COUNTY OF HUMBOLDT EXTRACTION REVIEW TEAM (CHERT)
2009-10 POST-EXTRACTION REPORT
FINAL

Prepared by:

Randy Klein, Doug Jager, Bill Trush and Andre Lehre
County of Humboldt Extraction Review Team (CHERT)

For the:

Humboldt County Board of Supervisors

May 20, 2011

Comments received, and CHERT responses to the comments,
appear in Appendix B at the end of this report

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INTRODUCTION

This report presents an overview of the Humboldt County gravel extraction for the 2009 and 2010 seasons. A separate 2009 report was not prepared, so both the 2009 and 2010 extraction season reports were combined in this document. Information on mining volumes, methods, and success of mine operators in meeting approved plans are reported herein. 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 (COE), National Marine Fisheries Service (NMFS), California Department of Fish and Game(CDFG)). Recommendations were based on field reviews at each site including reviews of aerial photos and topographic and hydrologic information provided by the operators as required by the US Army Corps of Engineers 2010 Letter of Permission (LOP), and individual permits obtained by several operators. The LOP can be found at:

http://www.spn.usace.army.mil/regulatory/PN/2010/2007-00857LOP.pdf

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 throughout Humboldt County. Additional details on CHERT's role have been presented in earlier post-extraction reports, that can be found at:

http://co.humboldt.ca.us/planning/smara/default.asp?inc=slm

The annual review process consists of visiting sites in the spring with operators and agency staff to observe post-winter conditions, note undesirable effects from the previous season's extraction (if any), 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 to reflect either CHERT's or an agency's concerns. When all parties accept a final iteration of the mining plan, it is approved by the Corps and CDFG and mining can begin, providing all other agency permits have been obtained. In rare occasions, a field review may be done while mining is taking place due to unexpected circumstances that might require an alteration in an approved plan. Post-extraction field reviews are conducted after mining is completed in late summer or fall. Each operator then compiles a post-extraction data set, including pre and post-extraction topographic data, volume calculations, aerial photographs and other pertinent data. These data are submitted to CHERT, CDFG, COE, and NMFS.

CHERT bases recommendations on two areas of concern: 1) minimizing potential cumulative effects by ensuring that reach-scale 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 potential 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 surfaces 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.

In addition to recurring activities (mining site reviews, extraction recommendations, annual post-extraction report preparation), CHERT participated in preparing a Mad River supplemental programmatic environmental impact

report (SPEIR) that will be circulated in draft form in 2011. Technical analyses of Mad River physical channel conditions, riparian vegetation, and fish habitat were completed in 2008-2009 to support both the SPEIR update and biological assessments required for renewal of federal and state permits. CHERT also attended meetings to discuss Mad River gravel mining and effects on river resources and prepared mitigations aimed at responding to concerns expressed by NMFS and CDFG. Subsequent to these discussions and review of CHERT recommendations, NMFS proposed conditions they felt were necessary to avoid a jeopardy opinion in their Biological Opinion. Although CHERT did not concur with the scientific basis and effectiveness of some of the NMFS conditions, new conditions were incorporated into the Corps' LOP and will remain in force through 2015 at which time a 'five-year review' will occur. CHERT will be evaluating newly imposed conditions as part of the adaptive management program.

Although Eel River cross section data (covering mining reaches in the Lower Eel and Van Duzen rivers, the Middle Reach Eel above Scotia, and the South Fork Eel) have accumulated since about 1997 and have been used in the annual mining review process, a quantitative, longer-term analysis of them had not taken place until early 2009. As part of the renewal of federal and state permits, this longer-term analysis of cross sections was prepared to support impact evaluation and protection/mitigation strategies. The Eel River cross section report also provides the essential foundation for updating environmental documentation for Eel River gravel mining. As mentioned above, as CHERT reports are completed, they can be found at, and downloaded from, the Humboldt County Community Development Service's website:

http://co.humboldt.ca.us/planning/smara/default.asp?inc=slm

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 twelve descriptive categories 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 that of the unvegetated bar surface.
Wide Shoreline Skim	Same as above but with a width greater than 1/3 that 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 that of the unvegetated bar surface.
Wide Offset Skim	Same as above, but has a width greater than 1/3 that 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; sometimes provided with a small outlet channel.
Deep Alcove	A relatively deep excavation designed to simulate naturally occurring shoreline pools that can provide deep cool water during summer months and/or winter high velocity refuge.
Shallow Alcove	A relatively shallow excavation designed to simulate naturally occurring shoreline pools that can provide winter high velocity refuge
Fish Access Channel	A channel excavation that may include pools designed to temporarily improve fish access.
Terrace Pit	A pit excavated on a low terrace to a depth above groundwater level with an outlet provided to allow water to freely enter and exit the pit with changes in river stage.

Habitat Enhancement Activities

The primary purpose of gravel mining in Humboldt County is to supply local markets with construction aggregate, and most extractions are designed to do this as efficiently as possible within the constraints of the rules and regulations aimed at minimizing effects on riverine habitat. But increasingly, more extractions forego some profitability for habitat improvement. Beginning in about 1993 (the second year of CHERT, known then as the Mad River Scientific Committee), CHERT recommended extraction practices termed "wetland pits" with design elements that optimized habitat for plants and animals that typically occupy off-channel oxbow ponds formed by the river's lateral migration. Gently sloping shorelines that readily allow wetland plants to colonize, and perimeters conforming to existing riparian vegetation are the two main design elements for wetland pits. We watched as the wetland pits became lush with wetland plants and aquatic animals such as Western Pond turtles, salamanders, etc. We also saw them disappear with floods and channel migrations, as expected and as desired. Figure 1 is a photo of one of the larger wetland pits excavated by Eureka Ready Mix at their Christie Bar mining site. Beavers recently moved into the lower end of this pit and have added to the habitat complexity of the feature.

Later, we began recommending, and the operators began excavating, what we termed "alcoves", again mimicking what we observed the river creating on its own. Alcoves are trenches that typically connected with the main low flow channel at the downstream end of a point bar. Juvenile and adult salmon and steelhead use these features for holding to escape high velocities in the main channel. Juvenile salmonids in particular benefit from cooler summer water temperatures typically found in alcoves. They are usually relatively small features, but beginning in 2001, a rather large alcove was excavated at the confluence of the Eel and Van Duzen rivers (Fig. 2). The alcove led up the Van Duzen River delta and transitioned to a fish migration channel that extended upstream to a point where the

river channel could accommodate fish migration naturally. Prior to using these designs, fall run Chinook occasionally stranded themselves on shallow riffles trying to migrate upstream, necessitating fish rescue operations to manually transport them upstream.

Figure 1. Wetland pit excavated at Christie Bar several years prior (2008).

Willows are growing vigorously around the perimeter, and beavers now reside in the lower end near the confluence with Legget Creek.

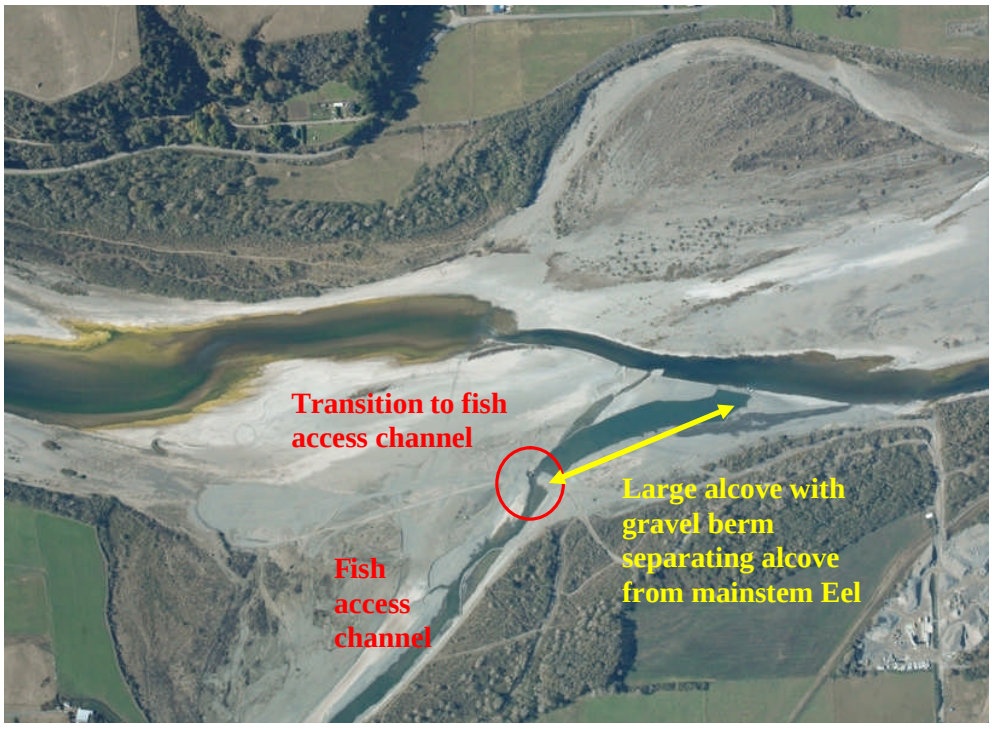

Figure 2. Alcove at confluence of Van Duzen River with Lower Eel (2004). Alcove transitions to fish access channel to aid Chinook salmon migration upstream into the Van Duzen River.

Figure 3 shows a ground-level photo of the fish channel excavated in 2009. The design of the channel incorporates riffles, runs and resting pools, including occasional pieces of large wood. The design process is collaborative between the operator(s) and their consultant, the National Marine Fisheries Service (NMFS) participants, and CHERT. Mining designs with habitat improvement elements such as those described above play an increasing role in Humboldt County gravel extraction.

Figure 3. Fish access channel on the lower Van Duzen River (2009).

Looking upstream toward highway and railroad bridges.

2009 EXTRACTION SUMMARIES

River Reach Extraction Volumes

In 2009, CHERT reviewed 13 extraction areas (some multiple times) distributed among 8 mining sites in Humboldt County (many sites had more than one extraction area). Appendix A provides historical gravel extraction volumes from the beginning of the CHERT program in 1992 (Mad River) and the expansion in 1997 (Eel River and isolated sites added). As shown in Table 3, the total volume of gravel approved for extraction in 2009 was 454,213 cubic yards (cy). The total volume actually extracted was 211,207 cy, or about 46% of that approved for extraction.

Table 3. – Humboldt County 2009 gravel extraction summary by river reach.

River Reach	No. of mined areas	No. of mined sites	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Lower Mad River	0	0	0	0	n/a	n/a
Lower Eel River	3	5	229,386	106,467	46%	12.0
Middle Eel River	0	0	0	0	n/a	n/a
Van Duzen River	2	5	175,132	73,236	42%	7.4
South Fork Eel River[1]	2	2	40,170	24,986	62%	3.1
Trinity River	0	0	0	0	n/a	n/a
Isolated Sites	1	1	9,525	6,518	68%	0.8
Humboldt County Total =	**8**	**13**	**454,213**	**211,207**	**46%**	**23.3**

[1] the South Fork Eel River total includes some volume from Mendocino County (see Table 6)

Tables 4-7 list site-specific 2009 extraction information for each designated river reach that had extraction in 2009. Sites are listed from downstream to upstream in each table. The Mad River, Trinity River and Middle Reach Eel River had no extraction in 2009. In the case of the Mad River, delays in the federal permitting process resulted in the absence of mining in 2009.

Table 4. Lower Eel River extractions, 2009.

Operator	Site	Area	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Eureka Ready Mix	Singley Bar	n/a	no extraction	n/a	n/a	n/a	n/a
County of Humboldt	Worswick Bar	n/a	no plan, slight extraction	n/a	25	n/a	n/a
Mallard Pond	Drake Bar	n/a	no extraction	n/a	n/a	n/a	n/a
Mercer Fraser Co.	Sandy Prairie: Plant A	1	wet trench	59,035	20,936	35%	1.7
Mercer Fraser Co.	Sandy Prairie: Plant B	1	wet trench	41,614	12,588	30%	1.5
Hansen Truck Shop	Hansen Bar	1	narrow offset skim	49,600	0	0%	n/a
Eureka Ready Mix	Hauck Bar	1	alcove and fish channel	58,727	60,455	103%	5.5
Eureka Ready Mix	Hauck Bar	2	narrow offset skim	20,410	12,463	61%	3.3
River Reach Totals =	---	---	---	**229,386**	**106,467**	**46%**	**12.0**

Table 5. Van Duzen River extractions, 2009.

Operator	Site	Area	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Leland Rock	below 101 bridge	D	fish channel	29,113	31,598	109%	3.0
Leland Rock	above 101 bridge	A	wet trench	14,692	8,418	57%	1.4
Leland Rock	above 101 bridge	B	wet trench	6,917	3,517	51%	0.7
Leland Rock	above 101 bridge	C	wet trench	19,132	11,686	61%	1.4
Van Duzen River Ranch	Bar #10	2	wide offset skim	30,849	0	0%	n/a
Van Duzen River Ranch	Bar #8	1	wide offset skim	58,093	0	0%	n/a
Tom Bess	West Bar	1	wet trench	16,336	18,017	110%	0.9
Tom Bess	East Bar		no extraction	n/a	n/a	n/a	n/a
River Reach Totals =	---	---	---	**175,132**	**73,236**	**42%**	**7.4**

Table 6. South Fork Eel River extractions, 2009.

Operator	Site [1]	Area	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Wallan and Johnson	Wallan and Johnson Bar	1	wide offset skim	10,000	0	0%	n/a
Randall Sand and Gravel	Home Bar	1	wide shoreline skim	14,630	9,126	62%	2.0
Mercer Fraser Co.	Cooks Valley: HUM [2]	n/a	n/a	n/a	n/a	n/a	n/a
Mercer Fraser Co.	Cooks Valley: MEN [2]	1	wet trench	15,540	15,860	102%	1.1
River Reach Totals =	---	---	---	**40,170**	**24,986**	**62%**	**3.1**

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

[2] CHERT recommended approval of operator's plans with revisions; approvals not granted by agencies

Table 7. Isolated Sites extractions, 2009.

Operator	River Reach	Site	Area	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
County of Humboldt	North Fork Mattole	Cook Bar	1	wet trench & narrow skim	9,525	6,518	68%	0.8
County of Humboldt	Larabee Creek	Charles Bar	n/a	no extraction	n/a	n/a	n/a	n/a
County of Humboldt	Bear River	Branstetter Bar	n/a	no extraction	n/a	n/a	n/a	n/a
County of Humboldt	Mid-Van Duzen River	PL Bar	n/a	no extraction	n/a	n/a	n/a	n/a
County of Humboldt	Middle Eel River	Dyerville Bar	n/a	no extraction	n/a	n/a	n/a	n/a
Fort Seward Ranch	Eel River	Satterlee Bar	n/a	no extraction	n/a	n/a	n/a	n/a
Isolated Sites Totals =		---	---	---	**9,525**	**6,518**	68%	**0.8**

Performance Issues: 2009

To evaluate operator performance and compliance, CHERT conducts field reviews in the fall after completion of operations and reviews post-extraction documentation (cross sections, air photos, and other materials) to ensure approved mining plan design specifications were met. By and large, operator performance in conducting their 2009 operations consistent with approved mining plans was very successful. There were only two sites where operations in 2009 deviated substantially from approved plans and/or regulatory conditions. These are described below. At all other sites, implementation in 2009 met all requirements.

Bess Site, Van Duzen River (Tom Bess, operator): The trench at the West site was larger than approved, resulting in an extracted volume about 10% greater than that approved (Table 11). CHERT notes that trench dimensions, and thus volumes, are sometimes difficult to manage due to collapsing sidewalls. CHERT also suggests that the operator purposely collapse some of the trench sidewalls for public safety. When a extraction cross section falls across a collapsed sidewall it may look like there was an over extraction when there was none.

2010 EXTRACTION SUMMARIES

River Reach Extraction Volumes

In 2010, CHERT reviewed 49 extraction areas (some multiple times) distributed among 15 mining sites in Humboldt County (many sites had more than one extraction area). Appendix A provides historical gravel extraction volumes from the beginning of the CHERT program in 1992 (Mad River) and the expansion in 1997 (Eel River and isolated sites added). As shown in Table 8, the total volume of gravel approved for extraction in 2010 was 562,303 cubic yards (cy). The total volume actually extracted was 374,313 cy, or about 67% of that approved for extraction.

Table 8. – Humboldt County 2010 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	Extracted Area (acres)
Lower Mad River	17	7	111,439	86,246	77%	22.8
Lower Eel River	13	3	208,286	188,730	91%	31.6
Middle Eel River	0	0	0	0	n/a	n/a
Van Duzen River	9	2	169,041	69,917	41%	12.2
South Fork Eel River[1]	6	2	42,864	27,732	65%	6.8
Trinity River	4	1	30,673	1,688	6%	0.6
Isolated Sites	0	0	0	0	n/a	n/a
Humboldt County Total =	**49**	**15**	**562,303**	**374,313**	**67%**	**74.0**

[1] the South Fork Eel River total includes some volume from Mendocino County (see Table 11)

Tables 9-13 list site-specific 2010 extraction information for each designated river reach that had extraction in 2010. Sites are listed from downstream to upstream in each table. The Middle Reach Eel River had no extraction in 2010, nor did any isolated sites.

Table 9. Mad River extractions, 2010.

Operator	Site	Area No.	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Eureka Ready Mix	O'Neill Bar	1	wide shoreline skim	6,982	7,016	100%	2.8
Miller Family Trust	Miller Bar	1	wide shoreline skim	1,400	1,295	93%	0.8
Eureka Ready Mix	Johnson-Spini Bar	1	wide shoreline skim	20,027	19,423	97%	9.0
Eureka Ready Mix	Johnson-Spini Bar	2	alcove	3,469	3,771	109%	0.8
Mercer Fraser Co.	Essex Bar	1	wide shoreline skim	3,325	0	n/a	n/a
Granite Construction Co.	Johnson Bar [1]	1	narrow offset skim	1,100	1,164	106%	0.3
Eureka Ready Mix	Christie Bar	1	horseshoe skim	8,918	8,703	98%	2.3
Eureka Ready Mix	Christie Bar	2	narrow shoreline skim	160	0	n/a	n/a
Eureka Ready Mix	Christie Bar	3	alcove	550	0	n/a	n/a
Eureka Ready Mix	Christie Bar	4	terrace pit	9,000	9,752	108%	1.4
Eureka Ready Mix	Christie Bar	5	shallow alcove	15,193	14,611	96%	2.2
Granite Construction Co.	Blue Lake Bar	1	narrow shoreline skim	7,829	0	n/a	n/a
Granite Construction Co.	Blue Lake Bar	2	horseshoe skim	9,467	0	n/a	n/a
Granite Construction Co.	Emmerson Bar	n/a	no extraction	n/a	n/a	n/a	n/a
Mad River Sand and Gravel	Guynup Bar	1	alcove	7,804	6,284	81%	0.6
Mad River Sand and Gravel	Guynup Bar	2	alcove	7,822	6,327	81%	0.7
Mad River Sand and Gravel	Guynup Bar	3	alcove	5,874	5,599	95%	1.6
Mad River Sand and Gravel	Guynup Bar	4	terrace pit	2,519	2,301	91%	0.3
River Reach Totals =	---	---	---	**111,439**	**86,246**	**77%**	**22.8**

[1] gravel extracted by Eureka Ready Mix; part of Christie Bar Area #4

Table 10. Lower Eel River extractions, 2010.

Operator	Site	Area No.	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Eureka Ready Mix	Singley Bar	n/a	no extraction	n/a	n/a	n/a	n/a
County of Humboldt	Worswick Bar	n/a	no extraction	n/a	n/a	n/a	n/a
Mallard Pond	Drake Bar	n/a	no extraction	n/a	n/a	n/a	n/a
Mercer Fraser Co.	Sandy Prairie: Plant A	1	overflow channel skim	4,455	4,362	98%	1.9
Mercer Fraser Co.	Sandy Prairie: Plant A	2	overflow channel skim	13,077	8,811	67%	2.3
Mercer Fraser Co.	Sandy Prairie: Plant A	5	narrow shoreline skim	9,843	9,076	92%	2.0
Mercer Fraser Co.	Sandy Prairie: Plant A	6	wet trench	12,855	15,259	119%	1.4
Mercer Fraser Co.	Sandy Prairie: Plant A	7	wet trench	29,682	36,809	124%	2.2
Mercer Fraser Co.	Sandy Prairie: Plant B	3	dry trench	12,828	8,793	69%	3.4
Mercer Fraser Co.	Sandy Prairie: Plant B	4	wet trench	33,072	32,439	98%	3.3
Mercer Fraser Co.	Sandy Prairie: Plant B	5	narrow shoreline skim	4,145	3,266	79%	0.8
Mercer Fraser Co.	Sandy Prairie: Plant B	6	dry trench	15,412	15,895	103%	1.5
Mercer Fraser Co.	Sandy Prairie: Plant B	8	wide shoreline skim	5,793	2,672	46%	1.7
Hansen Truck Shop	Hansen Bar	1	narrow offset skim	28,081	17,356	62%	5.3
Eureka Ready Mix	Hauck Bar	1	alcove	20,852	16,891	81%	2.8
Eureka Ready Mix	Hauck Bar	2	horseshoe skim	18,191	17,101	94%	3.0
River Reach Totals =	---	---	---	**208,286**	**188,730**	**91%**	**31.6**

Table 11. Van Duzen River extractions, 2010.

Operator	Site	Area No.	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Leland Rock	below 101 bridge	1	trench	33,879	14,361	42%	3.6
Leland Rock	below 101 bridge	2	pool	17,697	10,247	58%	1.7
Leland Rock	below 101 bridge	3	pool	10,906	7,117	65%	0.7
Leland Rock	above 101 bridge	4	alcove	18,217	12,834	70%	3.0
Leland Rock	above 101 bridge	5	horseshoe skim	11,273	10,844	96%	1.6
Van Duzen River Ranch	Bar #6	1	wide offset skim	20,039	0	0%	n/a
Van Duzen River Ranch	Bar #10	2	wide offset skim	37,033	0	0%	n/a
Tom Bess	West Side	1	wet trench	18,664	13,587	73%	1.1
Tom Bess	East Side	2	narrow shoreline skim	1,333	927	70%	0.5
River Reach Totals =	---	---	---	**169,041**	**69,917**	**41%**	**12.2**

Table 12. South Fork Eel River extractions, 2010.

Operator	Site	Area No.	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Wallan and Johnson	Wallan and Johnson Bar	n/a	n/a	n/a	n/a	n/a	n/a
Randall Sand and Gravel	Home Bar	1	wide shoreline skim	17,348	12,815	74%	2.6
Randall Sand and Gravel	Home Bar	2	narrow offset skim	1,691	308	18%	0.1
Randall Sand and Gravel	County Bar	n/a	wide shoreline skim	7,263	0	0%	n/a
Mercer Fraser Co.	Cooks Valley: MEN [1]	1	wide shoreline skim	1,027	1,224	119%	0.5
Mercer Fraser Co.	Cooks Valley: MEN [1]	2	dry trench	4,780	3,842	80%	1.2
Mercer Fraser Co.	Cooks Valley: HUM [1]	3	alcove/skim	8,528	7,155	84%	1.8
Mercer Fraser Co.	Cooks Valley: HUM [1]	4	horseshoe skim	2,227	2,388	107%	0.6
River Reach Totals =	---	---	---	**42,864**	**27,732**	**65%**	**6.8**

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

Table 13. Trinity River extractions, 2010.

Operator	Site	Area No.	Method	Approved Volume (cu. yds.)	Extracted Volume (cu. yds.)	Percent of Approved Volume	Extracted Area (acres)
Mercer Fraser Co.	Willow Creek Site	1	wide shoreline skim	7,694	0	0%	n/a
Mercer Fraser Co.	Willow Creek Site	2	wide shoreline skim	21,296	0	0%	n/a
Mercer Fraser Co.	Willow Creek Site	3	terrace pit	561	620	111%	0.2
Mercer Fraser Co.	Willow Creek Site	4	terrace pit	1,122	1,068	95%	0.4
Mercer Fraser Co.	McKnight Bar	n/a	n/a	n/a	n/a	n/a	n/a
Klamath Trinity Aggregates	Rowland Bar	n/a	n/a	n/a	n/a	n/a	n/a
River Reach Totals =	---	---	---	**30,673**	**1,688**	**6%**	**0.6**

Performance Issues: 2010

To evaluate operator performance and compliance, CHERT conducts field reviews in the fall after completion of operations and reviews post-extraction documentation (cross sections, air photos, and other materials) to ensure approved mining plan design specifications were met. By and large, operator performance in conducting their 2010 operations consistent with approved mining plans was very successful. There were only three sites where operations in 2010 deviated substantially from approved plans and/or regulatory conditions. These are described below. At all other sites, implementation in 2010 successfully met all requirements.

Christie Bar, Mad River (Eureka Ready Mix, operator): The skim at Area #1 (Table 9) was extracted as approved, however, undesirable features were noted on the post-extraction field review following an early fall rainstorm and flow event. Flow had prematurely bisected the extraction area, creating a temporary braided condition. In retrospect, the skim floor elevations should have been higher than those recommended and approved. Greater care will be taken when reviewing similar extraction proposals in the future.

Cooks Valley Site, South Fork Eel River (Mercer Fraser Co., operator): An error in the pre-extraction materials caused the CHERT recommendations and, we assume, the Corps approval to not reflect the field-based agreement reached between CHERT, NMFS and the operator (the Corps could not attend the field review). The volume for the skim portion of the skim/alcove blend at Area 3 (Table 13) was inadvertently excluded from the operator's pre-extraction submittal, and this same erroneous volume was carried through the CHERT recommendation. This was not an over-extractions, as we first assumed, but rather an accounting error. Table 13 reflects the correct volumes for the area.

Sandy Prairie Site, Lower Eel River (Mercer Fraser Co., operator): Two trenches were over-excavated at this site in 2010 (Areas 6 and 7, Table 11). Post-extraction cross sections showed that both the approved widths and depths were exceeded at multiple cross sections, explaining why the approved volume was exceeded at both areas.

Miller Bar, Mad River (R. Sundberg, operator): Post-extraction materials were not submitted until February 16, 2011, although the LOP requires they be submitted by Dec. 1 in each extraction year.

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	784,108	612,132	78%
2008	659,022	511,440	78%
2009	454,213	211,207	46%
2010	545,007	373,858	69%
Totals	**9,590,001**	**6,832,607**	**71%**
Averages	**814,555**	**570,590**	**70%**

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%
2008	142,043	130,613	92%
2009	0	0	n/a
2010	94,143	85,791	91%
Totals	**3,037,319**	**2,751,126**	**91%**
Averages	**164,814**	**149,311**	**91%**

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	243,097	177,334	73%
2008	237,955	215,760	91%
2009	229,386	106,467	46%
2010	208,286	188,730	91%
Totals	**3,923,757**	**2,489,719**	**63%**
Averages	**311,531**	**198,923**	**64%**

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%
2008	0	0	n/a
2009	0	0	n/a
2010	0	0	n/a
Totals	**1,013,087**	**744,292**	**73%**
Averages	**72,363**	**53,164**	**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%
2008	32,358	24,833	77%
2009	40,170	24,986	62%
2010	42,864	27,732	65%
Totals	**894,018**	**641,371**	**72%**
Averages	**69,789**	**49,578**	**71%**

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%
2008	209,176	137,850	66%
2009	175,132	73,236	42%
2010	169,041	69,917	41%
Totals	**1,968,094**	**1,362,964**	**69%**
Averages	**165,162**	**107,580**	**65%**

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%
2008	12,490	11,701	94%
2009	0	0	0%
2010	30,673	1,688	6%
Totals	**570,437**	**397,368**	**70%**
Averages	**42,936**	**28,504**	**66%**

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
2008	25,000	14,064	56%
2009	9,525	6,518	68%
2010	0	0	n/a
Totals	**166,650**	**91,904**	**55%**
Averages	**13,552**	**7,571**	**56%**

APPENDIX B. COMMENTS ON THE 2009-10 DISCUSSION DRAFT AND CHERT RESPONSES

CHERT received just one comment letter on the 2009-2010 post-extraction report. Specific comments and CHERT responses are provided below.

Comment 1: "The lack of information in the report makes it nearly impossible for the public to provide any substantive comment on the status of in-stream gravel extraction and the functionality of the CHERT process in Humboldt County."

Response to Comment 1: In fact, there is a lot of information included in CHERT's post-extraction reports, including a description of the mining review process, mining terminology and objectives, approved and extracted gravel volumes, extraction methods for each extraction area for the current year, historical extraction volumes by river reach, and descriptions of operations that deviated from approved plans. Whether or not there is a 'lack of information' in the post-extraction report depends on what the County defines as the report's scope. The documents that specify the scope are:

1) the Final EIR on Gravel Removal from the Lower Mad River, certified in 1994;
2) the final Interim Monitoring Program for the Lower Eel and Van Duzen rivers (July 10, 1996);
3) the Amendment to CHERT resolution (97-40) and Interim Monitoring Program (April 16, 1997);
4) the CHERT contract with the County (April 21, 1998).

The 1994 Mad River EIR states: "The SDRC [former CHERT] shall review this [post-extraction] information, inspect the sites, and file their post-extraction compliance report with the operators and with Humboldt County within one month after receiving the required information from the operators or their agents. The post-extraction compliance reports will be available for public review."

The 1996-97 Interim Monitoring Program states: ""Following each extraction season, the CHERT shall prepare a post-extraction report which shall be made public. This report shall include post-extraction inspection data and may incorporate data and information obtained in the County's SMARA annual inspection and reclamation plan review, and other relevant data or comments discovered or submitted to the CHERT."

The CHERT contract states that CHERT shall "Prepare an annual post-extraction report as required in the Final Program EIR on Gravel Mining from the Lower Mad River certified on May 31, 1994, and a post-extraction report on the Lower Eel and Van Duzen Rivers as required in the Interim Monitoring Program and Adaptive Management Practices for Gravel Removal from the Lower Eel and Van Duzen Rivers adopted July 2, 1996 and revised April 1, 1997."

According to the documents defining its scope, the post-extraction report is clearly meant to be a compliance report to inform the County, regulatory agencies, and the public on the performance of operators' execution of their plans as approved by the Corps and CDFG. Therefore, CHERT has been meeting the scope required for the post-extraction report. In some years (e.g., 1997) CHERT has gone beyond the required scope to include analyses of environmental effects. In these cases, the post-extraction report was used as a convenient means to get new information out to the public and regulatory agencies rather than issuing a separate document.

Comment 2. "The reports are merely a list of post extraction amounts in cubic yards and disturbed acres, with a few terse comments. There is no way to verify the accuracy of the extracted amounts, or to tell if any other errors exist, either deliberate or accidental. A signed and stamped verification by the licensed surveyor who did the work should be included, either in the body of the report as an appendix, or otherwise referenced."

Response to Comment 2: As mentioned above, the post-extraction report meets the scope described in the relevant directives. The engineering materials submitted by the operators both pre- and post-extraction are accompanied by the engineers stamp for verification of accuracy. These materials are outside the scope of what is to be included in the post-extraction report. The commentor seems to suspect that the engineers performing work on mining plans and reports may make deliberate errors, assumedly to benefit their clients, the operators. We note that the repercussions of falsifying work under the state licensing laws are very serious, so it is extremely unlikely that an engineer or surveyor would take such a risk. Furthermore, CHERT's examination of both pre- and post-extraction materials would likely reveal any substantive errors, and has on rare occasions.

Comment 3. "In order for the County to meet their responsibility of public participation, it is important to include complete information in the Post Extraction Drafts, even if it means repeating previously presented information. Excluding this type of information results in excluding the public at large, who are not agency officials, resource professionals, environmental consultants, or mining industry members; and who may not be familiar with prior CHERT post-extraction reports."

Response to Comment 3: Again referring to the directives that specify the scope of the post-extraction report, only the previous year's mining need be described. Nonetheless, CHERT provides background information and historical extraction data in an appendix to each report. Prior post-extraction reports are available to the public; they are posted on the County's website.

"Comment 4. "The public notification process used by the Humboldt County Community Development Services and a list of who received direct notification for the 2009/2010 Post-Extraction Discussion Drafts should be provided and also noticed in the newspaper as well."

Post Extraction reports are available upon request at the Community Development Services Department and posted for public review on the Department's website. Noticing of the report's availability to affected property owners and the public is not required. Interested parties may request notification of Post Extraction report availability by contacting the Community Development Services Department.

Comment 5. "Nothing in the CHERT post extraction reports addresses any kind of environmental issues caused by Instream Surface Mining in Humboldt County. That is the reason for the Post Extraction Report in the first place. And why is half of this report (2009) just now coming up for public comment."

Response to Comment 5: The commentor is misinformed as to the purpose and scope of post-extraction reports. As mentioned above, the post-extraction report's scope is limited to compliance, not environmental analysis: Environmental concerns are addressed by both the annual review process and by periodic analyses done as part of the permitting process. In addition to CHERT's review of mining plans submitted each year, reviews are also provided by the National Marine Fisheries Service (NMFS), the California Department of Fish and Game (CDFG), and the US Army Corps of Engineers (Corps). Thus, annual mining plans undergo a great deal of scrutiny to minimize effects on riparian plant and animal species.

Occasionally, an extraction is implemented in a way that deviates from the approved plan, and may need corrective action on the ground before river flows increase in the fall. CHERT and other review agencies collaborate to determine what corrective action is appropriate and to ensure the work is done properly.

Periodic analyses are also performed to analyze broader scale effects. On approximately five-year intervals, the operators must renew their federal permits to mine gravel. Integral to this process, the NMFS conducts intensive environmental analyses on potential effects of multiple projects on anadromous fish and their habitat. The latest was done in 2010.

The CDFG also provides environmental review of mining activities through their 1600 permitting process. In addition to potential effects on anadromous fish and their habitat, the CDFG reviews plans for potential effects on

many other species including frogs, salamanders, birds, etc. No permit is issued until these concerns are addressed to the satisfaction of CDFG.

Environmental analyses are also performed for and reported in environmental impact reports. A Supplemental Programmatic Environmental Impact Report (SPEIR) on gravel mining from the lower Mad River is currently being prepared to update the PEIR certified in 1994. Various EIRs have also been certified on the Eel River system. For EIRs and to meet Corps of Engineers permit requirements, fisheries population and habitat studies, avian population studies, and riparian vegetation studies have been conducted on mined river reaches.

Periodically, special environment analyses are performed by CHERT, which are posted on the County's website. These consist of: 1) analyses of river cross section data, collected by the operators, to examine the response of river reaches to mining and large floods, 2) temporal changes in fish habitat, and 3) temporal changes in riparian vegetation.

In summary, the post-extraction reports are not intended to be environmental analyses, but rather compliance reports. Numerous other components of the instream mining program for Humboldt County provide environmental analyses that are fully sufficient to meet the needs of the County's mining program and the informational needs of agencies and the public.

Comment 6: "I would also like to know where all the years of Post Extraction Report public and non-public comments are located to read. Since 1998 and the first CHERT reports where made public, I have never seen what comments where made by operators, their consultants, agencies or the public. Please make these documents available on the Planning Departments SMARA web page."

Response to Comment 6: To our knowledge, comments were only received on the 1998 post-extraction report of those made public by posting to the County's website. We do not have the comments in digital format, so they are not posted to the website. To summarize, three people commented, and the comments and responses are described below.

1. The most extensive comments were on CHERT's review of the 1998 biological monitoring report done by a consultant to the gravel operators. There was disagreement between CHERT and the consultant over some of the interpretations of biological monitoring data and the possible role of gravel mining on summer water temperatures, juvenile rearing, fish movement, and the possible use of hypothesis testing in re-design of the biological monitoring program. We believe the comments were responded to informally, but we cannot find documentation in our files. In any case, monitoring protocols have been updated several times in the 13 years since the 1998 report was issued.

2. Another comment was made that the Mad and Eel rivers should have separate post-extraction reports and that the review period be extended from 30 to 60 days. This was more of an administrative issue to which County Planning responded. The discussion draft review period was increased to 60 days, but both the Mad and Eel river post-extraction information was kept in a single post-extraction report for the sake of efficiency and cost containment.

3. The third comment was from an operator that was dissatisfied with the CHERT review of his site. The operator had graded his gravel bar well beyond the approved extraction limits in an effort to, as the operator stated, make the site "nice and clean". However, this action set back riparian vegetation succession and reduced the accuracy of the volume estimate from the cross sections. An understanding was achieved that grading will remain within the approved extraction area in the future, and it has.