

# LABOR MARKET ANALYSIS

FOR PROGRAM RECOMMENDATION



C·O·E

CENTERS OF EXCELLENCE  
FOR LABOR MARKET RESEARCH

## BEER AND BREWING IN THE GREATER SACRAMENTO REGION

North (Greater Sacramento)  
Center of Excellence

April 2024

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# SUMMARY

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The North (Greater Sacramento) Center of Excellence for Labor Market Research prepared this report to provide a labor market analysis of educational supply and occupational demand for middle-skilled careers in the North (Greater Sacramento) subregion. This report aims to determine if demand in the local labor market is unmet by the supply from existing community college programs and other postsecondary training providers.

This report primarily focuses on training that leads to jobs in middle-skilled occupations - jobs that typically require education beyond a high school diploma but less than a bachelor's degree - but may include higher-skilled occupations for training pathways that lead to a bachelor's degree. Lowered skilled occupations are rarely considered in this analysis due to the lessened barriers for entry-level work, such as no formal education and fewer on-the-job training requirements.

Key findings include:

- In 2022, there were 822 jobs within the Breweries industry (NAICS 312120) in the North (Greater Sacramento) subregion; 8% of these jobs were for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.
- Over the next five years, the occupation, separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders is projected to have 52 annual openings across multiple industries in the North (Greater Sacramento) subregion.
- Entry-level (25<sup>th</sup> percentile) wage data shows that separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders earn \$17.66 per hour, below the subregion's living wage of \$18.72 per hour. However, median wages exceed the living wage. (Please see Appendix B for notes about the updated living wage).
- Between 2019 and 2022, there were no North (Greater Sacramento) community colleges or non-community college institutions that conferred any awards in programs that have historically trained for the occupation included in this report.

Recommendations include:

- The North (Greater Sacramento) Center of Excellence recommends exercising caution when developing a new beer and brewing-related program in the subregion.
- Prior to program development and offering, community colleges should survey local breweries to better understand employer workforce needs.
- Community colleges should also offer related internship and apprenticeship opportunities to support connecting students to employment in the brewery industry.

# INTRODUCTION

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The North (Greater Sacramento) Center of Excellence (COE) was asked to provide labor market information for a proposed program at a regional community college. This report focuses on the following Standard Occupational Classification (SOC) occupation and code:

- Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (51-9012)

A review of related programs revealed the following Taxonomy of Programs (TOP) title and code is appropriate for inclusion in this report:

- Food Processing and Related Technologies (0113.00)

The corresponding Classification of Instructional Program (CIP) titles and codes are:

- Agricultural and Food Products Processing (01.0401)
- Brewing Science (01.1003)
- Zymology/Fermentation Science (01.1005)

# BREWERY INDUSTRY DEMAND

Exhibit 1 shows the number of jobs within the Breweries industry (NAICS 312120) in the North (Greater Sacramento) subregion and the North/Far North region. Data analysis indicates that over half of the projected jobs in the area are located within the North (Greater Sacramento) subregion.

**Exhibit 1. Historical (2012-2022) and Projected (2022-2027) Brewery Industry Employment**

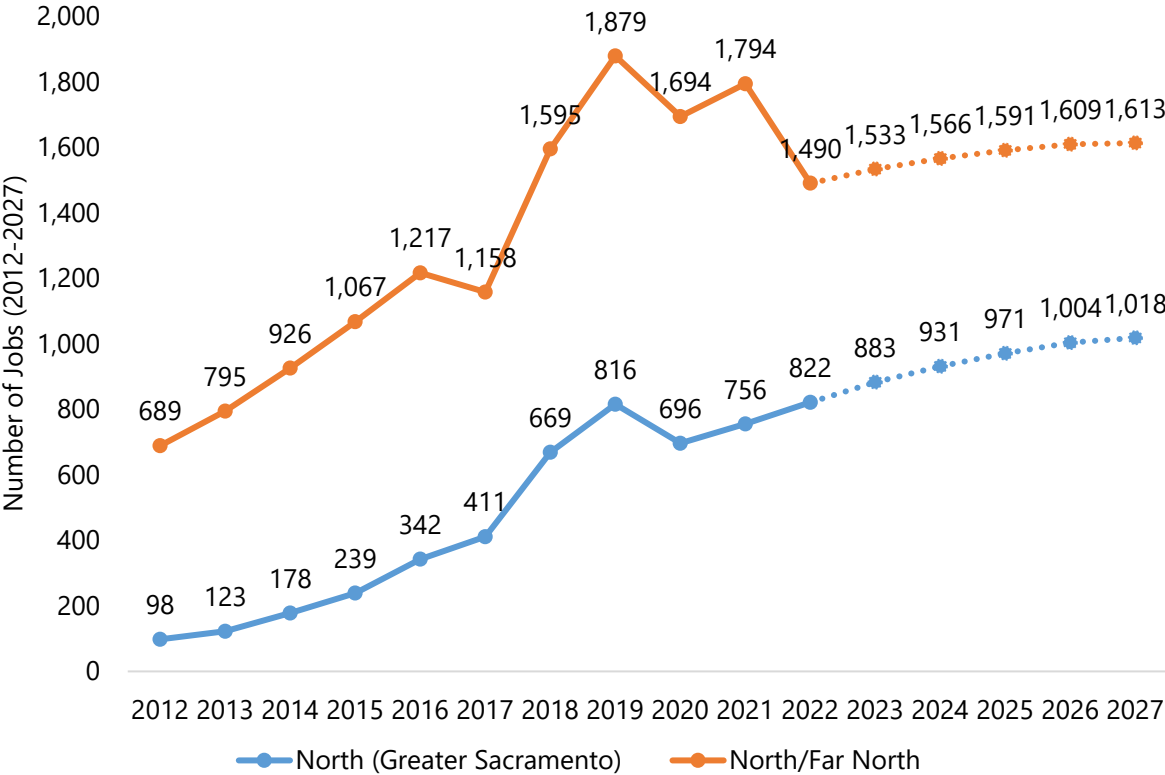


Exhibit 2 shows the staffing pattern - occupational makeup of an industry - for the Breweries industry (NAICS 312120) in the North (Greater Sacramento) subregion.

**NOTE:** Among the occupations listed in the Breweries Industry's staffing pattern (Exhibit 2), Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders stand out as the roles most directly linked to the processes of beer production and brewing.

**Exhibit 2. Staffing Pattern for Breweries Industry (NAICS 312120), 2022-2027**

Occupation	Employed in Industry (2022)	Employed in Industry (2027)	Change (2022-2027)	% Change (2022-2027)	% of Total Jobs in Industry (2022)
Bartenders	102	127	24	24%	12.5%
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	68	82	14	21%	8.2%
Packaging and Filling Machine Operators and Tenders	64	78	14	22%	7.8%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	39	48	10	25%	4.7%
Waiters and Waitresses	37	47	10	26%	4.5%
Laborers and Freight, Stock, and Material Movers, Hand	37	45	8	23%	4.5%
Merchandise Displayers and Window Trimmers	31	38	7	23%	3.8%
Retail Salespersons	21	26	6	26%	2.5%
Industrial Truck and Tractor Operators	20	25	5	24%	2.5%
Cooks, Restaurant	18	24	6	31%	2.2%

Exhibit 3 shows the top 10 employers with the highest job postings within the brewery industry. Between April 2023 and March 2024, 83 online job postings were from employers within the Breweries industry (NAICS 312120) in the North (Greater Sacramento) subregion.

**Exhibit 3. Top Employers**

Employer	Number of Job Postings
Dust Bowl Brewing Company	14
Drake's Brewing Company	10
Moonraker Brewing Company	10
South Lake Brewing Company	5
Alibi Ale Works	4
Molson Coors Beverage	4
Molson Coors	4
The Cellar	3
Truckee Brewing Company	3
Hooby's Brewing	3

Exhibit 4 shows the top 8 job titles with the highest job postings within the Breweries industry. Between April 2023 and March 2024, 83 online job postings were from employers within the Breweries industry (NAICS 312120) in the North (Greater Sacramento) subregion.

**Exhibit 4. Top jobs titles**

Job Title	Number of Job Postings
Brewers	5
Bartenders	5
Sales Executives	4
Servers	4
Beertenders	3
Line/Prep Cooks	2
Head Brewers	2
Warehouse Delivery Drivers	2



# OCCUPATIONAL DEMAND

Exhibit 5 summarizes the five-year projected job growth for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders in North (Greater Sacramento)<sup>1</sup>, North/Far North, and California.

**Exhibit 5. Employment and projected demand, 2022-2027**

Occupation	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	2022-2027 Annual Openings
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	451	486	35	8%	52
<b>North (Greater Sacramento)</b>	<b>451</b>	<b>486</b>	<b>35</b>	<b>8%</b>	<b>52</b>
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	879	936	57	6%	99
<b>North/Far North</b>	<b>879</b>	<b>936</b>	<b>57</b>	<b>6%</b>	<b>99</b>
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	10,018	10,602	585	6%	1,088
<b>California</b>	<b>10,018</b>	<b>10,602</b>	<b>585</b>	<b>6%</b>	<b>1,088</b>

<sup>1</sup> The North (Greater Sacramento) subregion covers seven counties, including El Dorado, Nevada, Placer, Sacramento, Sutter, Yolo, and Yuba.

Exhibit 6 compares the net changes in jobs between 2017 through 2022 and the projected changes through 2027. The rate of change is indexed to the total number of jobs in 2017.

**Exhibit 6. Changes in employment, 2017-2027**

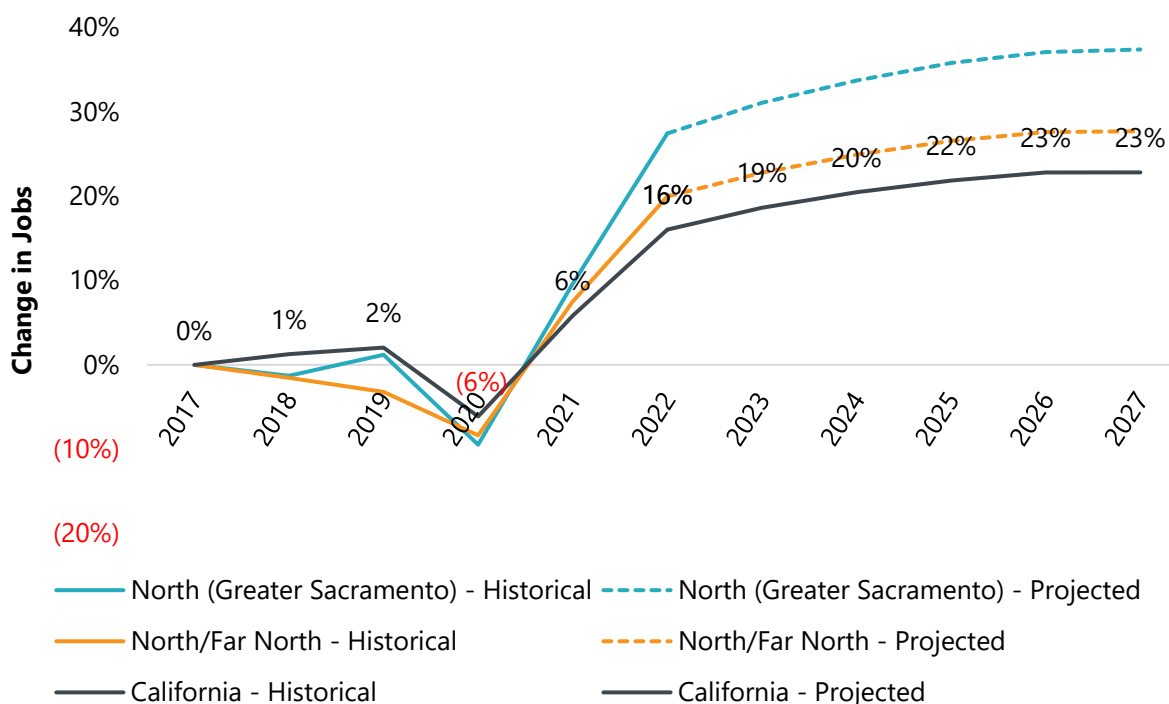


Exhibit 7 shows which Greater Sacramento industries employ workers in the separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.

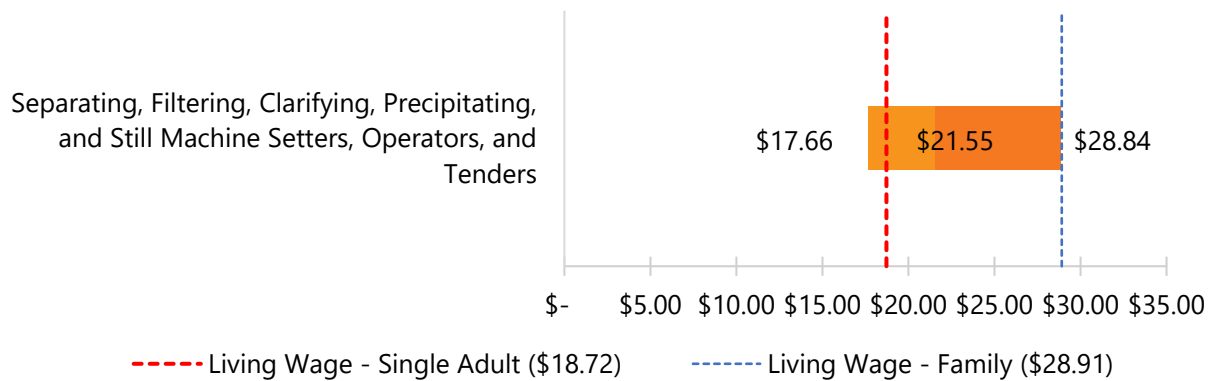
**Exhibit 7. Top industries for employment, 2017-2027**

Industry	2022 Jobs	Share of 2022 Jobs	2022-2027 Change	2022-2027 % Change
Wineries	95	21%	14	15%
Soft Drink Manufacturing	80	18%	(11)	(14%)
Breweries	68	15%	11	16%
Full-Service Restaurants	26	6%	2	8%
Fluid Milk Manufacturing	15	3%	4	27%
Drinking Places (Alcoholic Beverages)	10	2%	1	9%

# WAGES

Exhibit 8 compares the 25<sup>th</sup> percentile, median, and 75<sup>th</sup> percentile hourly wages for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders to the Greater Sacramento living wage for one working adult (\$18.72 per hour) and a small family (\$28.91 per hour).<sup>2,3</sup> The 25<sup>th</sup> and 75<sup>th</sup> percentile hourly wages are used to estimate entry-level and experienced worker wages.

**Exhibit 8. Hourly wages by occupation, 2022**



<sup>2</sup> Living wage is defined as the level of income one working adult with no children must earn to meet basic needs, including food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs. Please note that the 25th-percentile and 75th-percentile hourly wages are used as proxy for entry-level and experienced-level wages.

<sup>3</sup> A small family is defined as one working adult and one school aged child (between the ages of 5 and 12 years).

# JOB POSTINGS

## About Job Postings Analysis

This section analyzes recent data from online job postings. Online job postings may provide additional insight into recent changes in the labor market that are not captured by historical trends. However, job postings are not the same as labor market demand; demand is based on projected annual openings. Job postings should be used to inform community college curriculum development and identify potential employers for targeted experiential learning opportunities.

Please note several limitations to analyzing and interpreting online job postings. Employers may post a position multiple times to increase the number of job applicants. Job postings may remain online after a business chooses not to fill a position. Employers may advertise one posting to fill multiple vacancies. And not all jobs are posted online.

The North COE identified 56 online job postings for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders in the seven-county Greater Sacramento subregion. Job posting data comes from Lightcast (formerly Emsi Burning Glass) and represents unique advertisements newly posted online during the last 12 months, from April 2023 through March 2024.

## Top Employers and Job Titles

Exhibit 9 details the number of online job postings for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.

### Exhibit 9. Job postings by occupation

Occupation	Unique Job Postings	Share of Job Postings
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	56	100%
<b>Total Job Postings</b>	<b>56</b>	<b>100%</b>

Exhibit 10 shows the top 5 relevant job titles with the most job postings.

**Exhibit 10. Top jobs titles**

Job Title	Number of Job Postings
Winemakers	5
Beertenders	4
Blenders	4
Brewers	2
Cellar Workers	2

Exhibit 11 shows the top 5 relevant employers with the most job postings.

**Exhibit 11. Top Employers**

Employer	Number of Job Postings
Tipsy Putt	4
Clarksburg Wine Company	3
South Lake Brewing Company	2
Wise Villa Winery	1
Element 79 Vineyards	1

## Top Skills and Qualifications

There was insufficient data on skills (specialized, common, and software) related to the occupation of interest (Exhibit 12).

### Exhibit 12. Most in-demand skills

Specialized Skills	Common Skills	Software Skills
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Exhibit 13 shows the minimum level of education preferred by employers for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders-related job postings in the Greater Sacramento subregion.

### Exhibit 13. Employer-preferred education

There was insufficient data related to the employer's preferred level of education.

Exhibit 14 shows the minimum level of experience employers prefer for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders-related job postings in the Greater Sacramento subregion.

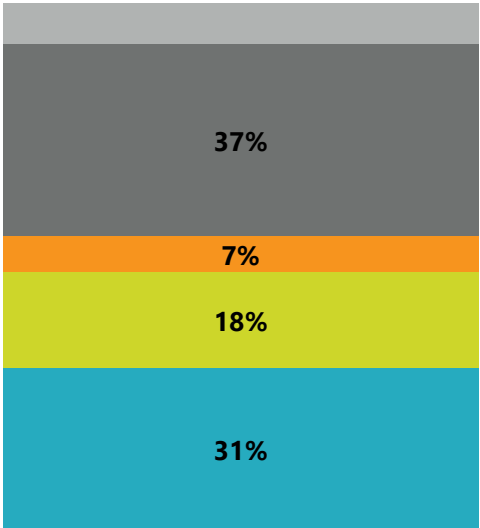
### Exhibit 14. Employer-preferred job experience

There was insufficient data on the employer's preferred level of job experience.

# EDUCATION AND TRAINING REQUIREMENTS

The U.S. Census Bureau collects data on the highest education level achieved by workers across all occupations. Exhibit 15 shows California's educational attainment of the current workforce in the selected occupation.

**Exhibit 15. California educational attainment for Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders**



Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders

■ High school or less ■ Some college ■ Associates ■ Bachelor's ■ Master's or Doctoral

The U.S. Bureau of Labor Statistics (BLS) uses a categorical system to assign typical entry-level education and job requirements to each occupation for which the BLS publishes projection data. These categories include entry-level education, work experience in a related occupation, and on-the-job training. Exhibit 16 shows the typical entry-level job requirements for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.

**Exhibit 16. Typical entry-level job requirements**

Occupation	Entry-level Education Requirements	Work Experience Requirements	On-The-Job Training Requirements
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training

# EDUCATIONAL SUPPLY

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Educational supply for an occupation can be estimated by analyzing the number of awards issued in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes. Exhibit 17 shows the TOP and CIP codes for educational programs historically training for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.

**Exhibit 17. TOP and CIP codes for programs training for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders**

TOP Programs and Codes	Aligned CIP Programs and Codes
Food Processing and Related Technologies (0113.00)	Agricultural and Food Products Processing (01.0401) Brewing Science (01.1003) Zymology/Fermentation Science (01.1005)

## Community College Supply

There were no programs offered in related TOP codes within the study subregion.

## Other Postsecondary Supply

There were no programs offered in related CIP codes within the study subregion.



# FINDINGS

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This report focuses on the following occupation: Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (51-9012).

## *Industry Demand*

- In 2022, there were 822 jobs within the Breweries industry (NAICS 312120) in the North (Greater Sacramento) subregion.
- Between 2012 and 2022, employment in Greater Sacramento's brewery industry grew seven-fold, from an estimated 98 jobs in 2012 to more than 800 jobs in 2022.
- Employment in Greater Sacramento's brewery industry is projected to continue to grow over the next five years. Employment within the industry is projected to increase by 24% over the next five years, adding nearly 200 new jobs by 2027.
- In 2022, the occupations with the most jobs in Greater Sacramento's brewing industry included bartenders (102 jobs), followed by the target occupation of this report separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders (68 jobs), and packing and filling machine operators and tenders (64 jobs).
- An examination of job postings from employers in Greater Sacramento's brewery industry (NAICS 312120) revealed 83 online job postings within the last 12 months.
  - Employers with the most job postings included Bust Bowl Brewing (14 postings), Drake's Brewing (10 postings), and Moonraker (10 postings).
  - The positions most advertised included bartenders or beertenders (8 postings), brewers or head brewers (7 postings), sales executives (4 postings), and servers (4 postings).

## *Occupational Demand*

- The Greater Sacramento subregion held 451 jobs for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders in 2022. These jobs are projected to increase by 8% over the next five years, adding 35 new jobs to the subregion by 2027.
- Jobs for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders are projected to grow faster in the Greater Sacramento subregion (8%) than in California (6%).
- Over the next five years, the occupation – separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders – is projected to have 52 annual job openings in the Greater Sacramento subregion.
- In 2022, two-thirds of separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders were employed in six Greater Sacramento industries:

wineries (95 jobs), soft drink manufacturers (80 jobs), breweries (68 jobs), full-service restaurants (26 jobs), milk manufacturing (15 jobs), and alcohol-serving drinking places (10 jobs).

- About 15% of Greater Sacramento's jobs for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders were in the brewing industry (NAICS 312120).

### *Wages*

- Entry-level (25<sup>th</sup> percentile) wage data shows that separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders earn \$17.66 per hour, below the subregion's living wage of \$18.72 per hour. However, median wages exceed the living wage. (Please see Appendix B for notes about the updated living wage).
- Wages for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders may vary by industry of employment. However, this data is not currently available.

### *Job Postings*

- In the last 12 months, there were 56 online job postings for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders across the Greater Sacramento subregion.
- Topsy Putt was the employer with the highest number of job postings (4), followed by Clarksburg Wine Company (3 postings) and South Lake Brewing Company (2 postings).
- The job titles with the most postings included winemakers (5 postings), beertenders (4 postings), blenders (4 postings), brewers (2 postings), and cellar workers (2 postings).

### *Education and Training Requirements*

- A high school diploma or equivalent is the typical entry-level education for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders. Workers in this occupation typically require a moderate amount (six to 12 months) of on-the-job training.
- Analysis of educational attainment data shows that 25% of incumbent workers have educational attainment levels consistent with community college offerings (some college or associate degrees). Another 37% of incumbent workers hold a bachelor's degree.
- There was insufficient data from the job postings to compare educational attainment with local employer preferences for education and job experience.

### *Postsecondary Supply*

- No Greater Sacramento community colleges offer degrees and certificates in programs that have historically trained for the occupation of interest.
- No local non-community college postsecondary training providers have conferred awards in programs training for the occupation of interest.
- According to the Chancellor's Office Curriculum Inventory (COCI) System, across the state, the College of the Canyons (South Central Coast Region) offers a Wine and Beer Studies program, and Santa Rosa College (Bay Area Region) has provided a Brewing program in the past.

# CONCLUSIONS & RECOMMENDATIONS

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- A comparison of annual openings to average annual awards in the Greater Sacramento subregion shows an undersupply of workers in the studied occupation.
  - Between 2019 and 2022, no programs were offered in related TOP or CIP codes across the study subregion.
  - The subregion has 52 projected annual openings for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders.
- However, employment opportunities for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders are found across a wide variety of industries, and only 15% of these jobs were found in Greater Sacramento's brewery industry (NAICS 312120).
- Also, the low number of local online job postings and a comparison between monthly job postings and estimated hires (Appendix D) suggest finding employment in the studied occupation may primarily happen through alternative routes such as networking and referrals.
- The North (Greater Sacramento) Center of Excellence recommends exercising caution when developing a new beer and brewing-related program in the subregion. While there seems to be unmet demand for workers employed as separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders, this demand is diffused across multiple industries, which may require different knowledges, skills, and abilities (i.e., winemaking vs. beer brewing).
- The North (Greater Sacramento) Center of Excellence also recommends conducting a survey of local breweries before offering a program to better understand employer workforce needs and estimate demand for beer-related brewing employment.
- Community colleges interested in offering a beer-brewing program should offer related internship and apprenticeship opportunities to connect students to brewery industry employment.

New Program Recommendation		
<b>Move forward with the new program</b>	<b>Proceed with caution</b>	<b>A new program is not recommended</b>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

# APPENDIX A. METHODOLOGY AND SOURCES

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This report identified Occupations using the Center of Excellence TOP-to-CIP-to-SOC crosswalk and O\*Net OnLine. This report's findings were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi, and jobs posting data from Burning Glass.

"The Chancellor's Office Curriculum Inventory System (COCI)." California Community Colleges Curriculum Inventory (COCI), 2023. <https://coci2.ccctechcenter.org/>.

Glasmeier, Amy K. "Living Wage Calculator." Living Wage Calculator, 2023. <https://livingwage.mit.edu/>.

Integrated Postsecondary Education Data System (IPEDS). National Center for Education Statistics. U.S. Department of Education. <https://nces.ed.gov/ipeds/>.

Labor Market Information Division. California Employment Development Department. <https://labormarketinfo.edd.ca.gov/>.

Lightcast (Formerly EMSI/Burning Glass) 2023.3; QCEW Employees, Non-QCEW Employees, and Self-Employed. <https://www.economicmodeling.com/>. (Note: EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors)).

Management Information Systems (MIS) Data Mart. California Community Colleges Chancellor's Office. <https://datamart.cccco.edu/>.

O\*NET OnLine. U.S. Department of Labor/Employment and Training Administration (DOL ETA). <https://www.onetonline.org/>.

Self-Sufficiency Standard Tool for California. The University of Washington. <http://www.selfsufficiencystandard.org/>

"Taxonomy of Programs." California Community Colleges Chancellor's Office. June 2012, 6<sup>th</sup> Edition. <https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Educational-Services-and-Support/Academic-Affairs/What-we-do/Curriculum-and-Instruction-Unit/Files/TOPmanual6200909corrected12513pdf.ashx>

"TOP-CIP-SOC Crosswalk." Centers of Excellence for Labor Market Research. June 2021 Edition. <http://coecc.net/>

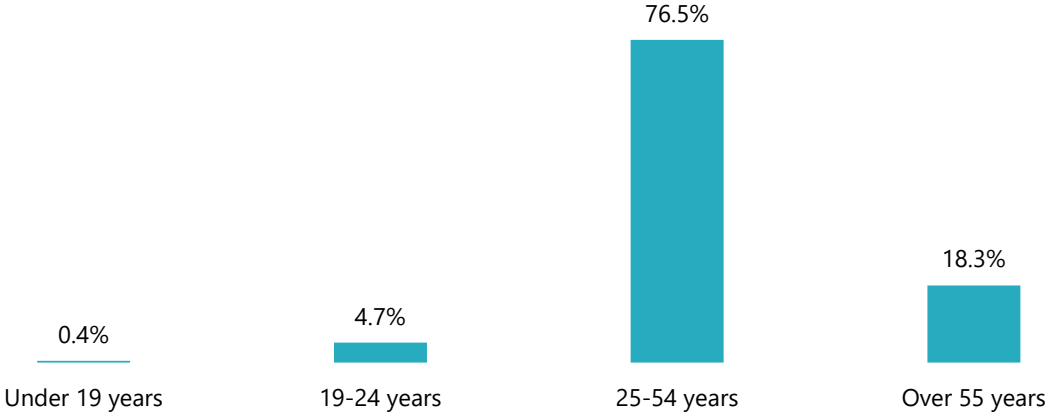
## APPENDIX B. GLOSSARY

Key Terms	Definition
<b>Occupation</b>	<p>Occupation refers to a category of jobs, careers, or professions that are similar regarding the work performed and the skills the workers possess. Workers who perform essentially the same tasks are in the same occupation, whether in the same industry. Some occupations are concentrated in a few industries, while others are found in many industries.</p> <p>Occupations differ from jobs in that jobs show the number of positions held in each occupation.</p>
<b>Jobs</b>	<p>A job is a specific instance of employment and includes any position where a worker provides labor for monetary compensation.</p> <p>Job numbers include employees (those who work for businesses) and proprietors (those who work for themselves). Full- and part-time jobs are included and counted equally (i.e., not adjusted to full-time equivalents). Data for jobs, or employment, are annual averages.</p>
<b>Employment</b>	<p>Employment refers to filled jobs, whether full- or part-time, temporary or permanent. The scope of "who" is counted as employed is noted in Appendix A. Methodology and Sources.</p>
<b>Job Change</b>	<p>Job change is the net increase or decrease of jobs over a given timeframe.</p>
<b>Job Opening</b>	<p>Job openings are the projected number of positions available for workers entering an occupation.</p> <p>Openings include growth and replacement job counts. Growth job counts are the positive change in the total number of workers employed. Replacement job counts are the estimates of new workers needed to replace workers permanently leaving the occupation.</p>
<b>Percentile Wage (or wages)</b>	<p>A percentile wage is the value of a wage at which a certain percentage of workers falls below. For example, a 25<sup>th</sup> percentile hourly wage of \$15.00 indicates that 25% of workers earn less than \$15.00, while 75% earn more. Percentile wages are specific to the geography shown in the report.</p> <p>The 25th-percentile and 75th-percentile hourly wages are used as a proxy for entry-level and experienced-level wages.</p>
<b>Living Wage</b>	<p>The living wage is the level of income a single, working adult with no children must earn to meet basic needs. The living wage is calculated using basic allowances for food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs, and assumes full-time employment (40 hours per week, 52 weeks a year).</p> <p>Beginning in 2023-24, NFN COE adopted the MIT calculations for a living wage better aligned to the economic conditions following the pandemic. For additional information, please visit <a href="https://livingwage.mit.edu/">https://livingwage.mit.edu/</a>.</p>

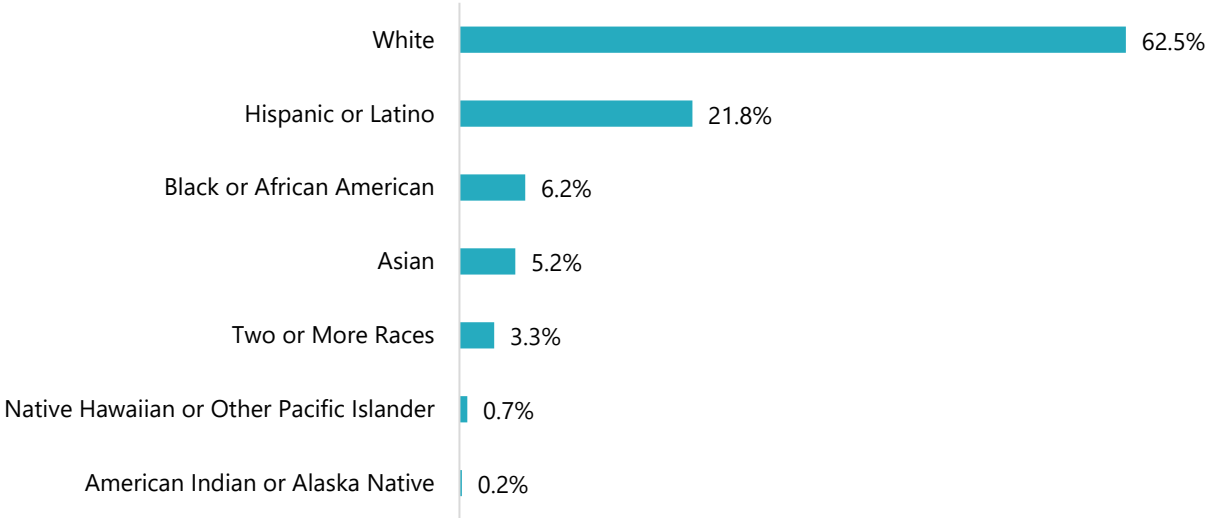
Key Terms	Definition
<b>Educational Attainment</b>	Educational attainment is the highest level of education achieved by workers in an occupation. The data include workers aged 25 years and older.
<b>Typical Entry-level Education</b>	<p>The education level most workers need to gain employment in an occupation. Categories range from "no formal educational credential" and "high school diploma or equivalent" to "doctoral or professional degree." The types most relevant to community training are "some college, no degree," "postsecondary nondegree award," and "associate degree."</p> <p>The typical entry-level education may differ from the actual educational levels attained by workers employed in an occupation.</p>
<b>Typical Work Experience</b>	The relevant prior experience a worker needs to gain employment in an occupation. Categories include "5 years or more", "less than five years," and "none."
<b>Typical On-The-Job (OTJ) Training</b>	The level of on-the-job training a worker needs to obtain for competency in the skills required for an occupation. Categories include "none," "short-term (1 month or less)," "moderate-term (more than one month but less than 12 months)," "long-term (more than 12 months)," "apprenticeship," and "internship/residency."
<b>Awards</b>	Awards are the number of certificates and degrees conferred for a specific course of study each year. Awards count "papers" and, as a result, may be greater than the number of students who complete a program.

# APPENDIX C. WORKER DEMOGRAPHICS

**Exhibit C1.** Age of Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (SOC 51-9012) Employed in Greater Sacramento

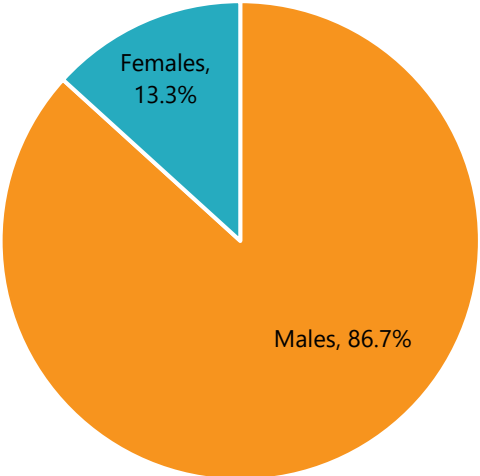


**Exhibit C2.** Race and Ethnicity of Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (SOC 51-9012) Employed in Greater Sacramento





**Exhibit C3. Gender of Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (SOC 51-9012) Employed in Greater Sacramento**

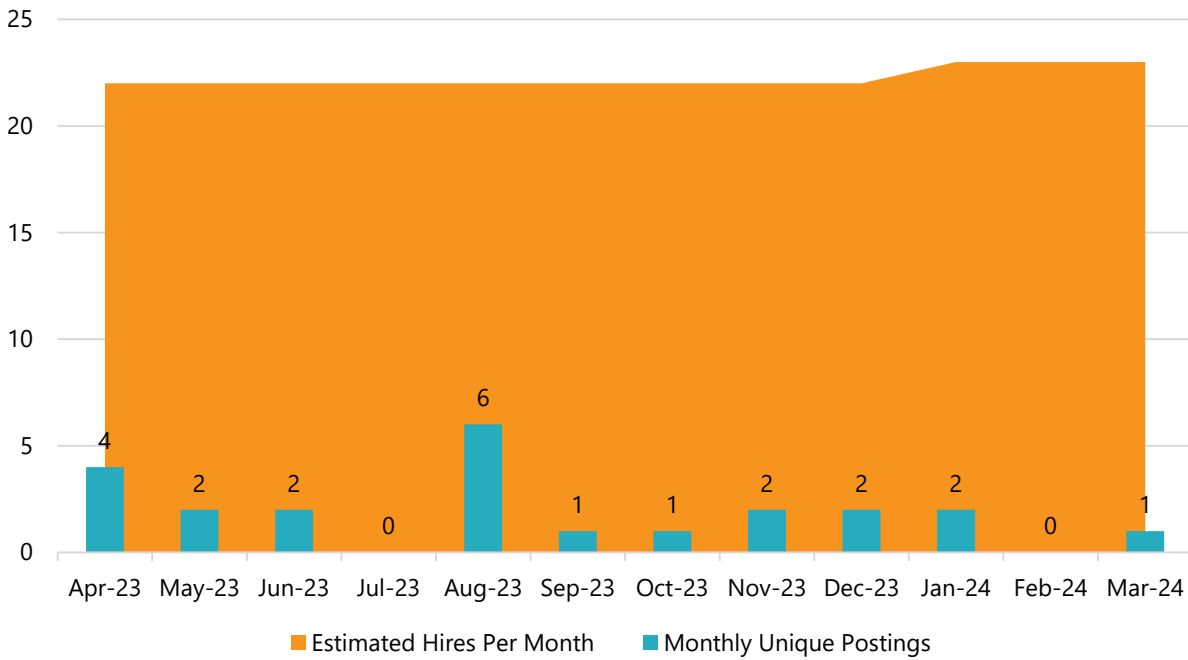


# APPENDIX D. ESTIMATED LOCAL HIRING

Exhibit D1 compares the number of online job postings to an estimated number of hires for separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders, from April 2023 to March 2024. In the last 12 months, there was an average of 2 online job postings and 22 new hires related to the studied occupation across Greater Sacramento.

A hire is reported by the Quarterly Workforce Indicators when an individual's social security number appears on a company's payroll and was not there the quarter before. Lightcast's hires are calculated using a combination of Lightcast jobs data, information on separation rates from the Bureau of Labor Statistics (BLS), and industry-based hires data from the Census Bureau.

**Exhibit D1. Monthly Unique Online Job Postings vs. Monthly Estimated Hires for Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (SOC 51-9012) in Greater Sacramento**



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**COVID-19 Statement:** This report includes employment projection data produced by Lightcast (formerly EMSI). Employment projections are developed using models based on historical data, which in this set of projections covers the period through 2021. Most input data, therefore, precedes the pandemic. Employment projections are long-term projections intended to capture structural changes in the economy, not cyclical fluctuations. As such, projections data are not intended to capture the impacts of the recession that began in February 2020. Cyclical fluctuations, like recessions, impact projections when they become part of the historical data set.

**Important Disclaimer:** All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges, or their representatives based upon components or recommendations contained in this study.

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