

Wildlife and Fisheries

Inland Empire/Desert Region (Riverside and San Bernardino counties combined) & Los Angeles County

Summary

- Employment for the wildlife and fisheries occupational group is expected to **increase by 8% between 2018 and 2023** in the Inland Empire/Desert Region. A total of **47 job openings** will be available over the five-year timeframe.
- The **entry-level wage** for the wildlife and fisheries occupational group is **above the MIT Living Wage estimate of \$12.39 per hour** for a single adult living in the Inland Empire/Desert Region.
- **There appears minimal opportunity for program growth** based on the annual average number of program credentials issued for the selected community college programs in the region (**0 total**), and the annual openings for the wildlife and fisheries occupational group across the region (**9 average annual openings**).

Introduction

This report provides data on the occupations related to the California Community College wildlife and fisheries program (TOP 0115.20). This program prepares students for employment by providing instruction related to the conservation and management of wilderness fauna and wildlife reservations for recreational or commercial purposes (Taxonomy of Programs, 2012). The occupations included in the wildlife and fisheries occupational group are the following:

- Conservation Scientists
- Fish and Game Wardens

Job Opportunities

In 2018, there were 92 jobs in the wildlife and fisheries occupational group in the Inland Empire/Desert Region. This occupational group is projected to increase employment by 8% by 2023. Employers in the region will need to hire 47 workers over the next five years to fill new jobs and backfill jobs that workers are permanently vacating (includes occupational transfers and retirements). Exhibit 1 displays five-year projections for the wildlife and fisheries occupational group in the Inland Empire/Desert Region and Los Angeles County. Tables 1 and 2 in the appendix display the projected job growth, wages, education, training, and work experience required for each of the occupations in this group in the Inland Empire/Desert Region and Los Angeles County, respectively. Occupational data for Los Angeles County is

provided for display purposes only and are not include in the educational supply and employment demand analysis of this report.

Exhibit 1: Five-year projections for the wildlife and fisheries occupational group

Region	2018 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Inland Empire/Desert	92	8%	47	9	25%
Los Angeles County	185	9%	97	19	24%

Source: EMSI 2018.4

Earnings

The entry-level wage for the wildlife and fisheries occupational group is above the MIT Living Wage estimate of \$12.39 per hour for a single adult living in the Inland Empire/Desert Region (\$14.36 for Los Angeles County) (Glasmeier, 2019). These wages are also sufficient for two working adults and one child (\$14.75 per hour, per adult, or \$30,680 annually for each adult). Exhibit 2 displays wage information for the wildlife and fisheries occupational group in the Inland Empire/Desert Region.

Exhibit 2: Earnings for the wildlife and fisheries occupational group

Region	Occupation	Entry to Experienced Hourly Wage Range*	Median Wage*	Average Annual Earnings
Inland Empire/Desert Living Wage: \$12.39/hr.	Conservation Scientists	\$27.66 to \$39.32	\$34.60	\$72,800
	Fish and Game Wardens	\$22.62 to \$36.46	\$26.56	\$60,700
Los Angeles County Living Wage: \$14.36/hr.	Conservation Scientists	\$25.92 to \$43.28	\$33.72	\$71,600
	Fish and Game Wardens	\$32.31 to \$39.36	\$37.59	\$84,800

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, and experienced is 75th percentile wage.

Job Postings, Employers, Skills, and Education

Exhibit 3 displays the number of job ads posted during the last 12 months along with the regional and statewide average time to fill for the wildlife and fisheries occupational group in the Inland Empire/Desert Region and Los Angeles County. On average, Inland Empire/Desert Region employers fill online job

postings for the wildlife and fisheries occupational group with 28 days. This regional average is the same as California’s average, indicating that local and statewide employers encounter similar challenges when seeking candidates to fill these positions. Job posting data for fish and game wardens occupations was limited for both areas analyzed in this report.

Exhibit 3: Job ads and time to fill for the wildlife and fisheries occupational group, Apr 2018 – Mar 2019

Region	Occupation	Job Ads	Regional Average Time to Fill (Days)	California Average Time to Fill (Days)
Inland Empire/Desert	Conservation Scientists	42	24	28
	Fish and Game Wardens	3	36	36
Los Angeles County	Conservation Scientists	74	28	28
	Fish and Game Wardens	2	36	36
Total		121	28	28

Source: Burning Glass – Labor Insights

Exhibit 4 displays the employers posting the most job ads for the wildlife and fisheries occupational group during the last 12 months in the Inland Empire/Desert Region and Los Angeles County. Due to the low number of job ads, employer data is not currently available for fish and game wardens.

Exhibit 4: Employers posting the most job ads for the wildlife and fisheries occupational group, Apr 2018 – Mar 2019

Region	Occupation	Employers
Inland Empire/Desert	Conservation Scientists (n=34)	<ul style="list-style-type: none"> • National Park Service • Riverside County • San Bernardino County
	Fish and Game Wardens	<ul style="list-style-type: none"> • N/A
Los Angeles County	Conservation Scientists (n=54)	<ul style="list-style-type: none"> • City of Downey • National Park Service • City of Los Angeles
	Fish and Game Wardens	<ul style="list-style-type: none"> • N/A

Source: Burning Glass – Labor Insights

Exhibit 5 displays a sample of specialized, employability, and software and programming skills that employers are seeking when looking for workers to fill positions in the wildlife and fisheries occupational

group. Specialized skills are occupation-specific skills that employers are requesting for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is commonly referred to as “soft skills.” The skills requested in job postings may be utilized as a helpful guide for curriculum development. Due to the low number of job ads, skills data is not currently available for fish and game wardens.

Exhibit 5: Sample of in-demand skills from employer job ads for the wildlife and fisheries occupational group, Apr 2018 – Mar 2019

Region	Occupation	Specialized Skills	Employability Skills	Software and Programming Skills
Inland Empire/ Desert	Conservation Scientists (n=36)	<ul style="list-style-type: none"> • Natural Resources • Environmental Sciences • Budgeting 	<ul style="list-style-type: none"> • Physical Abilities • Communication Skills • Planning 	<ul style="list-style-type: none"> • ArcGIS • Microsoft Office
	Fish and Game Wardens	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A
Los Angeles County	Conservation Scientists (n=59)	<ul style="list-style-type: none"> • Natural Resource Management • Budgeting • Biology 	<ul style="list-style-type: none"> • Writing • Physical Abilities • Communication Skills 	<ul style="list-style-type: none"> • Microsoft Office
	Fish and Game Wardens	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • N/A

Source: Burning Glass – Labor Insights

Exhibit 6 displays the work experience and entry-level education typically required to enter each occupation according to the Bureau of Labor Statistics (BLS), educational attainment for incumbent workers with “some college, no degree” and an “associate degree” according to the U.S. Census (2016-17), and the minimum advertised education requirement from employer job ads. Due to the low number of job ads, education data is not currently available for fish and game wardens.

Exhibit 6: Work experience, typical entry-level education, educational attainment, and minimum advertised education requirements for the wildlife and fisheries occupational group, Apr 2018 – Mar 2019

Region	Occupation	Typical Entry-Level Education Requirement	Educational Attainment*	Minimum Advertised Education Requirement from Job Ads			
				Number of Job Ads (n=)	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Inland Empire/ Desert	Conservation Scientists	Bachelor's degree	0%	17	41%	-	59%
	Fish and Game Wardens	Bachelor's degree	44%	N/A	-	-	-
Los Angeles County	Conservation Scientists	Bachelor's degree	0%	43	40%	-	60%
	Fish and Game Wardens	Bachelor's degree	44%	N/A	-	-	-

Source: EMSI 2018.4, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework

Student Completions and Program Outcomes

Exhibit 7 displays the average annual regional California Community College (CCC) credentials conferred during the three academic years between 2014 and 2017, from the California Community Colleges Chancellor’s Office Management Information Systems (MIS) Data Mart, along with the headcount from the most recent year available on LaunchBoard. Credentials are the combined total of associate degrees and certificates issued during the timeframe, divided by three in order to calculate an annual average. This is done to minimize the effect of atypical variation that might be present in a single year. Headcount is the unduplicated number of students who enrolled in one or more courses in the program. The relevant TOP code is from the Taxonomy of Programs manual, and the corresponding program titles used at each college (in *italics*) is sourced from the Chancellor’s Office Curriculum Inventory (COCI). Please note, a credential is not always equal to a single person in search of a job opening since a student may earn more than one credential, such as an associate degree in addition to a certificate.

A search of LaunchBoard, Data Mart, and COCI yielded no program completions or offerings for the wildlife and fisheries program in the Inland Empire/Desert Region. Exhibit 7 displays the only community college in the state with completions reported to the Chancellor’s office.

Exhibit 7: Annual average community college credentials for the wildlife and fisheries program in California

00115.20 – Wildlife and Fisheries	CCC Annual Average Credentials, Academic Years 2015-18
Butte	
Certificate requiring 6 to < 18 semester units	6
Total Annual Average CCC Credentials, Academic Years 2015-18	6

Source: MIS Data Mart



References

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Appendix: Occupation definitions, sample job titles, five-year projections for wildlife and fisheries occupations

Occupation Definitions (SOC) code), Education and Training Requirement, Community College Educational Attainment

Conservation Scientists (19-1031)

Manage, improve, and protect natural resources to maximize their use without damaging the environment. May conduct soil surveys and develop plans to eliminate soil erosion or to protect rangelands. May instruct farmers, agricultural production managers, or ranchers in best ways to use crop rotation, contour plowing, or terracing to conserve soil and water; in the number and kind of livestock and forage plants best suited to particular ranges; and in range and farm improvements, such as fencing and reservoirs for stock watering.

Sample job titles: Conservationist, Environmental Analyst, Erosion Control Specialist, Land Manager, Land Reclamation Specialist, Land Resource Specialist, Resource Conservation Specialist, Resource Conservationist, Soil Conservationist, Watershed Program Manager, Conservationist, Grassland Conservationist, Habitat Management Coordinator, Land Management Supervisor, Natural Resource Manager, Natural Resource Specialist, Range Technician, Rangeland Management Specialist, Resource Manager, Wildlife Manager, Education Specialist, Environmental Education Specialist, Environmental Educator, Interpretive Naturalist, Naturalist, Park Activities Coordinator, Park Interpretive Specialist, Park Naturalist, Park Ranger, Program Production Specialist

Entry-Level Educational Requirement: Bachelor's degree

Training Requirement: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 0%

Fish and Game Wardens (33-3031)

Patrol assigned area to prevent fish and game law violations. Investigate reports of damage to crops or property by wildlife. Compile biological data.

Sample job titles: District Wildlife Manager, Fisheries Enforcement Officer, Game Warden, Law Enforcement Officer (LEO), Natural Resource Officer, State Game Warden, State Wildlife Officer, Wildlife Conservation Officer, Wildlife Manager, Wildlife Officer

Entry-Level Educational Requirement: Bachelor's degree

Training Requirement: One to twelve months of on-the-job training

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 44%

Table 1: 2018 to 2023 job growth, wages, education, training, and work experience required for the wildlife and fisheries occupational group, Inland Empire/Desert Region

Occupation (SOC)	2018 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage*	Median Hourly Wage*	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Conservation Scientists (19-1031)	79	5	6%	8	\$27.66 to \$39.32	\$34.60	\$72,800	Bachelor's degree & none	None
Fish and Game Wardens (33-3031)	12	3	25%	Insf. Data	\$22.62 to \$36.46	\$26.56	\$60,700	Bachelor's degree & 1-12 months	None
Total	92	7	8%	9	-	-	-	-	-

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.

Table 2: 2018 to 2023 job growth, wages, education, training, and work experience required for the wildlife and fisheries occupational group, Los Angeles County

Occupation (SOC)	2018 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage*	Median Hourly Wage*	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Conservation Scientists (19-1031)	152	12	8%	15	\$25.92 to \$43.28	\$33.72	\$71,630.89	Bachelor's degree & none	None
Fish and Game Wardens (33-3031)	33	4	12%	4	\$32.31 to \$39.36	\$37.59	\$84,843.20	Bachelor's degree & 1-12 months	None
Total	185	16	9%	19	-	-	-	-	-

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.