

Program Endorsement Brief:

Feather River College: Environmental Studies programs

North/Far North Center of Excellence, October 2018

INTRODUCTION

This report provides labor market information for four existing short certificates (Certificates of Specialization) in Feather River College's Environmental Studies program. No changes are proposed to the programs. The programs include Hydrologic Technician, Biological Science/Wildlife Science, Forestry Technician, and Hatchery Technician.

This report provides an overview of the labor market demand and supply for natural resources-related occupations. It provides an overview of the employment opportunities and existing community college programs that prepare students for the profession.

Key findings include:

- Natural resource jobs suffered during the recession, and most occupations have recovered to pre-recession level employment. Occupational growth is tepid, just 1 percent in the North/Far North and California; the figure is 2 percent in the Far North.
- Forestry and Conservation Workers and Forestry and Conservation Technicians represent the most important occupational opportunities for the community colleges. Unfortunately, these occupations are among the lowest paid of the eight occupations studied.
- Median wages for natural resource occupations are split between higher and lower than the living wage rates for the Plumas County region; generally, the higher wage levels correspond to occupations that require a bachelor's degree, or have higher shares of educational attainment.
- Employers for natural resource occupations are generally public sector agencies involved in natural resource protection and public land management.

The research uses labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data (from Emsi), and job posting data from Burning Glass.

The report contains the following sections:

- Occupational demand,
- Wages and job postings,
- Educational attainment and supply, and
- Findings and recommendations.

OCCUPATIONAL DEMAND

Eight Standard Occupational Classification (SOC) codes were analyzed in relation to the proposed program. Exhibit 1 summarizes employment trends for each SOC codes in the 15-county Far North region, the 22-county North/Far North region and California. The data also includes estimates for self-employed workers.

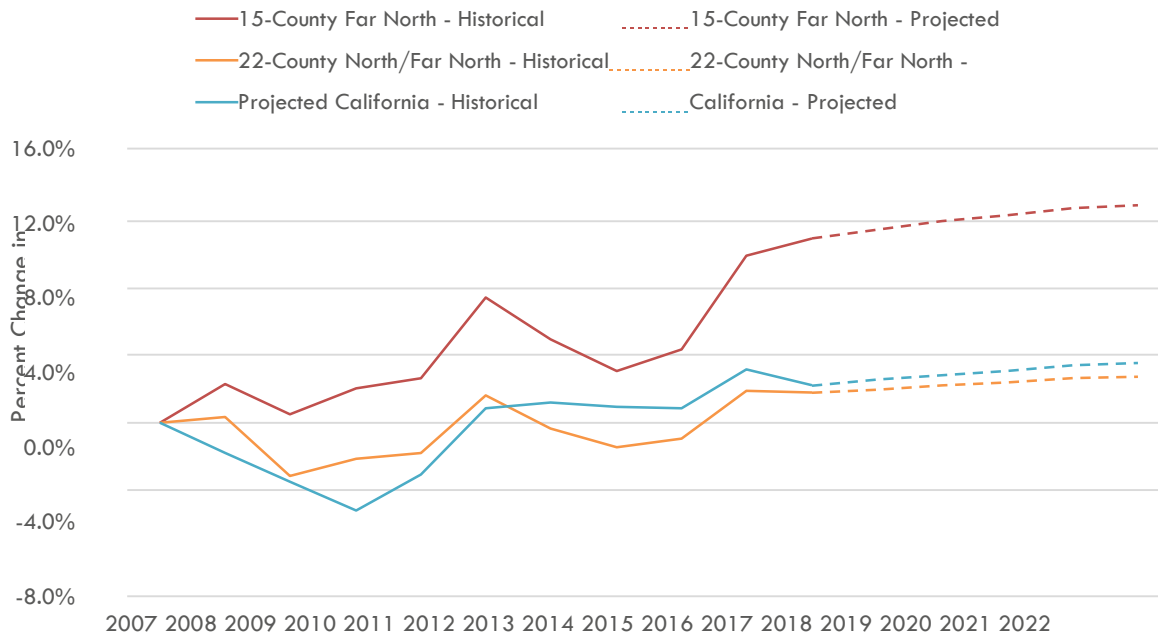
Exhibit 1: Employment, projected occupational demand and education levels¹

Occupation	SOC	2007 Jobs	2017 Jobs	2022 Jobs	2017-22 Jobs % Change	Annual Openings
Farmers, Ranchers, and Other Agricultural Managers	11-9013	2,060	2,218	2,239	1%	182
Foresters	19-1032	226	170	174	2%	15
Hydrologists	19-2043	39	34	35	3%	3
Biological Technicians	19-4021	147	180	190	6%	19
Environmental Science and Protection Technicians, Including Health	19-4091	170	146	155	6%	19
Forest and Conservation Technicians	19-4093	1,470	1,926	1,970	2%	240
Fish and Game Wardens	33-3031	25	21	23	10%	2
Forest and Conservation Workers	45-4011	553	509	511	0%	83
15-County Far North Region	TOTAL	4,690	5,204	5,297	2%	565
Farmers, Ranchers, and Other Agricultural Managers	11-9013	3,542	3,712	3,711	(0%)	298
Foresters	19-1032	356	267	275	3%	24
Hydrologists	19-2043	248	224	226	1%	21
Biological Technicians	19-4021	789	763	793	4%	79
Environmental Science and Protection Technicians, Including Health	19-4091	841	639	652	2%	78
Forest and Conservation Technicians	19-4093	2,144	2,833	2,893	2%	350
Fish and Game Wardens	33-3031	173	118	120	3%	12
Forest and Conservation Workers	45-4011	1,248	952	931	(3%)	151
22-County North/Far North Region	TOTAL	9,342	9,509	9,586	1%	1,012
Farmers, Ranchers, and Other Agricultural Managers	11-9013	39,066	39,153	38,633	(1%)	3,061
Foresters	19-1032	888	561	590	5%	55
Hydrologists	19-2043	1,135	859	901	5%	89
Biological Technicians	19-4021	10,940	12,808	13,736	7%	1,447
Environmental Science and Protection Technicians, Including Health	19-4091	5,589	5,215	5,450	5%	665
Forest and Conservation Technicians	19-4093	6,272	7,471	7,631	2%	920
Fish and Game Wardens	33-3031	473	373	414	11%	44
Forest and Conservation Workers	45-4011	2,952	2,353	2,355	0%	378
California	TOTAL	67,315	68,792	69,710	1%	6,658

Exhibit 2 shows the percentage change in employment between 2007 through 2017 and occupational projections from 2017 through 2022. The rate of change is indexed to the total number of jobs in 2007 as the base year and compares the 15-county Far North region, the 22-county North/Far North region and California.

¹ Emsi 2018.2; QCEW Employees, Non-QCEW Employees and Self-Employed. The 15-county Far North region includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity. The 22-county North/Far North region includes the aforementioned counties as well as El Dorado, Placer, Nevada, Sacramento, Sutter, Yolo, and Yuba.

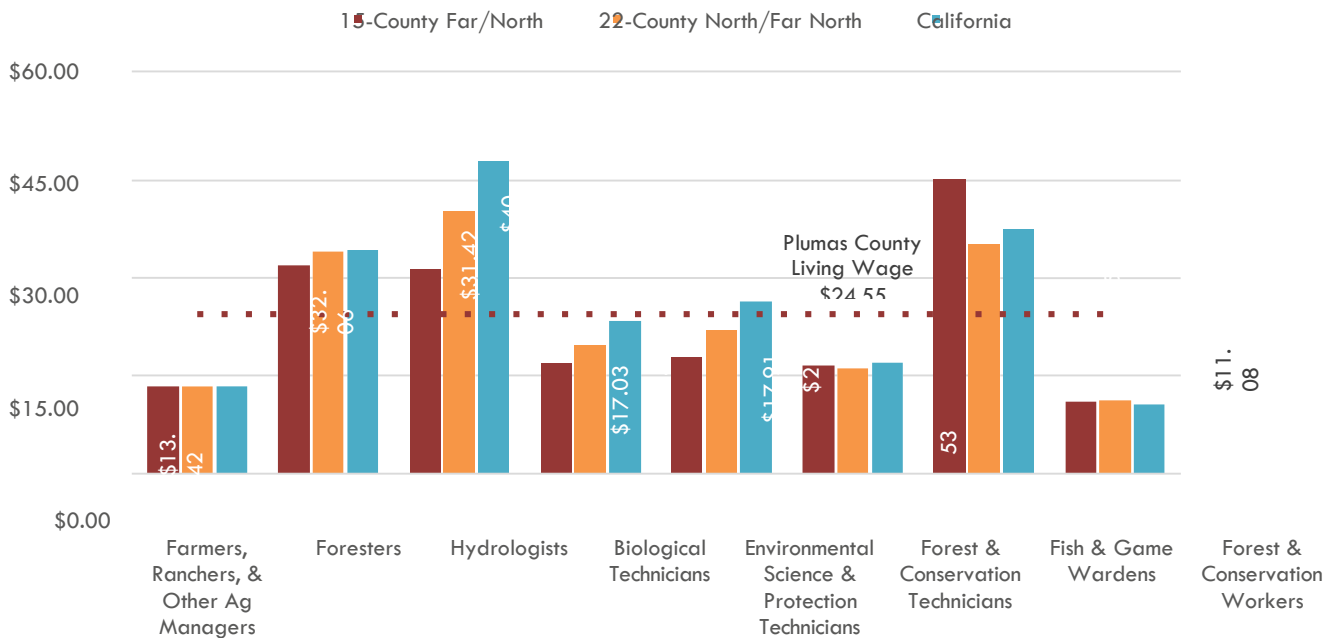
Exhibit 2: Rate of change for natural resources jobs²



WAGES AND JOB POSTINGS

Exhibit 3 displays hourly wages for natural resources occupations in the study regions compared to the Plumas County living wage for a one-adult, one-child household.³ The chart highlights the difference between the median wages of the representative occupations.

Exhibit 3: Wages for natural resource occupations⁴



² Ibid.

³ Living Wage Calculator: Counties and Metropolitan Statistical Areas in California, <http://livingwage.mit.edu/states/06/locations>.

⁴ Emsi 2018.2; QCEW Employees, Non-QCEW Employees and Self-Employed.

Burning Glass data for job postings identified a pool of 279 listings in the 15-County Far North region based on the representative SOC codes. Data was pulled for the last year from October 1, 2017 through September 30, 2018.

Exhibit 4 presents the job postings trend for the eight SOC code job postings over the past 8 years compared to the median from 2010 to 2017 for the Far North region.

Exhibit 4: Job posting trend for natural resource occupations⁵

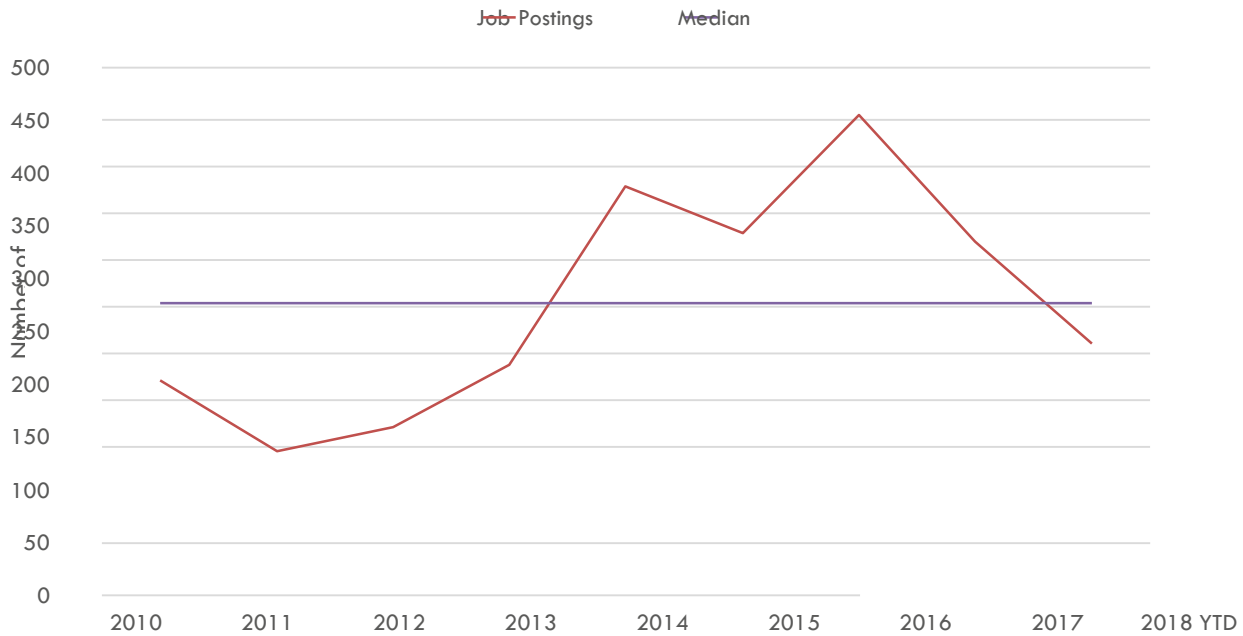


Exhibit 5 shows the top titles for natural resources occupations that were present in the job postings in the Far North region.

Exhibit 5: Top titles for natural resources job postings⁶

Top Titles	Number	Percent (n=279)
Forestry Technician	72	25.8%
Biological Science Technician	41	14.7%
Forester	22	7.9%
Consulting Utility Forester	21	7.5%
Forestry Technician, Recreation	18	6.5%
Forestry Aid Technician	11	3.9%

Exhibit 6 shows the top employers for natural resources-related jobs postings in the Far North region. In the Far North region, of the 279 postings, there were 263 records that included an employer.

⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool," 2018. 11-9013.03 Aquacultural Managers was used in place of 11-9013 Farmers, Ranchers, and other Agricultural Managers for a narrower look at the relevant job postings.

⁶ Ibid.

Exhibit 6: Top Employers among natural resources job postings⁷

Top Employers	Number	Percent (n=263)
Forest Service	87	33.1%
US Department of Agriculture	80	30.4%
Department of Interior	29	11%
Bureau of Land Management	15	5.7%
Western Environmental Consultants LLC	13	4.9%
National Park Service	9	3.4%
Sierra Pacific Industries	3	1.1%
United States Fish & Wildlife Service	3	1.1%

Exhibit 7 shows the top skills desired for natural resources professionals in the Far North region.

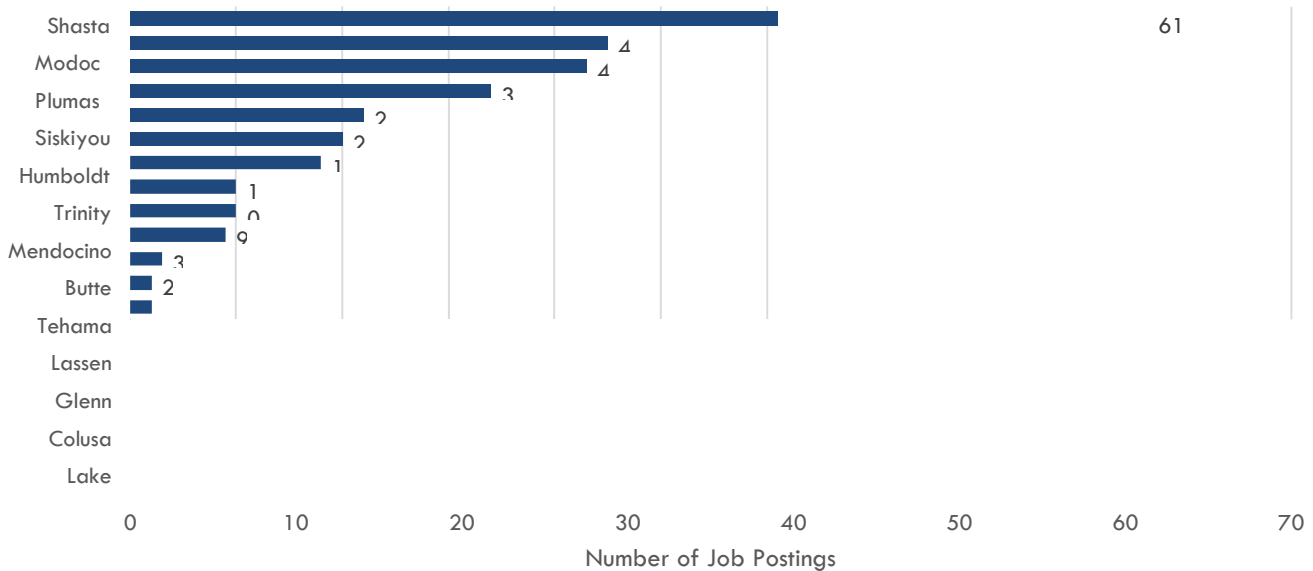
In the North region, of the 279 postings, there were 259 records that included a skill. As a result, the table below may not be representative of the full sample.

Exhibit 7: Top specialized skills desired in the natural resources job postings⁸

Top Skills	Number	Percent (n=276)
Cryptography	160	61.8%
Annuities	159	61.4%
Project Planning and Development	142	54.8%
Scheduling	113	43.6%
Natural Resources	107	41.3%
Range Management	101	39.0%
Wildlife Management	97	37.5%
Watershed Management	94	36.3%

Exhibit 8 shows the counties where natural resource postings were located throughout the Far North region.

Exhibit 8: Top county locations listed in natural resource job postings⁹



⁷ Ibid.

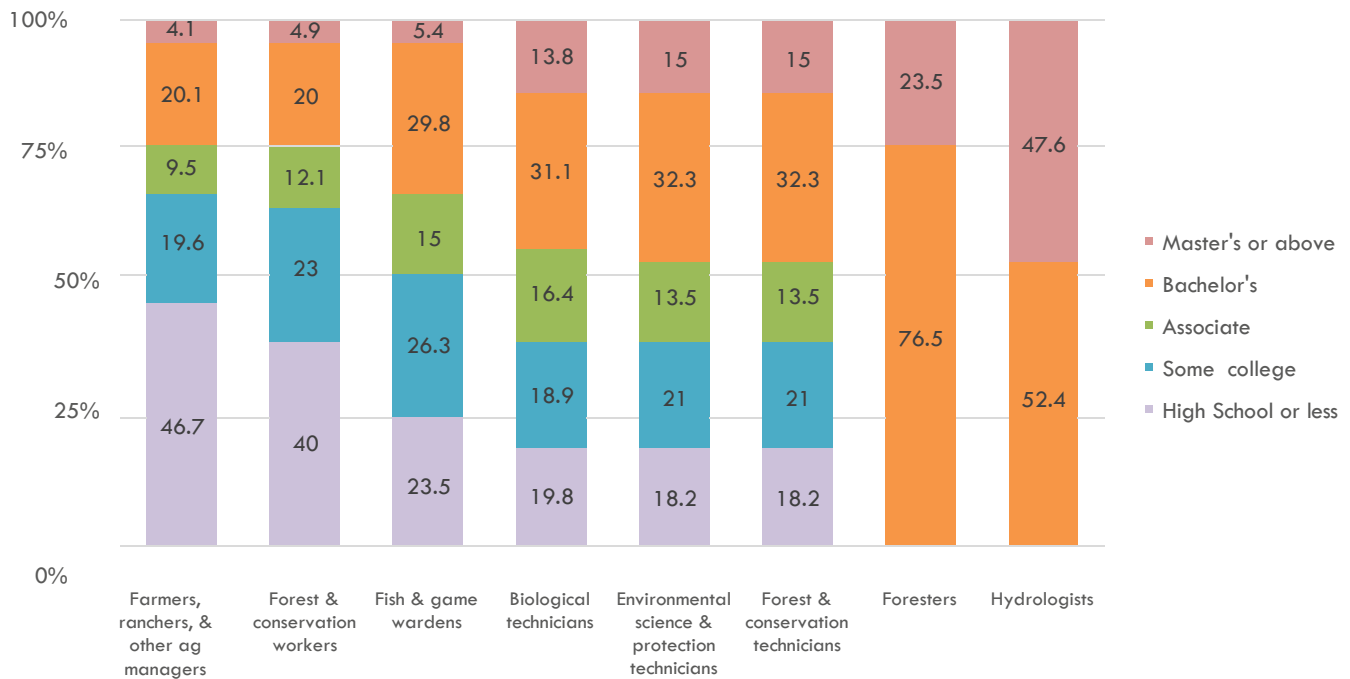
⁸ Ibid.

⁹ Ibid.

EDUCATIONAL ATTAINMENT AND SUPPLY

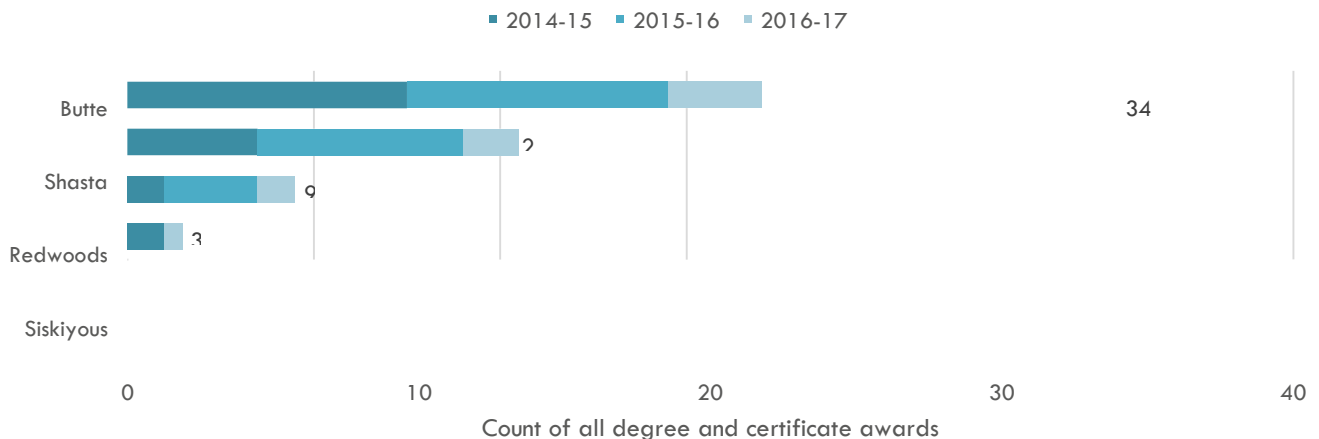
At the national level, the typical education required for natural resource jobs is some college or a bachelor's degree. Exhibit 5 breaks down the educational attainment percentages by degree type.

Exhibit 9: Typical educational attainment for natural resource occupations nationally¹⁰



There are two Taxonomy of Programs (TOP) codes identified that relate to natural resources: Forestry (0114.00) and Natural Resources (0115.00). There are four schools in the Far North region that offer related training: Butte College, College of the Redwoods, Shasta College, and College of the Siskiyous. There were on average 34 awards earned by students each year over the past three years, about half of which were certificates. Exhibit 6 shows the total number of awards by colleges during the past three academic years.

Exhibit 10: Total awards conferred by Far North community colleges, 2014-2017¹¹



¹⁰ Current Population Survey, Educational Attainment for Workers 25 Years and Older by Detailed Occupation, 2014-2015, https://www.bls.gov/emp/ep_table_111.htm.

¹¹ COE Supply Tables, California Community Colleges Chancellor's Office DataMart, Integrated Postsecondary Education Data System (IPEDS).

FINDINGS

- **Feather River College does not show recent awards completions in related TOP code areas. Award production in the Far North Region is small—just over 30 awards on average annually.** Feather River College does not currently register award completions for the proposed TOP codes—Wildlife and Fisheries (0115.20); Forestry (0114.00); and Natural Resources (0115.00).
- **The related workforce is comprised of a significant number of middle skill workers.** The occupational codes measured in the report represent a likely sample of activity for which the program prepares students. At least some of the curriculum is common among the four certificates. The curriculum commonly relates to the range of occupations chosen for analysis. Several occupations, especially Hydrologist and Forester, will require additional education for entry-level employment. However, most of these occupations have a large share of workers who possess “middle skill” education levels—more than high school, but less than a bachelor’s degree. This indicates that many students completing these programs will be qualified to enter employment upon graduation. According to the department’s website, half of the program’s students transfer to a four-year university.
- **Wage levels are below living wage levels (\$24 per hour in Plumas County) at the middle-skill level. Bachelor’s degree occupations pay significantly more in hourly wages.** Bachelor’s-level occupations measured in the report—Hydrologists, and Foresters—have markedly higher wages than those occupations that have a large share of middle-skill workers. In the 15-county Far North, middle skill occupational wages are as follows: Forestry Conservation Technicians (\$17 per hour); Forestry Conservation Workers (\$11 per hour); Biological Technicians (\$17 per hour); and Environmental Science Technicians (\$18 per hour). These are below the living wage level for Plumas County (\$24 per hour). These occupations generally pay much lower than the occupations that require a bachelor’s degree. Hydrologists earn a median wage of \$40 per hour; for Foresters, the median wage level is \$34 per hour.
- **Public sector employment generally shows tepid growth. Rural counties demonstrate stronger occupational growth.** Overall historical and projected occupational growth is virtually non-existent at the 22-county and state levels. The figures, however, are consistent with other public sector analysis the COE has recently conducted. Growth is strongest in the rural 15-county Far North.
- **Occupational activity is larger at the middle-skill level, resulting in stronger demand. There are far fewer jobs at the bachelor’s-degree level.** Demand appears strongest for those occupations that have a large share of educational attainment at a middle skill level, good news for the community colleges. Demand for Forestry and Conservation Technicians is strong—five-year projections of 240 annual openings in the Far North and 350 in the North/Far North regions. Jobs postings trends are strong for the related job title. Similarly, the five-year projection of more than 80 annual openings for Forestry and Conservation Workers. These occupations represent opportunity areas for the community colleges. The other occupations registered tiny projected annual openings. These include Foresters, Hydrologists, and Biological Technicians. Fish and Game Wardens show strong growth projections, but few annual openings.

RECOMMENDATIONS

- **Public sector employment in agencies that protect and manage public lands and natural resources represent a small but critical area for community college support in the rural Far North. These workforce efforts can support rural economic development efforts.** The region will take note: the public sector agencies and occupations targeted by the Environmental Studies program at Feather River College represent a small, but important area for partnership focus in the rural 15-county Far North. The labor market data demonstrates the presence of a significant amount of middle-skill employment demand. For rural counties such as Plumas County, the employment will represent a key anchor in economies that do not yield the same economic diversity as urban, metropolitan neighbors. By supporting these public agencies with workforce development efforts, rural counties can realize derived demand (such as hospitality and tourism) from the natural resources and recreation opportunities in the area.
- **Workforce pathways in related areas should explore related employment needs in areas beyond public sector natural resource protection and land management.** Workforce pathways should extend beyond public sector employment, which may be limited at the bachelor's-degree level. The occupational analysis shows much smaller demand for occupations that require a bachelor's degree. This could mean that pathways upward will have to extend beyond the agencies that will hire students out of the community colleges. The community colleges should explore related bachelor's degree-level employment related to the training offered at the certificate and associate levels.
- **Middle-skill pathways could begin with a focus on Forestry and Conservation Workers, and Forestry and Conservation Technicians; these occupations generally have low wages, however, posing a challenge for training for other, better-paying jobs.** The two occupations showed the strongest occupational demand, supported by jobs postings data. Employer partnership will validate the most closely-related job classifications, and other related classifications that present demand factors—projected retirements and difficulty hiring—with an emphasis on jobs that pay above a living wage. Curriculum and training pathways will explore these, and other related opportunity areas. The community colleges should provide training and pathways for transfer, or other, related positions that have higher wages.
- **Feather River College will join other colleges in registering completions in related TOP codes.** Feather River College is performing a commendable task by formalizing the credentials through the regional and state process. The exercise conforms to goals outlined in the Doing What Matters Framework, and the Strong Workforce Program.

APPENDIX A: SOURCES

Sources used for data analysis purposes in this report include:

- U.S. Department of Labor/Employment and Training Administration (DOLETA) O*NET Online
- Burning Glass, Labor Insight/Jobs
- Economic Modeling Specialists, International (EMSI)
- California Employment Development Department, Labor Market Information Division (EDD, LMID)
- Bureau of Labor Statistics, Occupational Employment Statistics (OES)
- California Community Colleges Chancellor's Office, Cal-PASS Plus LaunchBoard
- Living Insight Center for Community Economic Development, Self-Sufficiency Standard Tool for California
- California Community Colleges Chancellor's Office Management Information Systems (MIS Data Mart)
- U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

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