at a 35 % exceedence flow. This water level is to be marked each spring as winter flows recede by tracking flow levels at the nearest US Geological Survey streamflow measurement station, the "Mad River near Arcata" (Station No. 11481000) in this case. This level was not marked at the Miller-Almquist Bar in 2007. Instead, the skim floor was set at a remnant high flow feature termed the 'silt band', a ubiqituous coating of silt left along the low flow channel by spring freshets. CHERT formerly relied on this feature in referencing skim floor elevations until the NMFS requirements were adopted in the US Army Corps of Engineers Letter of Permission (LOP-2004) for gravel mining in Humboldt County.

While the relative elevation of the silt band varies somewhat from year-to-year, the 35% flow elevation may provide a more hydraulically consistent vertical reference. In 2007, the silt band was relatively low, so its use as a skim floor elevation resulted in reduced channel confinement at the Miller-Almquist Bar. Early fall flows were observed to readily inundate the downstream end of the extraction, resulting in an undesirable condition for migrating fish. As mitigation, the idea of replacing some of the extracted gravel over the low area was discussed among agency staff. In this case, CHERT's opinion was that the site conditions were not so severe as to warrant replacing gravel back onto the bar.

Another issue raised by agency staff was that it appeared that there was incomplete excavation of fill used around a temporary culvert installation that was used to cross a small flowing channel bisecting the site. This could not be confirmed on the post-extraction surveys because no cross sections appeared to intersect the fill area. No resolution was achieved and no action was taken on either of these issues by the end of the extraction season.

To ensure future extractions are consistent with approved plans and regulatory requirements, the operator must ensure that proper marking of the 35% flow elevations occurs each spring consistent with LOP-2004 and that all fill used for culvert crossings be fully excavated upon culvert removal.

Leland Rock Site, Van Duzen River (Rock and Gadberry Gravel, operator): On post-extraction site visits, NMFS staff observed several deviations from approved plans: 1) Area B was skimmed too low, as indicated by inundations at a flow well below the 35% flow level, 2) extraction went beyond approved horizontal limits at the downstream end of Area B, and 3) extraction went beyond approved horizontal limits by 10 feet within the fish access channel (Area H). NMFS required that gravel be replaced onto the bar at Area B to raise the skim floor to better approximate the 35% flow elevation and at the downstream end to conform to approved horizontal limits. NMFS recommended more intensive marking of the 35% flow elevation, both in the field and on the cross sections, and that a longitudinal profile be surveyed and plotted showing the 35% water surface and thalweg elevations, and this should become part of the submittal. CHERT concurs with these recommendations. In addition, the operator should more

prominently mark the horizontal extraction limits in the field before extraction commences and employ greater care in keeping extraction within the approved horizontal limits.

CHERT notes that six of the seven extracted volumes reported for this site are identical to the approved volumes (see Table 6), a level of accuracy we have never before encountered. This suggests that the extraction was precisely consistent with approved plans (doubtful) or a shortcut was taken in calculating the volumes. We will attempt to resolve this with the operator and his surveyor.

Sandy Prairie Site, Lower Eel River (Mercer Fraser Co., operator): This is a very complex bar feature, typically with many diverse types of extraction areas. It is common for extractions to be revised multiple times, even into the fall season. There were several issues with the quality of extraction submittal information: 1) some had no submittal date to keep revisions straight, 2) no engineer's or surveyor's stamp was provided with the volume calculations, 3) CHERT found numerous internal inconsistencies requiring correction and/or clarifications on proposals submitted; 4) 35% flow elevations were only shown on a few of the many XS at this site, and 5) post-extraction cross section (XS) plots were mislabeled as pre-extraction. In addition, actual extraction deviated from the approved plan at several locations, resulting in over-extraction (110% of approved volume, see Table 5) at Area 1 due to the extraction being approximately 30 feet too wide on XS 2, 2.5, and 3. Although under-extracted volume-wise, the width at XS 14.5 in Area 13 was approximately 30 feet too wide.

Prior to next year's submittal, the operator should take the time to carefully review submittal information to ensure that: 1) all volume calculations are correct and properly stamped, 2) all submittals and accompanying materials have the submittal date prominently shown, and 3) the 35% flow elevation is marked at as many cross sections as feasible and shown on the cross section plots. Further, more care should be employed to ensure that extractions stay within approved horizontal limits, even if a particular area is under-extracted.

Rowland Bar, Trinity River (Klamath Trinity Aggregates, operator): The skim floor went as much as 1.5 feet below that approved on XS 1, 1.7, and 1.5. Because the skim floor was higher on other XS, the extracted volume was slightly less than that approved (see Table 10). Improved grade control is required at this site to ensure the finished grade meets approved specification.

Table 4. Lower Mad River extractions, 2007.

| Operator | Site | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|
| Eureka Ready Mix | O'Neill Bar | 1 | wide shoreline skim | 7,918 | 7,436 | 94% |
| Eureka Ready Mix | Johnson-Spini Bar | 1 | wide shoreline skim | 21,420 | 19,200 | 90% |
| Eureka Ready Mix | Christie Bar | 1 | narrow shoreline skim | 5,245 | 5,175 | 99% |
| Eureka Ready Mix | Christie Bar | 2 | overflow channel skim | 31,054 | 30,486 | 98% |
| Eureka Ready Mix | Christie Bar | 3 | overflow channel skim | 13,251 | 13,016 | 98% |
| Granite Construction Co. | Johnson Bar | n/a | no extraction | 0 | 0 | n/a |
| Granite Construction Co. | Blue Lake Bar | 1 | wide shoreline skim | 20,153 | 19,161 | 95% |
| Granite Construction Co. | Blue Lake Bar | 2 | alcove | 4,082 | 3,527 | 86% |
| Granite Construction Co. | Emmerson Bar | 1 | wide shoreline skim | 19,497 | 17,792 | 91% |
| Granite Construction Co. | Emmerson Bar | 2 | alcove | 4,296 | 3,417 | 80% |
| Mad River Sand and Gravel | Guynup Bar | 1 | wide shoreline skim | 32,615 | 31,381 | 96% |
| Miller Family Trust | Miller Bar | 1 | wide shoreline skim | 2,648 | 924 | 35% |
| Mercer Fraser Co. | Essex Bar | 1 | wide shoreline skim | 3,325 | 1,826 | 55% |
| **River Reach Totals =** | --- | --- | --- | **165,504** | **153,341** | **93%** |

Table 5. Lower Eel River extractions, 2007.

| Operator | Site | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|
| Eureka Ready Mix | Singley Bar | n/a | no extraction | 0 | 0 | n/a |
| County of Humboldt | Worswick Bar | n/a | no extraction | 0 | 0 | n/a |
| Mallard Pond | Drake Bar | n/a | no extraction | 0 | 0 | n/a |
| Eureka Ready Mix | Hauck Bar | 1 | fish access channel | 8,501 | 9,092 | 107% |
| Eureka Ready Mix | Hauck Bar | 2 | wide shoreline skim | 9,630 | 9,999 | 104% |
| Eureka Ready Mix | Hauck Bar | 3 | narrow offset skim | 14,958 | 13,652 | 91% |
| Mercer Fraser Co. | Sandy Prairie: Plant A | 1 | narrow shoreline skim | 28,518 | 31,308 | 110% |
| Mercer Fraser Co. | Sandy Prairie: Plant A | 5A | wet trench | 41,481 | 27,954 | 67% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 5B | wet trench | 12,895 | 7,418 | 58% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 6 | wet trench | 4,686 | 3,209 | 68% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 7 | overflow channel skim | 12,420 | 7,510 | 60% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 11 | overflow channel skim | 37,154 | 22,607 | 61% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 12 | alcove | 31,704 | 23,988 | 76% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 13 | wide shoreline skim | 30,060 | 20,597 | 69% |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 20 | overflow channel skim | 11,090 | 0 | 0% |
| Hansen Truck Shop | Hansen Bar | n/a | no extraction | 0 | 0 | n/a |
| **River Reach Totals =** | --- | --- | --- | **243,097** | **177,334** | **73%** |

Table 6. Van Duzen River extractions, 2007.

| Operator | Site | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|
| Tom Bess | East Bar | 1 | wide shoreline skim | 18,360 | 18,473 | 101% |
| Van Duzen River Ranch | Bar #10 | 1 | wide offset skim | 40,400 | 1,000 | 2% |
| Leland Rock | above 101 bridge | A | wide offset skim | 33,887 | 33,887 | 100% |
| Leland Rock | above 101 bridge | B | narrow shoreline skim | 9,935 | 9,633 | 97% |
| Leland Rock | above 101 bridge | C | narrow shoreline skim | 16,411 | 16,411 | 100% |
| Leland Rock | below 101 bridge | E | dry trench | 8,943 | 8,943 | 100% |
| Leland Rock | below 101 bridge | F | dry trench | 5,741 | 5,741 | 100% |
| Leland Rock | below 101 bridge | G | dry trench | 7,045 | 7,045 | 100% |
| Leland Rock | below 101 bridge | H | fish access channel | 12,051 | 12,051 | 100% |
| **River Reach Totals =** | --- | --- | --- | **152,773** | **113,184** | **74%** |

Table 7. Middle Eel River extractions, 2007.

| Operator | Site | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|
| Pacific Lumber Co. | Scotia Dam Bar | 1 | wide shoreline skim | 29,994 | 22,853 | 76% |
| Pacific Lumber Co. | Lower Truck Shop Bar | 2 | wet trench | 30,000 | 20,455 | 68% |
| Pacific Lumber Co. | Three Mile Bridge Bar | 3 | narrow shoreline skim | 29,996 | 21,116 | 70% |
| Pacific Lumber Co. | Dinner Creek Bar | n/a | no extraction | 0 | 0 | n/a |
| Pacific Lumber Co. | Elinor Bar | n/a | no extraction | 0 | 0 | n/a |
| Pacific Lumber Co. | Larabee Bar | n/a | no extraction | 0 | 0 | n/a |
| Pacific Lumber Co. | South Fork Bar | n/a | no extraction | 0 | 0 | n/a |
| Pacific Lumber Co. | Bowley Bar | n/a | no extraction | 0 | 0 | n/a |
| Pacific Lumber Co. | Maynard Bar | n/a | no extraction | 0 | 0 | n/a |
| Pacific Lumber Co. | Vroman Bar | n/a | no extraction | 0 | 0 | n/a |
| **River Reach Totals =** | --- | --- | --- | **89,990** | **64,424** | **72%** |

Table 8. South Fork Eel River extractions, 2007.

| Operator | Site[1] | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|
| Mercer Fraser Co. | Cooks Valley: MEN | 1 | wet trench | 17,700 | 19,336 | 109% |
| Mercer Fraser Co. | Cooks Valley: HUM | 2 | wide offset skim | 5,415 | 4,876 | 90% |
| Mercer Fraser Co. | Cooks Valley: HUM | 3 | dry trench | 10,265 | 8,896 | 87% |
| Mercer Fraser Co. | Cooks Valley: HUM | 5 | wide shoreline skim | 4,320 | 2,532 | 59% |
| Randall Sand and Gravel | Home Bar | 1 | wide shoreline skim | 19,053 | 16,068 | 84% |
| Randall Sand and Gravel | Tooby Park Bar | 2 | wide shoreline skim | 5,776 | 2,738 | 47% |
| Randall Sand and Gravel | County Bar | 3 | dry trench | 18,208 | 11,313 | 62% |
| Wallan and Johnson | Wallan and Johnson Bar | 1 | wide offset skim | 10,000 | 8,197 | 82% |
| **River Reach Totals =** | --- | --- | --- | **90,737** | **73,956** | **82%** |

[1] "HUM" is Humboldt County portion, "MEN" is Mendocino County portion

Table 9. Trinity River extractions, 2007.

| Operator | Site | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|
| Mercer Fraser Co. | Willow Creek Site | 1 | wide shoreline skim | 28,588 | 16,520 | 58% |
| Mercer Fraser Co. | McKnight Bar | n/a | n/a | 0 | 0 | n/a |
| Klamath Trinity Aggregates | Rowland Bar | n/a | wide shoreline skim | 13,419 | 13,373 | 100% |
| **River Reach Totals =** | --- | --- | --- | **42,007** | **29,893** | **71%** |

Table 10. Isolated sites extraction, 2007.

| Operator | River Reach | Site | Area | Method | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent of Approved Volume |
|---|---|---|---|---|---|---|---|
| County of Humboldt | North Fork Mattole | Cook Bar | n/a | n/a | 0 | 0 | n/a |
| County of Humboldt | Larabee Creek | Charles Bar | n/a | n/a | 0 | 0 | n/a |
| County of Humboldt | Bear River | Branstetter Bar | n/a | n/a | 0 | 0 | n/a |
| County of Humboldt | Mid-Van Duzen River | PL Bar | n/a | n/a | 0 | 0 | n/a |
| Fort Seward Ranch | Eel River | Satterlee Bar | n/a | n/a | 0 | 0 | n/a |
| **Isolated Sites Totals =** | | --- | --- | --- | **0** | **0** | **n/a** |

Table 11. Extraction area acreages

| Operator | Site | Area | Method | Approved Acreage | Extracted Acreage [1] | Percent of Approved Acreage |
|---|---|---|---|---|---|---|
| **Lower Mad River** | | | | | | |
| Eureka Ready Mix | O'Neill Bar | 1 | wide shoreline skim | 2.8 | 2.7 | 96% |
| Eureka Ready Mix | Johnson-Spini Bar | 1 | wide shoreline skim | 7.0 | 6.5 | 93% |
| Eureka Ready Mix | Christie Bar | 1 | narrow shoreline skim | 2.1 | 2.1 | 100% |
| Eureka Ready Mix | Christie Bar | 2 | overflow channel skim | 6.3 | 6.2 | 98% |
| Eureka Ready Mix | Christie Bar | 3 | overflow channel skim | 2.6 | 2.6 | 100% |
| Granite Construction Co. | Johnson Bar | n/a | no extraction proposed | 0.0 | 0.0 | n/a |
| Granite Construction Co. | Blue Lake Bar | 1 | wide shoreline skim | 3.6 | 3.3 | 91% |
| Granite Construction Co. | Blue Lake Bar | 2 | alcove | 0.7 | 0.7 | 100% |
| Granite Construction Co. | Emmerson Bar | 1 | wide shoreline skim | 7.6 | 7.5 | 99% |
| Granite Construction Co. | Emmerson Bar | 2 | alcove | 0.5 | 0.5 | 102% |
| Mad River Sand and Gravel | Guynup Bar | 1 | wide shoreline skim | 5.4 | n/p | ? |
| Miller Family Trust | Miller Bar | 1 | wide shoreline skim | 0.8 | n/p | ? |
| Mercer Fraser Co. | Essex Bar | 1 | wide shoreline skim | 1.0 | 0.7 | 65% |
| | | | **Lower Mad River Totals =** | **40.4** | **32.7** | **81%** |
| **Lower Eel River** | | | | | | |
| Eureka Ready Mix | Singley Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| County of Humboldt | Worswick Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Mallard Pond | Drake Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Eureka Ready Mix | Hauck Bar | 1 | fish access channel | 3.4 | 3.2 | 94% |
| Eureka Ready Mix | Hauck Bar | 2 | wide shoreline skim | 3.8 | 3.8 | 100% |
| Eureka Ready Mix | Hauck Bar | 3 | narrow offset skim | 5.8 | 5.8 | 100% |
| Mercer Fraser Co. | Sandy Prairie: Plant A | 1 | narrow shoreline skim | 5.7 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant A | 5A | wet trench | 2.6 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 5B | wet trench | 0.8 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 6 | wet trench | 0.4 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 7 | overflow channel skim | 4.9 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 11 | overflow channel skim | 7.5 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 12 | alcove | 2.2 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 13 | wide shoreline skim | 8.1 | n/p | ? |
| Mercer Fraser Co. | Sandy Prairie: Plant B | 20 | overflow channel skim | 2.4 | n/p | ? |
| Hansen Truck Shop | Hansen Bar | n/a | no extraction | n/a | n/a | n/a |
| | | | **Lower Eel River Totals =** | **47.5** | **12.8** | **27%** |

("n/a" means not applicable; "n/p" means not provided)

Table 11. Extraction area acreages (cont.')

| Operator | Site | Area | Method | Approved Acreage | Extracted Acreage [1] | Percent of Approved Acreage |
|---|---|---|---|---|---|---|
| **Van Duzen River** | | | | | | |
| Tom Bess | East Bar | 1 | wide shoreline skim | 4.1 | 4.2 | 101% |
| Van Duzen River Ranch | Bar #10 | 1 | wide offset skim | 8.1 | 0.1 | 1% |
| Leland Rock | above 101 bridge | A | wide offset skim | 5.4 | 5.4 | 100% |
| Leland Rock | above 101 bridge | B | narrow shoreline skim | 2.4 | 2.4 | 100% |
| Leland Rock | above 101 bridge | C | narrow shoreline skim | 2.3 | 2.3 | 100% |
| Leland Rock | below 101 bridge | E | dry trench | 1.0 | 1.0 | 100% |
| Leland Rock | below 101 bridge | F | dry trench | 0.8 | 0.8 | 100% |
| Leland Rock | below 101 bridge | G | dry trench | 1.0 | 1.0 | 100% |
| Leland Rock | below 101 bridge | H | fish access channel | 1.5 | 1.5 | 100% |
| | | | **Van Duzen Totals =** | **26.6** | **18.7** | **70%** |
| **Middle Eel River** | | | | | | |
| Pacific Lumber Co. | Scotia Dam Bar | 1 | wide shoreline skim | 6.0 | n/p | ? |
| Pacific Lumber Co. | Lower Truck Shop Bar | 2 | wet trench | 2.0 | n/p | ? |
| Pacific Lumber Co. | Three Mile Bridge Bar | 3 | narrow shoreline skim | 4.3 | n/p | ? |
| Pacific Lumber Co. | Dinner Creek Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Pacific Lumber Co. | Elinor Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Pacific Lumber Co. | Larabee Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Pacific Lumber Co. | South Fork Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Pacific Lumber Co. | Bowley Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Pacific Lumber Co. | Maynard Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Pacific Lumber Co. | Vroman Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| | | | **Middle Eel River Totals =** | | | |
| **South Fork Eel River** | | | | | | |
| Mercer Fraser Co. | Cooks Valley: MEN | 1 | wet trench | 1.4 | n/p | ? |
| Mercer Fraser Co. | Cooks Valley: HUM | 2 | wide offset skim | 2.9 | n/p | ? |
| Mercer Fraser Co. | Cooks Valley: HUM | 3 | dry trench | 1.9 | n/p | ? |
| Mercer Fraser Co. | Cooks Valley: HUM | 5 | wide shoreline skim | 0.5 | n/p | ? |
| Randall Sand and Gravel | Home Bar | 1 | wide shoreline skim | 3.6 | n/p | ? |
| Randall Sand and Gravel | Tooby Park Bar | 2 | wide shoreline skim | 1.1 | n/p | ? |
| Randall Sand and Gravel | County Bar | 3 | dry trench | 2.3 | n/p | ? |
| Wallan and Johnson | Wallan and Johnson Bar | 1 | wide offset skim | 2.1 | n/p | ? |
| | | | **South Fork Eel River Totals =** | **15.8** | **0.0** | **0%** |

("n/a" means not applicable; "n/p" means not provided)

Table 11. Extraction area acreages (cont.')

| Operator | Site | Area | Method | Approved Acreage | Extracted Acreage [1] | Percent of Approved Acreage |
|---|---|---|---|---|---|---|
| **Trinity River** | | | | | | |
| Mercer Fraser Co. | Willow Creek Site | 1 | wide shoreline skim | 2.4 | n/p | ? |
| Mercer Fraser Co. | McKnight Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Klamath Trinity Aggregates | Rowland Bar | n/a | wide shoreline skim | 2.0 | 2.0 | 100% |
| | | | **Trinity River Totals =** | **4.4** | **2.0** | **45%** |
| **Isolated Sites** | | | | | | |
| County of Humboldt | Cook Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| County of Humboldt | Charles Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| County of Humboldt | Branstetter Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| County of Humboldt | PL Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| County of Humboldt | Dyerville Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| Fort Seward Ranch | Satterlee Bar | n/a | no extraction proposed | n/a | n/a | n/a |
| | | | **Isolated Sites Totals =** | **n/a** | **n/a** | **n/a** |

("n/a" means not applicable; "n/p" means not provided)

# APPENDIX A:

# HISTORICAL EXTRACTION VOLUME SUMMARIES

**Humboldt County Totals ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | --- | --- | --- |
| 1998 | 1,075,095 | 820,952 | 76% |
| 1999 | 1,142,212 | 860,974 | 75% |
| 2000 | 987,848 | 706,234 | 71% |
| 2001 | 979,515 | 494,819 | 51% |
| 2002 | 1,023,866 | 748,461 | 73% |
| 2003 | 881,090 | 581,800 | 66% |
| 2004 | 692,020 | 440,710 | 64% |
| 2005 | 664,565 | 493,240 | 74% |
| 2006 | 700,660 | 561,845 | 80% |
| 2007 | 774,694 | 612,132 | 79% |
| **Totals** | **8,921,565** | **6,321,167** | **71%** |
| **Years** | **10** | **10** | **---** |
| **Averages** | **892,157** | **632,117** | **71%** |

**Mad River ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | 115,000 | 115,000 | 100% |
| 1993 | 122,100 | 138,400 | 113% |
| 1994 | 134,500 | 134,898 | 100% |
| 1995 | 210,637 | 226,265 | 107% |
| 1996 | 203,998 | 189,517 | 93% |
| 1997 | 252,926 | 210,976 | 83% |
| 1998 | 265,795 | 223,352 | 84% |
| 1999 | 196,212 | 174,974 | 89% |
| 2000 | 204,748 | 146,534 | 72% |
| 2001 | 199,215 | 167,719 | 84% |
| 2002 | 204,991 | 171,937 | 84% |
| 2003 | 150,390 | 136,790 | 91% |
| 2004 | 156,540 | 141,250 | 90% |
| 2005 | 138,475 | 127,200 | 92% |
| 2006 | 174,245 | 162,360 | 93% |
| 2007 | 165,504 | 153,341 | 93% |
| **Totals** | **2,895,276** | **2,620,513** | **91%** |
| **Years** | **16** | **16** | **---** |
| **Averages** | **180,955** | **163,782** | **91%** |

## APPENDIX A (continued)

**Lower Eel River ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | 561,700 | 326,500 | 58% |
| 1998 | 399,100 | 273,000 | 68% |
| 1999 | 471,400 | 290,500 | 62% |
| 2000 | 291,300 | 208,600 | 72% |
| 2001 | 389,900 | 119,300 | 31% |
| 2002 | 387,300 | 220,000 | 57% |
| 2003 | 318,300 | 163,900 | 51% |
| 2004 | 188,840 | 120,305 | 64% |
| 2005 | 199,370 | 166,280 | 83% |
| 2006 | 235,495 | 208,240 | 88% |
| 2007 | 233,683 | 177,334 | 76% |
| **Totals** | **3,676,388** | **2,273,959** | **62%** |
| **Years** | **11** | **11** | **---** |
| **Averages** | **334,217** | **206,724** | **62%** |

**Middle Eel River ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | 147,300 | 84,900 | 58% |
| 1998 | 157,900 | 99,400 | 63% |
| 1999 | 134,900 | 124,900 | 93% |
| 2000 | 160,100 | 131,000 | 82% |
| 2001 | 116,100 | 64,000 | 55% |
| 2002 | 132,767 | 121,608 | 92% |
| 2003 | 74,030 | 54,060 | 73% |
| 2004 | 0 | 0 | n/a |
| 2005 | 0 | 0 | n/a |
| 2006 | 0 | 0 | n/a |
| 2007 | 89,990 | 64,424 | 72% |
| **Totals** | **1,013,087** | **744,292** | **73%** |
| **Years** | **11** | **11** | **---** |
| **Averages** | **92,099** | **67,663** | **73%** |

## APPENDIX A (continued)

**South Fork Eel River ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | 67,700 | 74,700 | 110% |
| 1998 | 75,400 | 70,100 | 93% |
| 1999 | 85,400 | 75,900 | 89% |
| 2000 | 75,700 | 53,700 | 71% |
| 2001 | 66,000 | 43,100 | 65% |
| 2002 | 58,163 | 48,122 | 83% |
| 2003 | 87,060 | 54,660 | 63% |
| 2004 | 80,730 | 50,745 | 63% |
| 2005 | 82,770 | 36,480 | 44% |
| 2006 | 92,000 | 35,075 | 38% |
| 2007 | 90,737 | 73,956 | 82% |
| **Totals** | **861,660** | **616,538** | **72%** |
| **Years** | **11** | **11** | **---** |
| **Averages** | **78,333** | **56,049** | **72%** |

**Van Duzen River ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | 120,000 | 81,600 | 68% |
| 1998 | 119,100 | 103,700 | 87% |
| 1999 | 159,900 | 108,800 | 68% |
| 2000 | 194,800 | 121,300 | 62% |
| 2001 | 161,700 | 85,600 | 53% |
| 2002 | 202,500 | 167,400 | 83% |
| 2003 | 175,100 | 123,000 | 70% |
| 2004 | 179,045 | 92,610 | 52% |
| 2005 | 159,090 | 123,170 | 77% |
| 2006 | 134,910 | 104,750 | 78% |
| 2007 | 152,773 | 113,184 | 74% |
| **Totals** | **1,758,918** | **1,225,114** | **70%** |
| **Years** | **11** | **11** | **---** |
| **Averages** | **159,902** | **111,374** | **70%** |

## APPENDIX A (continued)

**Trinity River ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | 47,500 | 40,000 | 84% |
| 1998 | 35,000 | 28,100 | 80% |
| 1999 | 64,300 | 66,900 | 104% |
| 2000 | 18,000 | 22,200 | 123% |
| 2001 | 46,600 | 15,100 | 32% |
| 2002 | 38,145 | 19,394 | 51% |
| 2003 | 76,210 | 49,390 | 65% |
| 2004 | 62,075 | 32,700 | 53% |
| 2005 | 64,100 | 30,570 | 48% |
| 2006 | 64,010 | 51,420 | 80% |
| 2007 | 42,007 | 29,893 | 71% |
| **Totals** | **557,947** | **385,667** | **69%** |
| **Years** | **11** | **11** | **---** |
| **Averages** | **50,722** | **35,061** | **69%** |

**Isolated Sites ("---" means unknown)**

| Year | Approved Volume (cubic yards) | Extracted Volume (cubic yards) | Percent |
|---|---|---|---|
| 1992 | --- | --- | --- |
| 1993 | --- | --- | --- |
| 1994 | --- | --- | --- |
| 1995 | --- | --- | --- |
| 1996 | --- | --- | --- |
| 1997 | --- | --- | --- |
| 1998 | 22,800 | 23,300 | 102% |
| 1999 | 30,100 | 19,000 | 63% |
| 2000 | 43,200 | 22,900 | 53% |
| 2001 | 0 | 0 | n/a |
| 2002 | 0 | 0 | n/a |
| 2003 | 0 | 0 | n/a |
| 2004 | 24,790 | 3,100 | 13% |
| 2005 | 20,760 | 9,540 | 46% |
| 2006 | 0 | 0 | n/a |
| 2007 | 0 | 0 | n/a |
| **Totals** | **141,650** | **77,840** | **55%** |
| **Years** | **10** | **10** | **---** |
| **Averages** | **14,165** | **7,784** | **55%** |