

County of Humboldt Extraction Review Team 2024 Post-Extraction Report

Prepared for:

Humboldt County Board of Supervisors

Prepared by:

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Final Report

June 6, 2025

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1 **INTRODUCTION**

This report presents an overview of the Humboldt County gravel extraction for the 2024 mining season. Information on mining volumes, methods, and success of mine operators in meeting approved plans is reported herein. Representing Humboldt County, 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, including: (1) U.S. Army Corps of Engineers (Corps), (2) National Marine Fisheries Service (NMFS), (3) California North Coast Regional Water Quality Control Board (NCRWQCB) and (4) California Department of Fish and Wildlife (CDFW). Recommendations were based on field reviews at each site, aerial photos, biological surveys, and topographic and hydrologic information provided by the operators as required by the U.S. Army Corps of Engineers 2015 Letter of Permission (LOP 2015) and individual permits obtained by several operators.

- The LOP and associated documents are the primary federal instruments regulating gravel mining operations in Humboldt County. LOP 2015 can be accessed at: https://www.spn.usace.army.mil/Portals/68/docs/regulatory/LOP_2015-1.pdf.
- The NMFS Biological Opinion provides the basis for many of the LOP's standards and requirements; it can be accessed at: <https://www.spn.usace.army.mil/Portals/68/docs/regulatory/Biological%20Opinions/HumboldtGravelLOPBO.pdf>

The Humboldt County Board of Supervisors created CHERT (then under a different name) in 1992 to provide scientific oversight on Mad River gravel extraction, which had arrived at an impasse over environmental concerns (discussed below). In 1997, the scope of CHERT services 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. These reports, along with other County gravel mining documents, can be found at: <http://humboldt.gov.org/252/Surface-Mining-Reclamation-Act-SMARA-Doc>

Four CHERT members were initially appointed by the Humboldt County Board of Supervisors in 1992. The team was selected for having expertise in hydrology, fluvial geomorphology, and river ecology, knowledge and skills necessary for addressing how to manage river gravel mining so as to provide the necessary raw materials for society's needs while minimizing harmful effects on river morphology and habitat. Two of those same four original members continue to serve through the present, and three new members were appointed by the Humboldt County Board of Supervisors in January 2023. The new members participated in all aspects of the CHERT program in 2023 and have led CHERT activities in 2024.

1.1 **Annual Gravel Mining Review Process**

Annual gravel mining oversight and review takes place in pre-extraction and post-extraction phases. The process by which each phase occurs is described in more detail below.

1.1.1 Locations and Terminology

The current geographic extent of Humboldt County mining reaches is shown in Table 1, and a list of CHERT extraction terminology is presented in Table 2. Due to formatting constraints, all tables are presented at the end of this report.

1.1.2 Pre-Extraction Processes

The pre-extraction mining review process begins with CHERT scheduling field visits (typically May-July each year) for those operations planning to mine gravel in a given year. Site visits involve walking sites to observe the river's responses to the previous season's mining and

discussing possible mining methods for the upcoming season. All individuals on the field visits, including CHERT, agency staff, operators and their representatives, discuss observations and insights, and ultimately come to consensus on conceptual mining plans for that season. Field discussions are supported with aerial photos and possibly topographic surveys. As a follow-up to the pre-extraction site visits, CHERT synthesizes the consensus with text and markings on aerial photos and distributes this to all concerned.

Once conceptual plans are developed, the operators' agents prepare submittals aiming to conform to field discussions and consensus. The operators' submittals include air photos depicting the site and layout of mining areas, topographic and hydrologic information, and a narrative consistent with conceptual plans agreed to in the field. Occasionally, preliminary plans need revision, usually for logistical reasons, and a second field review may be needed.

When all issues have been resolved, CHERT issues a written recommendation. Once all parties accept a final version of the mining plan, and it is approved by the Corps, NMFS, NCRWQCB and CDFW, mining can begin provided all agency permits have been obtained. Additional field reviews may be done while mining is taking place due to unexpected circumstances that might require alteration to an approved plan.

1.1.3 Post-Extraction Processes

After mining is completed and before significant river rises, post-extraction field reviews are conducted in late summer or fall. Most often post-extraction field visits are completed before high water. Unfortunately, sometimes not all sites can be visited because of high flows, but this is rare.

A goal is to visit all sites to observe the post-extraction conditions and effect any remediation, if needed, before the rivers rise with fall rainfall. On relatively rare occasions, post-extraction field and/or office reviews reveal problems with extraction implementation, most often from failing to meet approved extraction designs. Often, a problem can be resolved by re-grading within an extraction area. A worst-case scenario may involve replacing mined gravel onto the river bar if significant over-extraction has occurred. This has occurred only three times in the three decades of the CHERT program.

Post-extraction surveys and aerial photography are required to be done following completion of extraction. Each operator compiles a post-extraction submittal, including pre- and post-extraction topographic data, volume calculations, aerial photographs, and other pertinent data. These data are required to be submitted to CHERT, CDFW, Corps, and NMFS by December 15 each year and provide a primary information source, along with field observations, for post-extraction reports.

1.1.4 Guiding Principles

CHERT develops recommendations based on two primary goals: (1) minimizing potential cumulative effects by ensuring that reach-scale mining volumes do not exceed sustainable levels, 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 what the river can provide while avoiding adverse effects on infrastructure and riparian habitat. At present, only the Mad River has constraints on the volume of gravel mined each year. Annual mining volumes limits are determined each Spring for the Mad River using a formula developed by the NMFS based on the previous winter's stormflows. The method, called "Flow Estimated Volume", or FEV, set the gravel mining volume cap for 2024 at 170,000 cubic yards (cy).

For the Eel River system, volume constraints (caps) exist for each individual operator. Because it is a much larger river system relative to annual mining volumes, it is assumed that the Eel River (and tributaries) need not have reach-wide mining volume constraints.

Site-specific measures are also recommended by CHERT to reduce or avoid both cumulative and localized potential mining effects. These may include, for example: (1) ensuring that skim floor elevations are sufficiently high to maintain low flow channel confinement so that small rises in river stage do not inundate skimmed surfaces too readily; (2) avoiding riparian vegetation both adjacent to and within mining areas; (3) buffering potential salmonid spawning riffles, among others.

With 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 being refined. This feedback process, termed ‘adaptive management’, helps ensure that gravel mining and management improves resource protection, the quality of information provided by mine operators, and program efficiency. Problems occasionally arise, however, when either the river’s response to previous mining results in undesirable river habitat conditions, or an operator deviated from an approved mining plan. Any such problems are described in the performance issues section of this report.

In addition to annually recurring activities (e.g., mining site reviews, extraction recommendations, annual post-extraction report preparation), CHERT occasionally participates in other activities. For example, CHERT prepared a technical analysis of Mad River physical channel conditions, riparian vegetation, and fish habitat in 2009 to support physical and biological assessments required for renewal of federal and state permits. Such analyses occur when requested by the County, the operators, or other stakeholders and with direction from the Humboldt County Board of Supervisors. CHERT also provides comments on drafts of various other documents, such as the Corps’ updated letters of permission (LOP), NMFS biological opinions, etc.

2 2024 EXTRACTION SUMMARIES

2.1 River Reach Extraction Volumes

In 2024, CHERT reviewed extraction areas (some multiple times) distributed among 17 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, Trinity River, and isolated sites added). As shown in Table 3, the total volume of gravel approved for extraction in 2024 was 605,207 cubic yards (cy). The total volume actually extracted was 453,979 cy, or about 75% of that approved for extraction.

For the Mad River, the total volume of gravel approved for extraction in 2024 was 152,078 cy, and the volume of gravel actually mined was 153,716 cy (Table 3). The total volume mined exceeded the approved volume by 1%, but was 16,284 cy (approximately 10%) below the 170,000 cy FEV cap. We note that gravel extraction of up to 20,000 cy is annually done by Blue Lake Rancheria from the Mad River but is not included in this report as the Rancheria is not part of the CHERT program.

Site-specific 2024 extraction information is provided for the following extraction areas: Mad River (Table 4), lower Eel River (Table 5), Van Duzen River (Table 6), South Fork Eel River (Table 7), and Trinity River (Table 8). Each table lists sites from downstream to upstream. No gravel extraction was proposed for the Middle Eel River or at isolated sites in 2024.

3 PERFORMANCE ISSUES

To evaluate operator performance and compliance, CHERT and regulatory agency staff conduct post-extraction field reviews in the fall after completion of operations, as well as review post-extraction documentation (cross sections, air photos, and other materials) to ensure approved mining plan design specifications were met and that all requirements of the Corps’ LOP 2015 are met. Operator performance was successful overall in conducting 2024 operations consistent with

approved mining plans, but some problematic conditions were noted at a few sites, as described in Section 3.2 below.

3.1 Pre-Extraction Preparations

Gravel operators are instructed to have pre-extraction information (cross sections and air photos) ready for pre-extraction site visits. Having this information at hand during the site visits helps inform participants as to the general condition of the mining site, interpreting the river's response to previous mining, and responses to winter stormflows. Unfortunately, spring topographic surveys and obtaining air photos can be delayed by weather. Rather than wait for all materials, pre-extraction site visits are often conducted with air photos only. This is generally believed to be preferable to delaying the review process that can result in operators rushing to complete mining and/or apply for operating season extensions in the fall.

At several sites, pre-extraction narratives were incomplete and required revisions before CHERT could complete their extraction recommendation. Having to request the required materials for pre-extraction reviews can delay approval of a mining plan and shift operations to later in the season. This can delay mining plan reviews and implementation of mining, sometimes triggering mining extension requests.

3.2 Over-Extraction from Approved Mining Plans

Although the total mined volume at all sites was below the approved volumes (Table 3), certain areas at some sites significantly exceeded their approved volumes. Mined areas that extracted 10% or more above their approved volumes are shown in red font in Tables 4–8. The 10% 'threshold' (i.e., extraction exceeding 110% of approved volume) has been used for years as an informal trigger for distinguishing over-extraction from unavoidable inaccuracies in pre- and post-extraction surveys and volume computations. Extraction volume exceeded approved volume by 10% or more at the following sites:

Mad River:

- Mad River Sand and Gravel Guynup Bar, Area 1 (113%). The post-extraction narrative stated the exceedance was the result of operator error.
- Eureka Ready Mix Christie Bar, Area B (119%). There is no clear indication in the post extraction narrative of why the skim was larger than the pre-extraction proposal and over excavated. The Area B Skim extraction was over extracted by 1,723 cu yds (119%) than was permitted for this area. The 1,723 cu yds of over excavated material represented 4% of the total 2024 extraction volume. The 2024 total extraction was 1,029 cu yds (2%) less than the total allowable extraction at the Christie Site.

Lower Eel River:

- Mercer Fraser Company Sandy Prairie, Plant A, Area A (123%). In the post-extraction narrative, the operator stated that the extraction volume had been calculated with a six-foot minimum depth, but that the excavator was able to go significantly deeper. The area of the extraction was also slightly increased to allow the alcove to properly drain. The post-extraction report states that 13,973 cu yds was extracted, while 11,317 cu yds was stated in the pre-extraction plan. CHERT has observed that the regulatory agencies do not typically set a depth limit for trenches, seeking to create deep pool fish habitat. This is considered reasonable, and does not create an over-extraction issue, in the opinion of CHERT, because the overall site volume was 69% of the approved amount. We note that for future planning, over extraction could occur if the pre-extraction volumes continue to be based on the 6 ft depth.

- Mercer Fraser Company Sandy Prairie, Plant A, Area B (150%). In the post-extraction narrative, the operator stated that the operator was able to reach depths deeper than originally anticipated in the pre-extraction plan, and that the trench was widened to keep the trench edge as close as possible to the water's edge. The post-extraction report states that 18,355 cu yds was extracted, while 12,232 cu yds was approved per the pre-extraction plan. As stated above, this over-extraction is probably not impactful, because deeper trenches are thought to be a net benefit, ecologically, and the overall site was under-excavated. We note that better estimation of excavation depths would result in better congruence between approved pre-extraction plans and the result.

Van Duzen River:

- Van Duzen River Ranch, Area A (115%). This was a wide shoreline skim abutting a trench. In the post-extraction narrative, the operator does not address why the overextraction occurred. 24,070 cu yds were proposed (and approved) for removal, 27,660 cu yds were removed. In the post extraction report, several of the cross-section surveys indicate that while the skim floor was sloped towards the river, as specified for drainage, it extended below the proposed elevation and below the 35% exceedance flow elevation. CHERT considers this exceedance to be an unreasonable deviation from the approved plan as this action creates a significant likelihood of causing a shift in the river channel. Additionally, we note that both trenches were under-excavated, in some cases only reaching half the specified depths. However, they appear to be approximately 6 feet deep, which is sufficient to be effective in creating pool habitat for aquatic organisms. The overall site did not exceed approved volumes. We also note that a request from the operator (9/6/2024) to extend Trench A abutting this skim was not approved, yet the trench length appears to have been extended anyways (Figure 1). The operator suggests that someone moved the survey stakes. The additional extracted length puts the upstream end of the trench closer to the channel riffle. Riffles are purposefully avoided in excavation site approvals, as the trench could destabilize the riffle and impair fish passage.

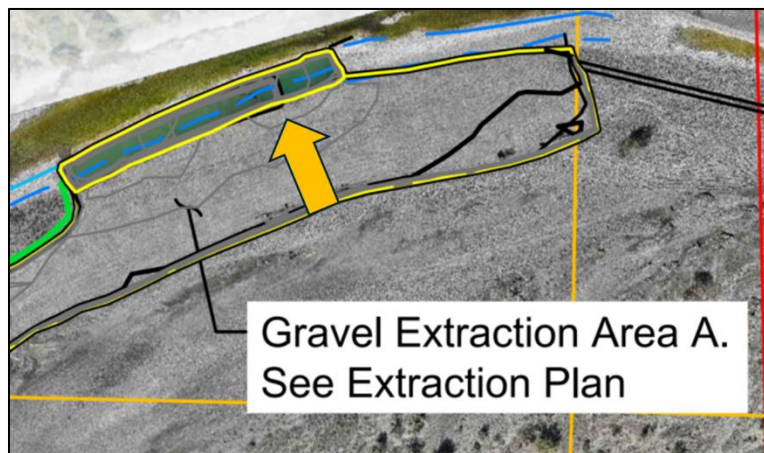


Figure 1. Van Duzen River Ranch Trench A location, shown by orange arrow. Proposed excavation limits are shown by the black outline, actual extraction limits are shown by the yellow outline. Van Duzen River flow direction is from right to left.

- Bess, Area B (131%). There is no clear indication in the post extraction narrative of why the trench was larger than the pre-extraction proposal and over excavated. The Area A Skim extraction was 2,160 cu yds less (-12%) than permitted, and Area B Trench extraction was over extracted by 730 cu yds (131%) than permitted this area. The 730 cu yds of over excavated material from the Area B Trench represented 4% of the total 2024 extraction volume and the 2024 total extraction was 1,430 cu yds (7%) less than the total allowable extraction at the Bess Site.

3.3 Other Deviations from Approved Mining Plans

In addition to the over-excavations described in the previous section, other problems observed during the course of gravel mining review are noted below.

Mad River:

- At the Blue Lake Bar Site, the trench extraction was larger than shown on the pre-extraction plan (600' x100' post extraction compared to the 500' x60' trench described in the in the proposal.
- At the Blue Lake Bar Site, the upstream Riparian Enhancement Extraction (REE) connection channel was dug to visible soil moisture instead of the 35% exceedance elevation as discussed during the pre-extraction field visit.

Lower Eel River:

- Sandy Prairie, Plant A, Site G1 and G2. These two trenches are discussed together. The sites were added on to the permit as a September 17, 2024, addendum. Agency staff and CHERT were able to schedule pre-inspection site visits and issue approvals. However, it would be preferable if the process kept to the usual timeframe, so that additional agency time was not required. For both sites, extraction volumes were less than that permitted, because excavators did not reach the full depths. The operator states that the trench at G2 was shifted to the left, closer to the channel, to avoid vegetation. However, during the post-extraction site visit, CHERT and agency staff felt that the entire flow of the river was directed at the upstream end of the trench. A small increase in flows could result in flows going directly into the trench. The concern was that if flows then dropped, fish could be stranded within the trench. To remediate the situation, CHERT and agency staff recommended that a berm be constructed at the upstream end, and the drainage outlet expanded at the downstream end. The upstream trench, G1, was further from the river, however CHERT and agency staff felt that it could also potentially be a fish entrapment hazard. Berms and outlets were installed by the operator and inspected by agency staff. From these events, and the site D trench, it is apparent that more discussion should take place before the permitting of trenches. CHERT recommends more design guidance and consultation with agencies be utilized in trench construction.
- Sandy Prairie, Plant B, Site D was a trench on a side channel of the Eel River. Only 57% of the approved 70,432 cu yds was extracted. In the post extraction narrative, the operator states that excavation was stopped and moved upstream after an unexpected rain event on August 24, 2024, raised the river and it started to flow through the end of the trench. The operator restarted the trench approximately fifty-feet upstream to avoid possible water quality impacts. At the time of inspection, it was apparent that a small rise in stream stage could create a fish entrapment hazard. The operator was instructed to dig an outlet channel to allow for fish escape from the trench, and this was performed and inspected by agency staff. In previous years, the side channel to the southwest of Canevari Island has dried up completely in the summer, so the flows were unexpected. Future planning and permitting

should take into account the fact that the Eel River may be shifting to put more flows in the side channel, and that with a changing climate, extensive rainfall occurring in the summer cannot be ruled out. The placement of trenches must be carefully considered to avoid creating fish entrapment hazards.

- Sandy Prairie, Plant B, Site F was a narrow shoreline skim, with an approved extraction of 5,124 cu yds. Only 2,274 cu yds, (44%) was excavated. The operator states that this was due to time constraints. Three issues arose from this site. The first is that the operator stated that no excavation had been performed, and did not bring the post-inspection tour to see the site. When CHERT and the agency staff came upon the site during the post-extraction visit, it was clear that some excavation had taken place and the 35% flow depth had been disregarded (exceeded). Furthermore, the resulting excavation did not have any drainage outlet, creating a potential condition for fish entrapment. If the operator does not have the time to do the excavation correctly, it should not be attempted. Regardless, the inspection team should be brought to any site where excavation has taken place so that remedial measures (such as creating drainage outlets) can be pursued.

Trinity River:

- Mercer Fraser Company Willow Creek site: The 2024 extraction consisted of one single extraction skim. The post-extraction site visit revealed a roughly graded finished floor that appeared to drain inward both laterally and longitudinally (this was later confirmed by the post-extraction cross section surveys). This demonstrated non-compliance with two CHERT extraction recommendations for site drainage. This condition could have been prevented if proper grade control checks were made while equipment was on site. Site conditions could have been mitigated, but the post-extraction review team recommended against this because (1) the site access bridge had already been removed, (2) equipment had been mobilized offsite, and (3) river stage was expected to rise with a forecasted series of fall rainfall events starting the same day as the post-extraction inspection.

4 RECOMMENDATIONS

Based on the performance issues and other deviations noted in the previous section, CHERT recommends the following for future mining:

Recommendation 1. Operators should consult with CHERT and agency representatives if a high flow event inundates any extraction area after the annual mining plan is approved. Most mining areas are geomorphically sensitive (i.e., have a high erosion potential) and designs may need to be modified to ensure proper function and habitat protection if mining is to continue after the high flow event.

Recommendation 2. As stated in last year's report, operators need to alert review agencies and CHERT to problems as soon as they are discovered. Ensuring proper site performance, e.g., habitat protection and effective drainage, may require adaptive management during the mining season. This course of action is far better than discovering problems during post-extraction inspections after equipment and/or bridges are removed from the site.

Recommendation 3. Operators should consult with CHERT and agency representatives if excavations are going to deviate from their approved design, to ensure the deviations will not create an adverse condition that increases risk to aquatic habitats, geomorphic stability, or exceed the total site-approved extraction volume. For example, field conditions may allow for trenches to extend deeper than approved plans show, but risks must be carefully considered, and excavation should not proceed without agency approval.

Recommendation 4. CHERT recommends improved trench guidelines be developed as part of the upcoming LOP revision to best protect critical low flow salmonid habitat.

5 TABLES

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

River and approximate reach length	Reach description
Mad River, 7 mi	From approximately seven miles downstream from the Blue Lake Fish Hatchery to just below the Highway 299 Bridge near Arcata.
Lower Eel River, 6 mi	From approximately six miles downstream from the mouth of the Van Duzen River to near Fernbridge.
Lower Van Duzen River, 5 mi	Upstream approximately five miles from the mouth of the Van Duzen River.
Middle Eel River, 26 mi	Upstream from Scotia (River Mile 20) for approximately 26 miles to River Mile 46.
South Fork Eel River, 17 mi	From Garberville (River Mile 33) upstream to near the Mendocino County line (River Mile 50).
Trinity River, 15 mi	Downstream about 15 miles from near Willow Creek into the Hoopa Valley.
Isolated sites, N/A	Five Humboldt County extraction sites are more or less isolated from the reaches described above. These are the <i>Satterlee Bar</i> on the main stem of the Eel River at Fort Seward, the <i>PL Bar</i> on the Van Duzen River, the <i>Branstetter Bar</i> on Bear River, the <i>Charles Bar</i> on Larabee Creek, and the <i>Cook Bar</i> on the North Fork of the Mattole River.

Table 2. Extraction technique terminology and descriptions.

Extraction technique	Description
Narrow Shoreline Skim	A skim with one edge 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 wider.
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 wider. Some may refer to this as a 'horseshoe' skim.
Dry Trench	A relatively long, linear shallow skim that remains above the water table at the time of excavation. When located in a secondary channel that normally dries up during the low flow season, it may be called an overflow channel skim.
Wet Trench	A trench sufficiently deep to intersect the water table at the time of excavation, designed for high water to flow through the trench.
Alcove	An excavation designed to simulate naturally occurring shoreline pools, typically located on the backside of meanders, that can provide deep, cool water during summer months and/or winter high velocity refuge.
Dry Alcove	Same as above, but to a depth above the water table at the time of excavation.
Fish Access Channel	A channel excavation that may include pools and incorporate large wood designed to temporarily improve fish migration access.
Riparian Enhancement Extraction (REE)	An open-sided pit excavated down to moist gravel on floodplain surfaces that were too dry to support beneficial riparian plants, such as willows, cottonwoods and alders.

Table 3. Humboldt County 2024 gravel extraction summary by river reach.

River Reach	No. of mined sites	No. of mined areas	Approved volume (cu yd)	Extracted volume (cu yd)	Percent of approved volume	Extracted area (acres)
Lower Mad River	8	21	152,078	153,716	101%	30.0
Lower Eel River	3	13	278,453	187,738	67%	26.7
Middle Eel River	0	0	0	0	0%	0
Van Duzen River	3	11	140,265	99,836	71%	20.3
South Fork Eel River	1	1	31,020	9,868	32%	1.6
Trinity River	1	1	3,391	2,821	83%	0.5
Isolated sites	0	0	0	0	0%	0
TOTAL	16	47	605,207	453,979	75%	79.0

Table 4. Mad River gravel extractions in the 2024 extraction season. Orange cells with red font indicate extraction exceeding 10% above (or 110% of) that approved. The volumes listed in this table do not include gravel extracted by the Blue Lake Rancheria. A total of 22 sites were approved, 21 were mined.

Operator	Site	Area	Method	Approved volume (cu yd)	Extracted volume (cu yd)	Percent of approved volume	Extracted area (acres)
Eureka Ready Mix	O'Neill Bar	A	Wide shoreline skim	6,600	7,030	107%	2.6
Eureka Ready Mix	Johnson-Spini Bar	1	Wide shoreline skim	21,500	22,532	105%	6.0
Mercer Fraser Co.	Essex Bar	1	Wide shoreline skim	3,221	3,397	105%	0.7
Garth Sundberg, Inc.	Simpson Bar	A	Wide shoreline skim	3,650	3,595	98%	1.4
Garth Sundberg, Inc.	Simpson Bar	B	Narrow shoreline skim	2,435	2,410	99%	0.4
Eureka Ready Mix	Christie Bar	A	Alcove	5,442	5,442	100%	0.5
Eureka Ready Mix	Christie Bar	B	Narrow shoreline skim	9,082	10,805	119%	1.41
Eureka Ready Mix	Christie Bar	C	Narrow shoreline skim	1,753	1,835	105%	0.5
Eureka Ready Mix	Christie Bar	D	Narrow shoreline skim	2,071	1,990	96%	1.12
Eureka Ready Mix	Christie Bar	E	Narrow shoreline skim	874	910	104%	0.61
Eureka Ready Mix	Christie Bar	F	REE	22,257	19,430	87%	2.46
Eureka Ready Mix	Christie Bar	G	Wide shoreline skim	4,708	4,790	102%	1.59
Eureka Ready Mix	Christie Bar	H	Wide shoreline skim	2,329	2,285	98%	1.54
GLJ Construction	Blue Lake Bar	1	Narrow shoreline skim	9,098	8,529	94%	1.1
GLJ Construction	Blue Lake Bar	2	Trench	6,900	7,240	105%	0.95
GLJ Construction	Blue Lake Bar	3	Wide shoreline skim	1,985	2,074	104%	0.5
GLJ Construction	Blue Lake Bar	4	Wide shoreline skim	1,877	0	0%	0.0
Eureka Ready Mix	Emmerson Bar	A	Narrow offset skim	4,220	4,065	96%	1.0
Eureka Ready Mix	Emmerson Bar	B	REE	10,120	10,185	101%	0.9
Mad River Sand and Gravel	Guynup Bar	1	Narrow shoreline skim	7,860	8,918	113%	1.4
Mad River Sand and Gravel	Guynup Bar	2	Wide offset skim	24,096	26,254	109%	3.2
Mad River Sand and Gravel	Guynup Bar	3	REE	-	-	-	0.06
River Reach Totals =	8	22	-	152,078	153,716	101%	30.0

Table 5. Lower Eel River gravel extractions in the 2024 extraction season. Orange cells with red font indicate extraction exceeding 10% above (or 110% of) that approved.

Operator	Site	Area	Method	Approved volume (cu yd)	Extracted volume (cu yd)	Percent of approved volume	Extracted area (acres)
Eureka Ready Mix	Singley Bar	n/a	No extraction proposed	n/a	n/a	n/a	n/a
County of Humboldt	Worswick Bar	A	Wide shoreline skim	25,000	15,880	64%	5.56
Eureka Ready Mix	Drake Bar	n/a	No extraction proposed	n/a	n/a	n/a	n/a
Mercer Fraser Co.	Sandy Prairie: Plant A	C	Wide offset skim	15,471	0	0%	0.0
Mercer Fraser Co.	Sandy Prairie: Plant A	F	Narrow shoreline skim	3,844	3,615	94%	0.5
Mercer Fraser Co.	Sandy Prairie: Plant A	G1	Trench	23,232	12,519	54%	1.2
Mercer Fraser Co.	Sandy Prairie: Plant A	G2	Trench	15,488	3,713	24%	0.7
Mercer Fraser Co.	Sandy Prairie: Plant B	A	Alcove	11,317	13,973	123%	0.9
Mercer Fraser Co.	Sandy Prairie: Plant B	B	Trench	12,232	18,355	150%	1.5
Mercer Fraser Co.	Sandy Prairie: Plant B	D	Trench	70,432	40,149	57%	3.7
Mercer Fraser Co.	Sandy Prairie: Plant B	E	Alcove	12,913	1,437	11%	0.4
Mercer Fraser Co.	Sandy Prairie: Plant B	F	Narrow shoreline skim	5,124	2,274	44%	0.3
Eureka Ready Mix	Hauck Bar	A	Wide shoreline skim	42,100	43,101	102%	6.8
Eureka Ready Mix	Hauck Bar	B	Narrow offset skim	22,500	19,367	86%	2.5
Eureka Ready Mix	Hauck Bar	D1	Narrow shoreline skim	18,800	13,355	71%	2.6
River Reach Totals =	3	13	---	278,453	187,738	67%	26.7

Table 6. Van Duzen River gravel extractions in the 2024 extraction season. Orange cells with red font indicate extraction exceeding 10% above (or 110% of) that approved.

Operator	Site	Area	Method	Approved volume (cu yd)	Extracted volume (cu yd)	Percent of approved volume	Extracted area (acres)
Leland Rock	downstream	C	Narrow shoreline skim	5,700	5,700	100%	1.9
Leland Rock	downstream	D2	Narrow offset skim	7,867	1,923	24%	0.5
Leland Rock	downstream	E	Wide shoreline skim	20,070	12,588	63%	2.2
Leland Rock	downstream	F	Trench	23,175	0	0%	0.0
Leland Rock	downstream	G	Narrow shoreline skim	1,125	875	78%	0.7
Leland Rock	upstream	H	Wide shoreline skim	24,533	23,800	97%	5.1
Van Duzen River Ranch	South Bank	A	Narrow shoreline skim	24,070	27,660	115%	4.6
Van Duzen River Ranch	South Bank	A	Trench	5,575	3,735	67%	0.5
Van Duzen River Ranch	North Bank	B	Trench	7,450	5,485	74%	0.6
Bess	West Site	A	Wide shoreline skim	18,200	15,040	83%	3.8
Bess	West Site	B	Trench	2,500	3,030	121%	0.4
Humboldt County PWD	PL-Van Duzen Bar	n/a	No extraction proposed	n/a	n/a	n/a	n/a
River Reach Totals =	3	11	---	140,265	99,836	71%	20.3

Table 7. South Fork Eel River gravel extractions in the 2024 extraction season.

Operator	Site	Area	Method	Approved volume (cu yd)	Extracted volume (cu yd)	Percent of approved volume	Extracted area (acres)
Wallan and Johnson	Wallan and Johnson Bar	n/a	No extraction proposed	n/a	n/a	n/a	n/a
Randall Sand and Gravel	Home Bar	1	Wide shoreline skim	31,020	9,868	32%	1.6
River Reach Totals =	1	1	---	31,020	9,868	32%	1.6

Table 8. Trinity River gravel extractions in the 2024 extraction season. A total of two sites were approved for 2024; the Willow Creek site was mined, the McKnight Bar site was not.

Operator	Site	Area	Method	Approved volume (cu yd)	Extracted volume (cu yd)	Percent of approved volume	Extracted area (acres)
Mercer Fraser Co.	Willow Creek Site	1	Wide shoreline skim	3,391	2,821	83%	0.5
Mercer Fraser Co.	McKnight Bar	1	Wide offset skim	9,753	0	0%	0
Klamath Trinity Aggregates	Rowland Bar	n/a	No extraction proposed	n/a	n/a	n/a	n/a
River Reach Totals =	2	2	---	13,144	2,821	21%	0.5

APPENDIX A. Annual Extraction Volumes 1992–2024.

Humboldt County Totals ("---" means unknown)				Mad River ("---" means unknown)			
Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent	Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent
1992	---	---	---	1992	115,000	115,000	100%
1993	---	---	---	1993	122,100	138,400	113%
1994	---	---	---	1994	134,500	134,898	100%
1995	---	---	---	1995	210,637	226,265	107%
1996	---	---	---	1996	203,998	189,517	93%
1997	---	---	---	1997	252,926	210,976	83%
1998	1,075,095	820,952	76%	1998	265,795	223,352	84%
1999	1,142,212	860,974	75%	1999	196,212	174,974	89%
2000	987,848	706,234	71%	2000	204,748	146,534	72%
2001	979,515	494,819	51%	2001	199,215	167,719	84%
2002	1,023,866	748,461	73%	2002	204,991	171,937	84%
2003	881,090	581,800	66%	2003	150,390	136,790	91%
2004	692,020	440,710	64%	2004	156,540	141,250	90%
2005	664,565	493,240	74%	2005	138,475	127,200	92%
2006	700,660	561,845	80%	2006	174,245	162,360	93%
2007	784,108	612,132	78%	2007	165,504	153,341	93%
2008	659,022	534,821	81%	2008	142,043	130,613	92%
2009	454,213	211,207	46%	2009	0	0	n/a
2010	562,303	374,313	67%	2010	111,439	86,246	77%
2011	774,582	505,805	65%	2011	147,380	143,124	97%
2012	553,704	384,514	69%	2012	111,317	100,329	90%
2013	362,222	226,362	62%	2013	80,525	76,919	96%
2014	376,467	285,527	76%	2014	69,322	66,743	96%
2015	400,919	272,240	68%	2015	70,230	69,719	99%
2016	545,275	463,382	85%	2016	145,769	142,510	98%
2017	563,540	363,297	64%	2017	153,778	113,841	74%
2018	456,236	368,681	81%	2018	83,945	80,270	96%
2019	522,886	465,564	89%	2019	143,727	126,460	88%
2020	384,617	266,403	69%	2020	60,680	56,609	93%
2021	397,045	332,048	84%	2021	68,760	71,008	103%
2022	465,081	361,597	78%	2022	68,376	68,671	100%
2023	614,278	476,222	78%	2023	139,618	136,401	98%
2024	602,207	453,979	75%	2024	152,078	153,716	101%
Totals	17,625,576	12,667,129	72%	Totals	4,644,263	4,243,692	91%
Averages	652,799	469,153	72%	Averages	140,735	128,597	91%

APPENDIX A. Annual Extraction Volumes 1992–2024 (continued)

Lower Eel River ("—" means unknown)				Middle Eel River ("—" means unknown)			
Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent	Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent
1992	---	---	---	1992	---	---	---
1993	---	---	---	1993	---	---	---
1994	---	---	---	1994	---	---	---
1995	---	---	---	1995	---	---	---
1996	---	---	---	1996	---	---	---
1997	561,700	326,500	58%	1997	147,300	84,900	58%
1998	399,100	273,000	68%	1998	157,900	99,400	63%
1999	471,400	290,500	62%	1999	134,900	124,900	93%
2000	291,300	208,600	72%	2000	160,100	131,000	82%
2001	389,900	119,300	31%	2001	116,100	64,000	55%
2002	387,300	220,000	57%	2002	132,767	121,608	92%
2003	318,300	163,900	51%	2003	74,030	54,060	73%
2004	188,840	120,305	64%	2004	0	0	n/a
2005	199,370	166,280	83%	2005	0	0	n/a
2006	235,495	208,240	88%	2006	0	0	n/a
2007	243,097	177,334	73%	2007	89,990	64,424	72%
2008	237,955	215,760	91%	2008	0	0	n/a
2009	229,386	106,467	46%	2009	0	0	n/a
2010	208,286	188,730	91%	2010	0	0	n/a
2011	301,537	214,730	71%	2011	76,715	35,618	46%
2012	226,520	188,994	83%	2012	29,569	25,880	88%
2013	176,477	80,918	46%	2013	0	0	n/a
2014	127,671	97,232	76%	2014	59,298	45,394	77%
2015	168,581	94,954	56%	2015	48,146	39,350	82%
2016	179,659	151,456	84%	2016	82,276	78,731	96%
2017	183,063	102,683	56%	2017	59,409	44,316	75%
2018	163,775	145,540	89%	2018	27,853	24,570	88%
2019	129,476	126,350	98%	2019	84,345	82,147	97%
2020	154,619	98,786	64%	2020	0	0	n/a
2021	206,461	195,449	95%	2021	0	0	n/a
2022	234,947	162,234	69%	2022	0	0	n/a
2023	255,454	181,338	71%	2023	0	0	n/a
2024	278,453	187,738	67%	2024	0	0	n/a
Totals	7,148,122	4,813,318	67%	Totals	1,480,698	1,120,298	76%
Averages	255,290	171,904	67%	Averages	52,882	40,011	76%

APPENDIX A. Annual Extraction Volumes 1992–2024 (continued)

South Fork Eel River ("—" means unknown)				Van Duzen River ("—" means unknown)			
Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent	Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent
1992	---	---	---	1992	---	---	---
1993	---	---	---	1993	---	---	---
1994	---	---	---	1994	---	---	---
1995	---	---	---	1995	---	---	---
1996	---	---	---	1996	---	---	---
1997	67,700	74,700	110%	1997	120,000	81,600	68%
1998	75,400	70,100	93%	1998	119,100	103,700	87%
1999	85,400	75,900	89%	1999	159,900	108,800	68%
2000	75,700	53,700	71%	2000	194,800	121,300	62%
2001	66,000	43,100	65%	2001	161,700	85,600	53%
2002	58,163	48,122	83%	2002	202,500	167,400	83%
2003	87,060	54,660	63%	2003	175,100	123,000	70%
2004	80,730	50,745	63%	2004	179,045	92,610	52%
2005	82,770	36,480	44%	2005	159,090	123,170	77%
2006	92,000	35,075	38%	2006	134,910	104,750	78%
2007	90,737	73,956	82%	2007	152,773	113,184	74%
2008	32,358	24,833	77%	2008	209,176	137,850	66%
2009	40,170	24,986	62%	2009	175,132	73,236	42%
2010	42,864	27,732	65%	2010	169,041	69,917	41%
2011	36,063	14,244	39%	2011	175,724	71,903	41%
2012	19,039	0	0%	2012	142,191	47,760	34%
2013	27,588	17,212	62%	2013	63,111	41,713	66%
2014	32,341	24,754	77%	2014	74,701	51,404	69%
2015	20,610	15,129	73%	2015	85,978	53,088	62%
2016	34,863	23,657	68%	2016	92,995	67,028	72%
2017	36,679	17,010	46%	2017	108,686	76,526	70%
2018	34,751	20,306	58%	2018	108,276	79,609	74%
2019	38,724	14,451	37%	2019	126,614	116,156	92%
2020	34,885	8,476	24%	2020	134,433	102,532	76%
2021	22,642	6,547	29%	2021	99,182	59,044	60%
2022	38,800	11,610	30%	2022	122,958	119,082	97%
2023	32,346	17,735	55%	2023	186,860	140,748	75%
2024	31,020	9,868	32%	2024	140,265	99,836	71%
Totals	1,417,403	895,088	63%	Totals	3,974,241	2,632,546	66%
Averages	50,622	31,967	63%	Averages	141,937	94,020	66%

APPENDIX A. Annual Extraction Volumes 1992–2024 (continued)

Trinity River ("—" means unknown)				Isolated Sites ("—" means unknown)			
Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent	Year	Approved Volume (cubic yards)	Extracted Volume (cubic yards)	Percent
1992	---	---	---	1992	---	---	---
1993	---	---	---	1993	---	---	---
1994	---	---	---	1994	---	---	---
1995	---	---	---	1995	---	---	---
1996	---	---	---	1996	---	---	---
1997	47,500	40,000	84%	1997	---	---	---
1998	35,000	28,100	80%	1998	22,800	23,300	102%
1999	64,300	66,900	104%	1999	30,100	19,000	63%
2000	18,000	22,200	123%	2000	43,200	22,900	53%
2001	46,600	15,100	32%	2001	0	0	n/a
2002	38,145	19,394	51%	2002	0	0	n/a
2003	76,210	49,390	65%	2003	0	0	n/a
2004	62,075	32,700	53%	2004	24,790	3,100	13%
2005	64,100	30,570	48%	2005	20,760	9,540	46%
2006	64,010	51,420	80%	2006	0	0	n/a
2007	42,007	29,893	71%	2007	0	0	n/a
2008	12,490	11,701	94%	2008	25,000	14,064	56%
2009	0	0	n/a	2009	9,525	6,518	68%
2010	30,673	1,688	6%	2010	0	0	n/a
2011	37,163	26,186	70%	2011	0	0	n/a
2012	25,068	21,551	86%	2012	0	0	n/a
2013	5,521	723	13%	2013	0	0	n/a
2014	13,134	0	0%	2014	0	0	n/a
2015	7,374	0	0%	2015	0	0	n/a
2016	9,713	0	0%	2016	0	0	n/a
2017	21,925	8,921	41%	2017	0	0	n/a
2018	17,109	0	0%	2018	0	0	n/a
2019	0	0	n/a	2019	0	0	n/a
2020	0	0	n/a	2020	0	0	n/a
2021	0	0	n/a	2021	0	0	n/a
2022	0	0	n/a	2022	0	0	n/a
2023	0	0	n/a	2023	0	0	n/a
2024	3,391	2,821	83%	2024	0	0	n/a
Totals	741,508	459,258	62%	Totals	176,175	98,422	56%
Averages	26,482	16,402	62%	Averages	6,525	3,645	56%