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# 2023 REPORT ON AGGREGATE PRODUCTION IN SONOMA COUNTY



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## EXECUTIVE SUMMARY

- 1) Over the past decade Sonoma County has largely completed the shift from instream/terrace mining to hard rock quarries (9 active hard rock quarries), supplemented by modest amounts of recycled and imported materials. The transition from instream/terrace mining to hard rock quarries was a major objective of the 1994 Aggregated Resources Management Plan.
- 2) Aggregate sales in 2023, at nearly 3.2 million tons, were slightly below the 10 year average of approximately 3.46 million tons/year, with nearly all of the aggregate used in Sonoma County except for a modest amount of exported aggregate to Napa and Marin Counties.
- 3) With the new Roblar Quarry coming online in 2024, aggregate production numbers may be expected to rise over the next few years.
- 4) Given that only 10 percent of aggregate sold in Sonoma County is from imported sources, the ARM plan goal of aggregate self-sufficiency has largely been satisfied.

**Table 1. Summary of Aggregate Production in 2023**

<b>Total Aggregate Sold</b>	3,172,783 tons
<b>Aggregate Imported into County</b>	307,395 tons
<b>Aggregate Exported Out of County</b>	261,971 tons
<b>Recycled Materials</b>	232,365 tons
<b>Total Aggregate Mined</b>	2,482,483 tons
<b>Hard Rock Quarry Mined</b>	2,476,883 tons
<b>Instream Mined</b>	9,518 tons
<b>Terrace Mined</b>	0 tons

This report is required under the 1994 Aggregate Resources Management (ARM) Plan and provides a general overview of aggregate production and demand as well as a summary of aggregate permit activity and reclamation in 2023. Any questions about this report can be directed to Stephen Schurke of the Permit Sonoma Natural Resources Division at (707) 565-3610, or by email at [Stephen.Schurke@sonoma-county.org](mailto:Stephen.Schurke@sonoma-county.org).

## AGGREGATE RESOURCES MANAGEMENT PLAN

The Sonoma County Aggregate Resources Management Plan (ARM Plan) was approved in 1994. The ARM Plan was approved with an EIR that considered various plan alternatives, with the goal to meet the County's need for aggregate while minimizing environmental impacts and land use conflicts in a manner consistent with the requirements of CEQA, SMARA and State Mineral



Resource Management policies. Within this context, and to the maximum extent feasible, the ARM Plan's specific objectives are the following:

- **Objective 1** - Assist existing quarry operations to increase production for high-quality uses in an environmentally sound manner.
- **Objective 2** - Facilitate new or expanded quarry operations at designated sites or at other locations with resources which can meet the needs for aggregate in an environmentally sound manner.
- **Objective 3** - Provide for terrace resources to meet the needs for high quality uses for a ten-year period and terminate terrace mining at the end of that period.
- **Objective 4** - Manage instream resources on a sustained yield basis for high quality uses in a manner which reduces bank erosion, maintains flood flow capacities, protects adjacent uses, and minimizes impacts on fisheries, vegetation and wildlife.
- **Objective 5** - Continue and expand monitoring programs so that more information is available for future decisions about terrace and instream impacts and alternative management policies and approaches.
- **Objective 6** -Reevaluate gravel extraction methods and production periodically to assess options which would further reduce environmental impacts and land use conflicts or better meet the County's aggregate needs.
- **Objective 7** - Change specifications, standards and practices where possible so that quarry rock will be more competitive with instream and terrace sources.
- **Objective 8** - Reduce the need for additional aggregate through utilization of recycled and substitute materials, changes in development standards, and other means possible.
- **Objective 9** - Encourage the retention of locally produced aggregate for use within Sonoma County.

## **MINING PRODUCTION, SALES, AND PRODUCTS**

### **AGGREGATE PRODUCTION**

Aggregate production in 2023 (the amount of aggregate material mined or extracted) was below the average production rate of the previous last 5 years. A total of 2.48 million tons of aggregate was produced in 2023. The average production rate from 2019 through 2023 was 2.65 million tons, which is less than production in the 1980s and 90s which averaged close to 4 million tons per year.

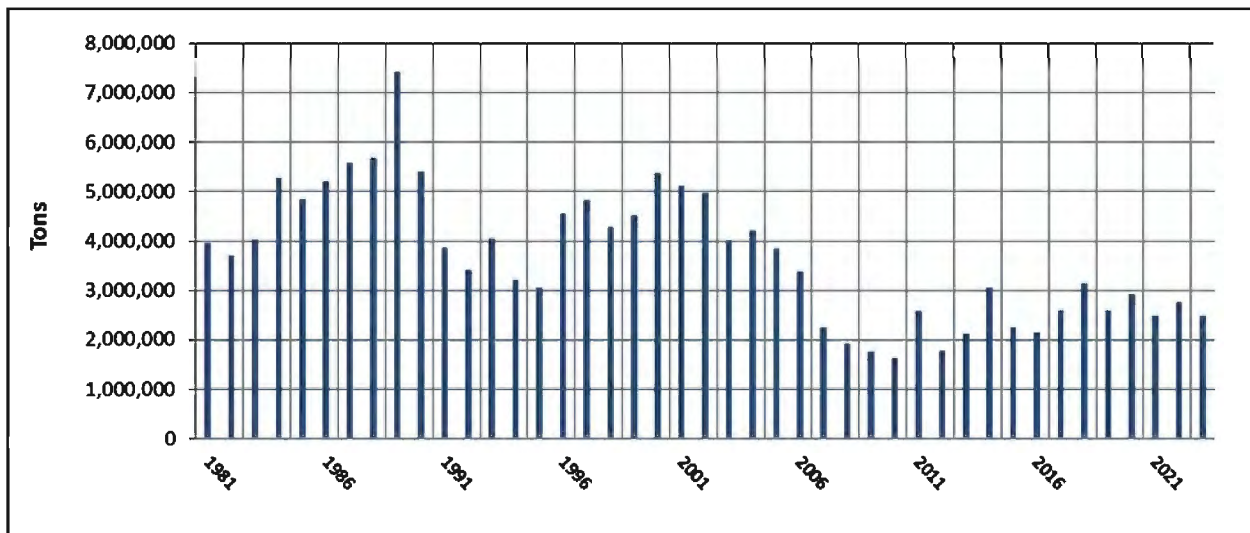
Hard rock quarries are presently the main local source of aggregate, producing nearly 100% of mined material from 2013 to 2023. Instream mining represented less than 1% of the total production in 2023. No terrace mining occurred in 2023, and terrace mining is no longer allowed according to the approved ARM Plan. Table 2 shows the changes in aggregate sources over time

from 1960-2023. Figure 1 shows total aggregate production (mining) by year from 1981 to present.

Data on historic Aggregate Production is provided in Appendix A.

**Table 2. Aggregate Production for Terrace, Quarry, and Instream Mine Sites as percent of average annual production**

	1960 to 1976	1981 to 1990	1991 to 2000	2001 to 2010	2011 to 2015	2016 to 2020	2021	2022	2023
<b>Terraces</b>	68%	47%	37%	26%	8%	0%	0%	0%	0%
<b>Quarries</b>	15%	34%	51%	69%	91%	99%	99%	99%	99%
<b>Instream</b>	17%	19%	12%	5%	1%	1%	1%	1%	1%



**Figure 1: Total Aggregate Production (Mining) by Year from 1981 to present.**

**REPORTED AGGREGATE SALES**

A total of 3.17 million tons of aggregate was reported sold in 2023, slightly below the average production rate of the previous last 10 years. Aggregate sales from 2014 through 2023 was 3.47 million tons.

Note, these figures represent the amount of aggregate sold from operations within the unincorporated County that are monitored under the ARM Program. These amounts do not include material sold from all aggregate distribution sites, or material sold within the cities. There is also some potential for double reporting of sales, as one operator may import material from another operator, in which case the same material would be sold and reported twice. Beginning in 2011, monitoring information included the reported sales of material imported to the Petaluma Landing Way facility, which imports Portland Cement Concrete (PCC) grade aggregate by barge from British Columbia, Canada. The reporting of imports to the Landing Way site provides a more

complete understanding of Sonoma County’s Aggregate demand. Reported material sold is expected to be close to the actual total aggregate demand.

Data on historic aggregate sales is provided in Appendix A.

**AGGREGATE IMPORTATION**

Aggregate operators reported importing 307,395 tons into the County in 2023, representing 10% percent of the reported sales. Imported material is mostly for Portland Concrete Cement (PCC) and Asphalt Cement (AC) grade materials (Table 3).

Data on historic imports of aggregate into the County is provided in Appendix A.

**EXPORTATION**

Aggregate operators reported exporting 261,971 tons of aggregate out of the County in 2023, representing 9% percent of the reported sales (Table 3). Consistent with previous years, most of the exported aggregate was sold to sites in Napa and Marin counties. Data on historic exports of aggregate out of the County is provided in Appendix A.

**Table 3. Aggregate sales, importation, and exportation from 2011-2023 (in millions of tons)**

<b>Year</b>	<b>Sales</b>	<b>Importation</b>	<b>Importation as Percent of Sales</b>	<b>Exportation</b>	<b>Exportation as Percent of Sales</b>
2011	2.22	0.37	17%	0.22	10%
2012	2.93	0.49	17%	0.20	7%
2013	3.16	0.72	23%	0.34	11%
2014	3.03	0.32	10%	0.26	8%
2015	3.15	0.38	12%	0.40	13%
2016	3.08	0.27	9%	0.19	6%
2017	3.08	0.29	9%	0.52	17%
2018	4.32	0.41	10%	0.46	11%
2019	3.52	0.38	11%	0.42	12%
2020	4.08	0.41	10%	0.45	11%
2021	3.54	0.40	11%	0.47	13%
2022	3.77	0.42	11%	0.27	7%
2023	3.17	0.31	10%	0.26	8%

**AGGREGATE RECYCLING**

Aggregate operators reported importing 232,365 tons of recycled material in 2023, representing 7% percent of the reported sales. Recycled material is predominantly concrete with lesser volumes of porcelain, brick and other materials. In 2023, Sonoma County’s Central Landfill reported receiving 2,742 tons of concrete debris, which was ultimately recycled for reuse. Recycled materials have varied in tonnage over the year, peaking in 2019 (Table 4). Concrete

recycling at sites reporting through the ARM program continues to greatly outweigh disposal in landfills. Data on historic imports of material for recycling is provided in Appendix A.

**Table 4. Recycled Materials from 2011-2023**

<b>2011</b>	87,049 tons
<b>2012</b>	115,763 tons
<b>2013</b>	171,945 tons
<b>2014</b>	87,140 tons
<b>2015</b>	15,123 tons
<b>2016</b>	201,460 tons
<b>2017</b>	262,572 tons
<b>2018</b>	387,148 tons
<b>2019</b>	604,758 tons
<b>2020</b>	242,516 tons
<b>2021</b>	289,830 tons
<b>2022</b>	224,462 tons
<b>2023</b>	232,365 tons

**HARDROCK QUARRY MINING**

Hard rock quarries are nearly the sole source of local aggregate and have produced over 99% of mined aggregate from 2013 to 2023. Within Sonoma County there are currently 9 active quarries (Table 5), with reported mining of 2,476,883 tons in 2023. Two hard rock quarries are inactive and recently closed (Table 6).

**Table 5. Sonoma County Active Hard Rock Quarries**

<b>Quarry Name</b>	<b>Status</b>
Austin Creek Materials (Owned by Canyon Rock)	Active, Vested Rights
BoDean Forestville (formerly Blue Rock)	Active, Use Permit
Canyon Rock Quarry Forestville	Active, Use Permit
Lakeville Quarry	Active, Vested Rights
Mark West Quarry (BoDean)	Active, Use Permit
Nuns Canyon Quarry	Active, Use Permit

Roblar Quarry	Active, Use Permit
Soils Plus	Active, Vested Rights
Stony Point Rock Quarry- Cotati	Active, Use Permit

**Table 6. Non-Active and Recently Closed Hard Rock Quarries**

Quarry Name	Status
Brooks Quarry	Closed, Under Reclamation
Trinity Quarry	Closed, Reclaimed

**INSTREAM MINING**

In-stream mining no longer accounts for a significant source of aggregate materials in Sonoma County.

Instream mining on the Russian River was last conducted in the Upper Alexander Valley reach in 2006, the Lower Alexander Valley in 2001, and the Middle Reach in 2007. In 2010, the Board of Supervisors approved a major instream mining permit in the Alexander Valley; however, that permit expired due to inactivity.

No mining on the Gualala River occurred in 2023. Instream mining on the Gualala River was last conducted in 2018. The Use Permit for mining expired in 2018, and the operator has closed and largely reclaimed the aggregate processing plant.

Instream mining was conducted in Austin Creek in 2023. The operator has vested rights to mine select bars. The operator also has a pending Use Permit application to mine one additional bar and establish a storage facility for stockpiling gravel.

Data on historic instream mining is provided in Appendix A.

**TERRACE MINING**

There are no active terrace pit mines, and terrace pit mining is no longer permitted under the ARM Plan. Several terrace pits within the Middle Reach of the Russian River (Wohler narrows to Healdsburg) have not been reclaimed. Permit Sonoma is working closely with Syar, Hanson, regulatory agencies, and other stakeholders to develop plans that are approvable under the County's mining ordinance and state and federal laws.



**Table 7. Terrace Pits Requiring Reclamation**

<b>Operator and Site</b>	<b>Activity</b>	<b>Status</b>
<b>SYAR – Phase I/II, Basalt, Phase IV</b>	Closed, Under Reclamation	Partially reclaimed. Weir structure between Phase I/II pits and Russian River is outstanding. Syar is developing permit applications for the submittal to the Resource Agencies.
<b>Hanson – Piombo, Mariani</b>	Closed, Under Reclamation	Partially reclaimed. Weir structure between Piombo and Mariani Pit is outstanding. Restoration plan submitted with Use Permit (UPE23-0014) for major floodplain restoration.

**AGGREGATE PERMIT AND RECLAMATION ACTIVITY**

**Table 8. Recent Aggregate Permit Activity**

<b>Operation Name</b>	<b>PRMD File</b>	<b>Activity</b>	<b>Status</b>
<b>Lakeville Quarry</b>	UPE10-0055	21 acre expansion on vested parcel	Staff report and CEQA document in progress
<b>Nuns Canyon Quarry</b>	UPE12-0048	Reissue of Use Permit	Approved in 2018
<b>Roblar Quarry</b>	UPE16-0058	New Mining and Reclamation Plan for a 70 acre mine site	Approved in 2019. Commercial sales began January 2024
<b>Austin Creek Instream</b>	UPE18-0042	Use Permit for instream mining and stockpile area. Previous Use Permit expired in 2014	Under review
<b>Hanson – Piombo, Mariani</b>	UPE23-0014	Restoration plan submitted under Use Permit PLP23-0014 for major floodplain restoration	Under review

**Table 9. Aggregate Reclamation and Closure**

Operation	Status
Petaluma Quarry	Reclamation performance standards met. Site released December 02, 2015
Zamaroni Quarry	Reclamation performance standards met. Site released December 22, 2017
Hanson Richardson-Argonaut Pit	Reclamation performance standards met. Site released December 21, 2020
Trinity Quarry	Reclamation performance standards met. Site planned to be released June 2024
Gualala Quarry	All equipment removed. Disturbed areas replanted and 5-year monitoring period began January 2024. Expected to be released 2028

**AGGREGATE ROAD MITIGATION FUND**

As part of the 1981 ARM Plan a fee program was established to collect fees to be used for road mitigation purposes. Fees were collected until a \$500,000 cap was reached and the program was then suspended until the next ARM Plan update. The 1994 ARM Plan revised and readopted the mitigation fee program.

In 2008 a technical report was released entitled Impacts of Aggregate Hauling on County Roads, which detailed the nexus between the impacts of heavy trucks from aggregate hauling and road degradation. The report suggested the fee pay only for the actual cost of the additional pavement thickness needed to mitigate impact over and above normal wear and tear.

In 2009 the Board of Supervisors approved an updated fee of 10 cents per ton. The Aggregate Road Mitigation Fee is adjusted annually by the Consumer Price Index. This fee has been applied to all aggregate sales and exports from production sites, including imports at Landing Way, since January 1, 2010 as shown in Table 6.

**Table 10. Annual Road Mitigation Fee Billing Activity, 2010-2023**

Year	Rate/Ton	Amount Billed
2010	0.100	\$203,760
2011	0.100	\$224,294
2012	0.103	\$270,665
2013	0.105	\$331,878
2014	0.106	\$321,024

<b>2015</b>	0.107	\$286,660
<b>2016</b>	0.108	\$332,732
<b>2017</b>	0.110	\$388,022
<b>2018</b>	0.113	\$488,580
<b>2019</b>	0.127	\$447,008
<b>2020</b>	0.131	\$533,839
<b>2021</b>	0.133	\$471,251
<b>2022</b>	0.137	\$515,953
<b>2023</b>	0.144	\$456,881

**RUSSIAN RIVER GRAVEL MITIGATION FUND**

The 1994 ARM Plan established the Russian River Gravel Mitigation Fund (RRGM) to collect fees from terrace and instream mine sites along the Russian River: The RRGM consists of four funds:

1. Agricultural Support;
2. Recreation Enhancement;
3. Flood Protection;
4. Stream Restoration.

As specified in Board Resolution 95-0450, fees are assessed per ton, per area, or at a rate specific to a project for each of the funds under the RRGM. There is currently a \$0.0 balance in all funds, and there is currently no anticipated instream or terrace mining projects that would pay into these funds.

**APPENDIX - AGGREGATE PRODUCTION, IMPORTATION, EXPORTATION, AND SALES**

Aggregate Production from Quarries, Terrace, and Instream mine sites, aggregate imported and exported, and total sales from 1981 to 2023 (in millions of tons). Reported values generally do not include imports, exports or sales from operators not regulated through the Sonoma County Aggregate Resources Program. Beginning in 2011, monitoring information includes importation and sales of material delivered to the Petaluma Landing Way facility.

Year	Quarry	Terrace	Instream	Total Mined	Imported to County	Exported from County	Recycled Material	Total Sold
1981	1.45	1.70	0.81	3.96	NA	NA	NA	NA
1982	1.52	1.27	0.90	3.70	NA	NA	NA	NA
1983	1.33	1.84	0.87	4.03	NA	NA	NA	NA
1984	1.74	2.39	1.15	5.28	NA	NA	NA	NA
1985	1.34	2.18	1.32	4.84	NA	NA	NA	NA
1986	1.53	2.35	1.33	5.21	NA	NA	NA	NA
1987	1.81	2.79	0.99	5.58	NA	NA	NA	NA
1988	1.73	2.89	1.05	5.67	NA	NA	NA	NA
1989	2.40	3.94	1.07	7.41	NA	NA	NA	NA
1990	2.10	2.86	0.43	5.40	NA	NA	NA	NA
1991	1.85	1.37	0.54	3.75	NA	NA	0.06	5.15
1992	1.77	0.21	0.92	2.88	NA	NA	0.06	3.85
1993	1.80	1.94	0.43	4.17	NA	NA	0.06	3.49
1994	1.72	1.47	0.36	3.55	NA	NA	0.05	3.24
1995	2.15	0.19	0.71	3.05	NA	NA	0.11	4.03
1996	2.20	2.05	0.31	4.56	NA	NA	0.13	4.03
1997	2.24	1.81	0.78	4.83	NA	0.60	0.13	4.61
1998	2.33	1.62	0.33	4.29	NA	0.61	0.14	5.10
1999	2.31	1.94	0.26	4.51	NA	NA	0.22	5.18
2000	1.88	1.95	0.15	3.98	0.27	0.65	0.20	5.38
2001	1.84	2.17	0.08	4.10	0.26	0.72	0.21	5.11
2002	2.55	1.93	0.52	5.00	0.25	0.64	0.28	4.92
2003	2.42	0.98	0.28	3.60	0.30	0.51	0.17	3.89
2004	2.38	0.87	0.16	3.41	0.51	0.51	0.28	4.21
2005	2.31	1.51	0.09	3.91	0.48	0.48	0.27	3.85
2006	2.25	0.62	0.15	3.02	0.12	0.39	0.15	3.62
2007	2.19	0.00	0.24	2.44	0.27	0.57	0.32	2.81
2008	1.86	0.00	0.06	1.92	0.12	0.26	0.28	2.27
2009	1.66	0.00	0.10	1.76	0.12	0.11	0.18	2.25
2010	1.64	0.00	0.00	1.64	0.46	0.03	0.21	2.06
2011	1.49	1.07	0.00	2.56	0.37	0.22	0.09	2.22
2012	1.73	0.00	0.05	1.78	0.49	0.20	0.12	2.93
2013	2.10	0.00	0.02	2.12	0.72	0.34	0.17	3.16
2014	2.10	0.00	0.00	2.10	0.32	0.26	0.09	3.03



2015	2.23	0.00	0.02	2.25	0.38	0.40	NA	3.15
2016	2.13	0.00	0.01	2.14	0.27	0.19	0.20	3.08
2017	2.58	0.00	0.02	2.60	0.29	0.52	0.25	3.08
2018	3.12	0.00	0.02	3.15	0.41	0.46	0.38	4.32
2019	2.58	0.00	0.01	2.60	0.38	0.42	0.60	3.52
2020	2.91	0.00	0.01	2.92	0.41	0.45	0.24	4.08
2021	2.50	0.00	0.01	2.50	0.40	0.00	0.29	3.45
2022	2.76	0.00	0.01	2.76	0.42	0.00	0.24	3.77
2023	2.48	0.00	0.01	2.48	0.31	0.00	0.23	3.17