The Stone Soup Leadership Institute Sustainable Career Pathways Internship at The College of Marin

Sustainable Career Pathway Reports

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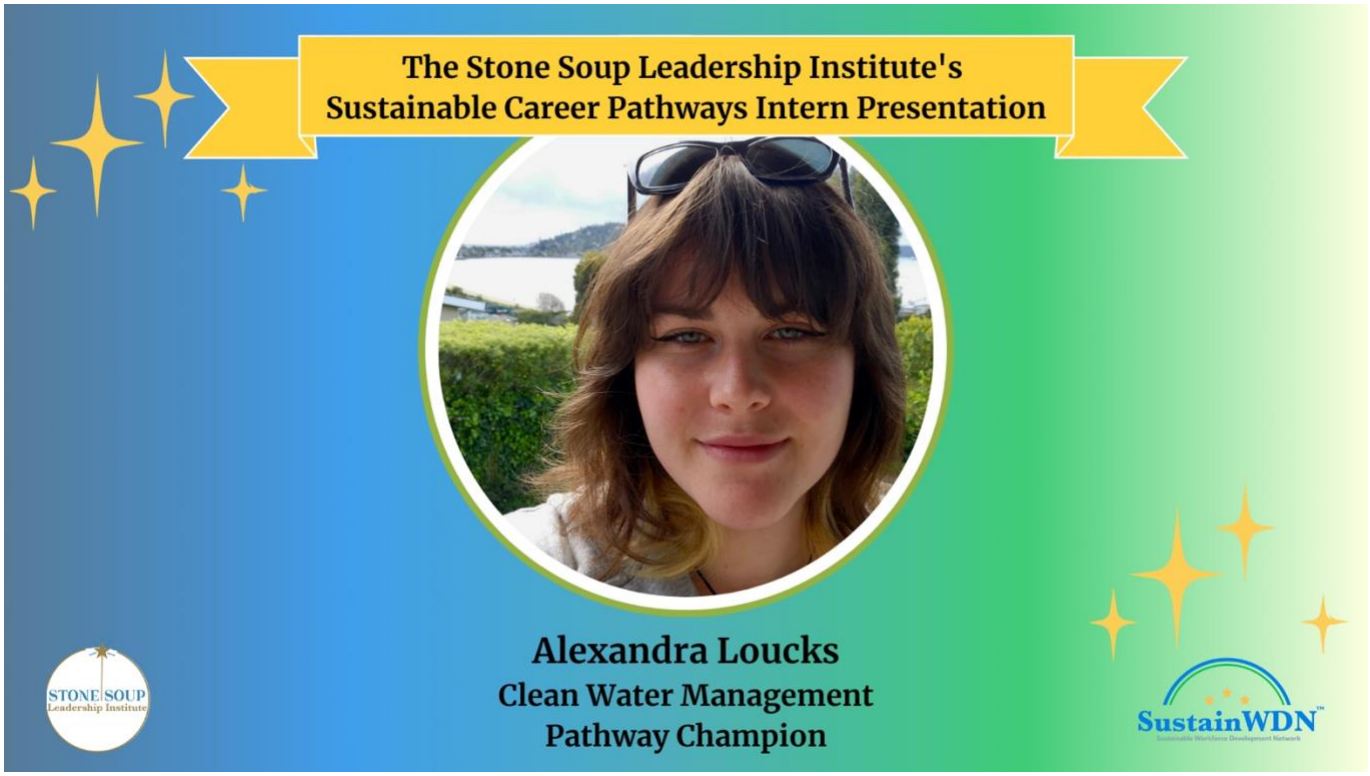


Clean water management is a vital and rewarding field that protects public health, supports the environment, and ensures access to safe water for communities. Jobs like Wastewater Operators take part by ensuring that sewage and industrial waste are safely treated and released back into the environment, protecting public health and preserving water quality for ecosystems and human use.

The Future of Wastewater Operators in California:

In modern day, California's wastewater management sector is experiencing significant workforce challenges. This is due to a combination of an aging workforce, increasing retirements, and a shortage of skilled workers.

Employment Statistics:

- In May of 2023, California alone employed approximately 10,620 water and wastewater treatment plant and system operators (with an average annual wage of $81,510).
- Approximately 37% of California's water workforce is over the age of 50, leading to a wave of retirements known as the *"silver tsunami."*
- About 67% of California water agencies report difficulties in recruiting water and wastewater operators.
- There is a significant gap in technical skills, with many agencies struggling to find trained and certified applicants.
- Organizations like the California Water Environment Association (CWEA) are working to elevate the profile of water-related careers and encourage more individuals to pursue opportunities in this field.

These statistics stand together to show that there is a huge pool of untapped potential in the field for wastewater operators. They are needed and wanted, but the workforce isn't there due to a lack of certifications and trained individuals. Which is worrisome since wastewater operators are essential operatives for ensuring public health, environmental protection, and sustainable water management.

As aging infrastructure, population growth, and climate change place increasing pressure on water systems, there is a critical and growing need for well-trained individuals to operate and maintain wastewater treatment facilities efficiently.

So, as a *Community* College, there is no reason for us not to take part in creating programs and resources to help cultivate the next generation of wastewater operators.

College of Marin can prepare students for high-demand, stable careers that also help safeguard communities since these careers ensure clean waterways, regulatory compliance, and the responsible reuse of water resources. All of this makes these courses a vital investment in both workforce development and the future of environmental stewardship.

Community College Programs in Wastewater Operations

Several California community colleges offer specialized programs designed to equip students with the necessary skills and knowledge for wastewater operator roles. Below is an overview of notable programs:

1. **Clovis Community College**:
    - Programs Offered:
        - Wastewater Treatment Operator Certificate
    - Certification Preparation:
        - State Water Resources Control Board (SWRCB) Grades I–III
    - *Duration:* Two Semesters
    - Key Courses:
        - Basic and Advanced Wastewater Treatment
        - Water Mathematics
        - Water Distribution

2. **Cuyamaca College**:
    - Programs Offered:
        - Wastewater Treatment Operations Associate in Science
        - Wastewater Treatment Operations Certificate of Achievement
    - Certification Preparation:
        - SWRCB Grades I–V
    - Key Courses:
        - Basic and Advanced Wastewater Treatment
        - Wastewater Collection Systems
        - Laboratory Analysis for Water and Wastewater
        - Mechanical Maintenance

3. **Shasta College:**
    - Program Offered:
        - Water/Wastewater Treatment Certificate
    - Certification Preparation:

        - SWRCB Grades I–II
    - Key Courses:
        - Intro to Water Treatment Technology
        - Introduction to Wastewater Treatment
        - Intermediate and Advanced Treatment Courses

4. **Solano Community College**
    - Programs Offered:
        - Water & Wastewater Technology Associate in Science
        - Water & Wastewater Technology Certificate of Achievement
    - Certification Preparation:
        - SWRCB Grades I–III
    - Key Courses:
        - Wastewater Treatment Technology
        - Water Distribution Systems
        - Laboratory Techniques

Certifications and Associate Degrees:

To ensure students are adequately prepared for the workforce, the following certifications and degrees are recommended:

Certifications:

- SWRCB Wastewater Treatment Operator Grades I–V
- CWEA Wastewater Collection Systems Grades I–IV
- CWEA Laboratory Analyst Grades I–IV
- AWWA Water Distribution Operator Grades I–IV
- Backflow Tester and Cross-Connection Control Specialist

Associate Degrees:

- Wastewater Treatment Operations Associate in Science
- Water/Wastewater Technology Associate in Science

These certifications and degrees align with industry standards and regulatory requirements, and enhance employability and career advancement opportunities for graduate students.

Recommendations on Integrating the Programs

To effectively integrate a wastewater operator career pathway into your college's curriculum, consider the following steps:

1. *Curriculum Development:* Collaboration with industry professionals (Robert Rak) and accrediting bodies to develop a curriculum that meets SWRCB and CWEA standards.

2. *Faculty Training:* Engage current instructors and possible future instructors with practical experience in wastewater operations who are and can be certified professionally.

3. *Partnerships*: Establish possible partnerships with local water agencies and wastewater agencies to provide students with hands-on training and internship opportunities.

    a. *Local Water Agencies*: Marin Municipal Water District, North Marin Water District, and Bolinas Community Public Utility District.

    b. *Local Wastewater Agencies:* Sausalito-Marin City Sanitary District, Sewerage Agency of Southern Marin, Central Marin Sanitation Agency, Sanitary District No. 5 of Marin County, and Tamalpais Community Services District.

4. *Certification Preparation:* Offer preparatory courses and workshops that can help students pass certification exams, which can be through a study group or a completely online course offered

5. *Advisory Board:* Form an advisory board comprising industry experts to provide ongoing guidance and ensure the program remains relevant to current industry needs.

By implementing these strategies, our college could develop programs that would play a pivotal role in addressing the workforce needs of the wastewater industry and provide students with valuable career opportunities, contributing to the sustainability of water resources in California.

- **Career Scope**: Environmental engineers design and implement solutions to issues like pollution, water treatment, waste management, and sustainability, working across industries such as consulting, government, and nonprofits.
- **Career Pathway**: The typical path begins with a degree in environmental or civil engineering, internships for hands-on experience, and progression into mid- and high-level roles such as project managers, technical experts, or sustainability advisors.
- **Job Market**: The career is in high demand, with projected above-average 7% growth and around 3,000 new job openings annually in the U.S., offering salaries from $75,000 (entry-level) to $125,000+ (senior level)
- **Entry-Level Roles**: Focused on sampling, compliance, and system design under supervision.
- **Mid- and High-Level Roles**: Mid-career professionals take on management and specialization roles, while senior engineers become directors, partners, or leaders of company-wide sustainability initiatives.
- **Pros & Challenges**: The work is impactful and varied, offering high job satisfaction, but comes with regulatory red tape, limited creative freedom, and the need to navigate political and community pressures.
- **Community College as a Launchpad**: Schools like College of Marin offer a strong STEM foundation, transfer support to top UC/CSU programs, and access to introductory engineering and environmental courses. There are also internships available only to enrolled college students.
- **California Advantage**: Students benefit from local access to leading engineering firms (e.g., AECOM,Tetra Tech, Kleinfelder) and UC campuses with top environmental programs, bolstering education andjob opportunities.

Recommendations for College of Marin

1. **Create a focused Environmental Engineering Certificate** or course bundle (non-degree or associate-aligned) to give students early exposure to real tools and concepts. The certificate should include:
    - Intro to Environmental Engineering
    - Environmental Chemistry
    - GIS for Environmental Applications
    - CAD for Infrastructure Design
    - A field/lab component with water, air, and soil testing
    - Advising and course alignment with UC/CSU environmental engineering programs (e.g., UC Davis, Cal Poly)

2. **Create formal agreements with Bay Area environmental engineering firms** so that students can gain real-world skills, improve resume competitiveness, and help students confirm career fit. Examples of partnerships include:
    - Paid summer internships for COM students
    - On-campus career panels or mentorship days
    - Project-based collaborations with COM classes or clubs

6-Month Certification Timeline for Environmental Engineers

Month 1: Safety Foundation
- **Certification**: HAZWOPER 40-Hour Training
- **Objective**: Establish essential safety credentials for fieldwork.
- **Action**: Enroll in an OSHA-authorized online course.
    - OSHA Education Center (Online)
    - OSHA.com (Online)
    - ClickSafety (Online)

Month 2: Municipal Compliance
- **Certification**: Certified Stormwater Inspector (CSI)
- **Objective**: Gain expertise in municipal stormwater regulations.
- **Action**: Register for a 2-day live online or in-person course
    - Live Online & In-Person Classes (varies by location): CSI Training Schedule
      🔍 Click on "Certified Stormwater Inspector" to see virtual and on-location sessions across the U.S.

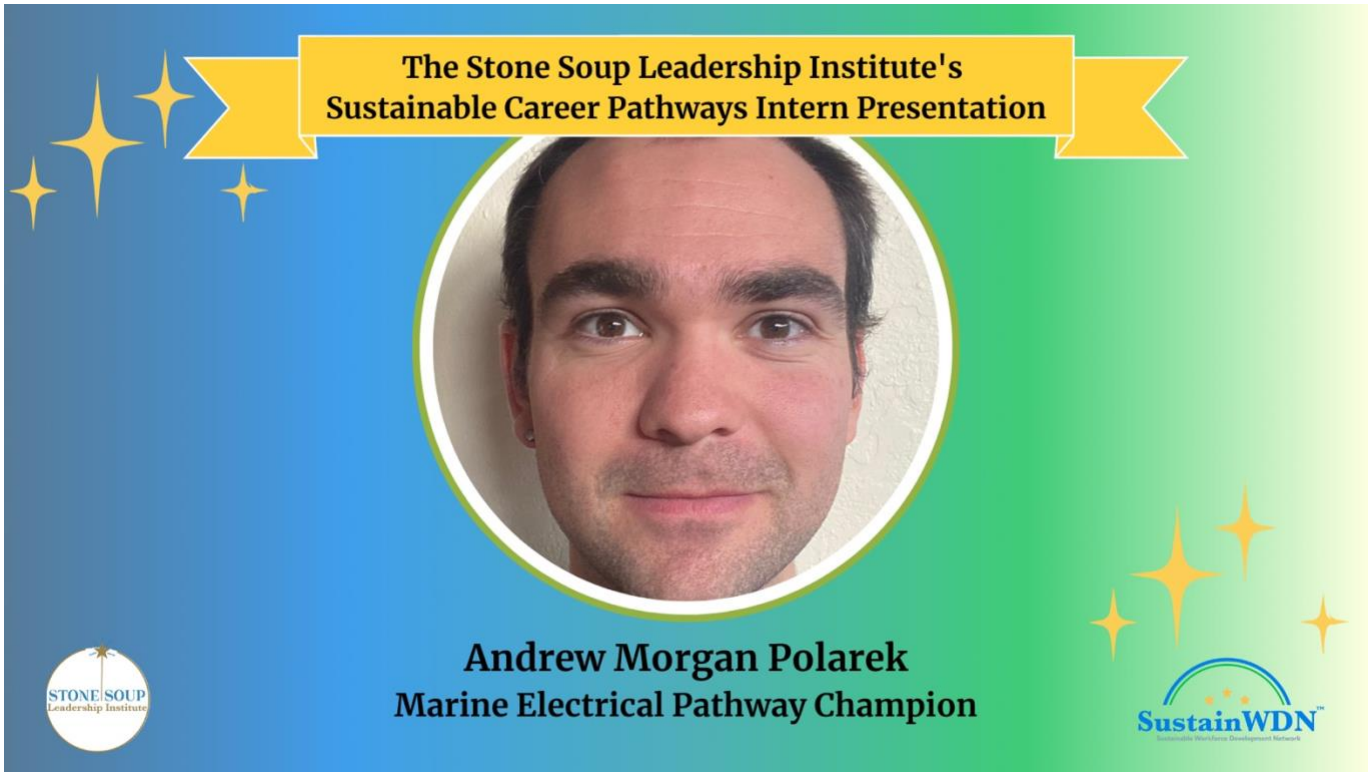
Month 3: Environmental Fundamentals
- **Certification**: Associate Environmental Professional (AEP)
- **Objective**: Build a strong foundation in environmental regulations and practices.
- **Action**: Utilize self-study materials or attend a workshop.
    - **Self-Study Guide** (Free PDF): Download AEP Study Guide
    - **Online Workshop** (Live virtual): Register for AEP Workshop; 📅 Runs periodically – check NREP for next available dates.

Month 4: Safety & Compliance

- **Certification**: Certified Environmental and Safety Compliance Officer (CESCO)
- **Objective**: Enhance knowledge of environmental and safety compliance.
- **Action**: Participate in a live online workshop or self-study
    - Self-Study Guide (Free PDF): Download CESCO Study Guide
    - Live Online Workshop: Register for CESCO Workshop

Months 5–6: Specialized Inspection

- **Certification**: Certified Erosion, Sediment, and Storm Water Inspector (CESSWI)
- **Objective**: Specialize in erosion and sediment control inspections.
- **Action**: Engage in online learning modules and prepare for the exam.
    - Online Learning Management System (LMS): CESSWI Prep Course  Includes downloadable study material and practice questions
        - Exam Application Guide: CESSWI Handbook & Eligibility



Marine electricity is a small but important part of the blue economy. One of the most vital tasks in strengthening a sustainable economy is a transition to sustainable energy and vehicles that use it. The maritime industry is no different than the automobile industry in this regard. The transition is already underway, and as it progresses, the need for marine electricians will increase.

Job Projections

General Electrician

- Employment of Electricians is currently projected to grow 11% from 2023-2033
- An average of 80,200 openings are projected for each year

Marine Electrician

- Projected growth of 5% in the next decade
- Currently ~7,900 employed
- ~5,400 positions will open over the next decade
- Highest concentration of marine electricians is in California at ~1,850
- Second highest is Texas at ~870
- Average Salary ~$73,000 annually

While the job market for marine electricians is currently low, electric boats are expected to grow from a $5 billion to a $16.6 billion market by 2031. This growth will increase the demand for qualified marine electricians, and given the current size of the job market, I expect there will be a large number of unfilled positions that college students who follow this pathway can fill. Additionally, there is already a significant lack of marine electricians in Sausalito according to Curtis Havel, the harbormaster of Clipper Yacht Harbor, who is intimately familiar with the Sausalito waterfront and the rising number of electric vessels in his and other marinas.

Job Pipeline

Entry-Level Jobs

- Apprentice
  - Requirements
    - GED highly suggested
    - A familiarity with basic electrical systems is helpful
  - Pay: ~$35,000 - $50,000 annually
- Assistant
  - Requirements
    - High school diploma/GED required
    - Entry level certificate or vocational training in marine electricity
  - Pay: ~$45,000 - $60,000 annually

Mid-Level Jobs

- Electrical Engineer
  - Requirements
    - 3-5 years of experience
    - Bachelor's Degree in electrical or marine engineering
    - Certificates from ABYC (American Boat and Yacht Council) and NMEA (National Maritime Electronics Association)
  - Pay: ~$50,000 - $120,000 annually
- Marine Electrician
  - Requirements
    - 2-5 years of experience
    - Technical/Associates Degree in Marine Engineering or related field
    - ABYC and NMEA certificates required
  - Pay: ~$55,000 - $80,000

Advanced Jobs

- Marine Electrical Consultant
  - Requirements
    - Bachelor's or Master's Degree in Marine or Electrical Engineering
    - 10+ years of experience
    - Aforementioned certifications
  - Pay: ~$100,000 - $200,000 annually

Local Apprenticeship and Certification Opportunities

Spaulding Marine Center

- Boatworks 101: 12 month paid apprenticeship program in marine service industry
    - Marine electrical included
- 18+
- No experience required
- ABYC registered curriculum
- State and nationally registered program
- College credit through Las Positas Community College (Livermore CA)
- Networking with local maritime companies
    - Final 3 months include placement with a partnered company
- Assistance with job placement after apprenticeship
- Pays $21.42 an hour for the first 6 months; $22.50 for the last 6 months

Las Positas Community College (Livermore CA)

- Coordinates with Spaulding Marine Center for Apprenticeship Marine Technology Courses
- Boatworks 101 apprenticeship required
- Offers Electrical Engineering Associate's Degree and Certification of Achievement

Green building combines sustainability with stable career opportunities. Because all buildings require operators and technicians, green building jobs can be found across many sectors. Regardless of the setting, these careers play a critical role in reducing energy use and carbon emissions. With ongoing workforce shortages in energy and water systems, job growth in this sector is projected to exceed 5%, signaling strong demand for skilled, well-paying positions that support a resilient and sustainable economy. At the senior level, facility managers often influence decisions to adopt greener technologies, such as solar panels or smart systems. To lower the carbon footprint of urban environments, we must prioritize training and engaging building managers and operators.

Pathway Highlights & Components

Certain skills are prioritized by employers, particularly for mid- and senior-level professions in the green building industry. Certifications and community college programs make this pathway accessible and adaptable.

- Key skills include HVAC, plumbing, electrical systems, and automation technology.
- Training and associate degrees are being offered at San Jose City College while more local HVAC training programs are provided in Mt. San Antonio College, and the Associated Builders and Contractors.
- State-wide certificates can be found such as the Building Operator Certification and LEED.

Career Progression

Jobs in the Green Building field are projected to grow by 5% in the coming years, according to the Bureau of Labor Statistics. In addition to high demand for jobs, many jobs have low turnover rates due to employee and union benefits, as well as opportunities to level up in ranks. While hands-on experience is key in this field, certifications can be beneficial as one aims for more senior and higher-paying jobs.

- **Entry-Level**: Building Maintenance Technicians may start out as groundskeepers and receive on-the-job training to conduct basic repairs, often earning $40–60k/year in California.
- **Mid-Level**: Green Building Technicians are often required to be certified in HVAC/plumbing/electrical installation and can earn salary ranges of $70–90k in California.
- **Advanced**: Building/Systems Operators are senior-level positions that often revolve more around the oversight of systems and teams, with positions earning $90–110k+.

Workforce Insights

Job titles may differ, but the responsibilities are often the same—highlighting the need for higher education programs to align training with real-world hiring practices. Community colleges, and College of Marin in particular, can play a key role in this through:

- Offering short-term certificates in the green building and maintenance fields.
- Partnering with local employers for on-the-job training and pathways.
- Providing bilingual, accessible training in sustainable construction methods through the existing programs with Canal Alliance.
- Integrating green building content into existing real estate curricula—for example, by teaching sustainable building materials and home energy efficiency ratings.

How we grow our food is one of the most important issues we face in our time. **Regenerative Agriculture is a growing movement to switch from a destructive food production system, to one that heals.** It looks beyond a single crop, and views the land as a whole ecosystem. It uses plants and animals in a way that mimics natural mutually beneficial relationships. It combines ancient knowledge with the newest scientific discoveries. Multiple species work together to create farms that produce higher crop yields of more nutrient dense foods, while improving soil fertility, biodiversity, and resiliency. They create healthier products, are more profitable, and help our ecosystem.

Most people don't understand how destructive conventional agriculture is to our environment, our bodies, and our future. 1/3 of our greenhouse gas emissions come from our food system. Pesticides that are proven to cause cancer are found in our drinking water, groundwater, and are in the air we breathe. Less than 1% of the poison sprayed on our crops actually reaches its intended target. The rest goes into our environment and our bodies. Here in Marin County, we have lost over 95% of our butterflies, which are pollinators that our ecosystem depends on. Using fertilizers and monocropping leads to the loss of topsoil. Each year farmers need to use more fertilizers to grow the same amount of food. The food itself contains less nutrients. The USDA reported that over 40 of the crop types produced today contain a fraction of what they did 100 years ago. To get the same amount of calcium or vitamins, you might have to eat 10 times as many strawberries that your grandparents got from a single serving. Each year conventionally farming depletes the land and kills surrounding wildlife. Thats the definition of unsustainable.

Regenerative farming focuses on building soil fertility. Each year carbon is drawn into the soil through plants. This helps reduce risks of floods, droughts, fires and topsoil loss. You might have heard how bad cows are for the planet. Regenerative cattle ranches can actually sequester carbon in the soil. It is estimated that if every farm switches to regenerative agriculture, it will absorb all the carbon emissions that humans produce - everything. We can solve a huge factor in climate change if we just farm smarter. Half of the world's habitable land is used for agriculture, so changing how we farm will have a huge impact. By adding trees to ranches for shade and wind relief, cows are happier and have a better feed conversion ratio. That means you can produce more food with less land, while providing habitat for wildlife. Farms can add cover

crops or companion plants that enrich the soil and attract beneficial wildlife and deter unwanted pests. This allows farmers to stop using poisonous pesticides and fertilizers. Creative and thoughtful planning is a core aspect of Regenerative agriculture. Every farm is unique so there is no "one perfect way" to farm. We need people right now to discover new techniques and methods of producing foods.

A Variety of Skills are Needed

Since every farm is different, and every crop and region are unique, there is a great deal of variation in jobs and requirements in the Regenerative Agriculture Pathway. 8% of all jobs in California are related to agriculture. There are many jobs that a farm needs beyond cowboy or gardener. If you are interested in working at a regenerative farm but are not interested in animals or plants, or you have great skills in other areas, here is a list of some other jobs that are also very important:

- Arborist
- Botanist
- Microbiologist
- Soil scientist/ Agronomist
- Organic fertilizer specialist
- Organic pest management
- Efficiency planner
- Warehouse management
- Transportation- drivers transporting goods
- Transportation logistics coordinators
- Packaging
- Marketing
- Graphic design
- Farm Design Planner
- Electrical engineering- both installing, repairing and incorporating new methods of energy saving to farms
- Irrigation specialists
- Plumbers
- Greenhouse Construction and design
- Automation experts
- Mechanic
- Drone Operators
- GIS specialists
- Analysts- for compiling, making sense of information, and recommendations
- Researchers
- Veterinary/animal welfare specialist
- Butchers
- Waste management
- Graphic designer/ website creation
- Community outreach specialist
- Tour guides

- Event planners- lots of farms do weddings and host gatherings

Here is a look at a few jobs in greater detail

The Entry Level for Regenerative Agriculture: Farm Hand or **Farm Assistant.**
This has a salary base range of $18-$25 an hour. It is a great way to start building experience, make connections and see if this is something your interested in. You might love working with livestock or discover you are more of a plant person. You may learn that working with people, in an office, or lab work is more your thing and can pursue the education or certification required for that area. Working as a farm assistant you might plant, work soil, mend fences, make calls, or work at a desk on spreadsheets. This could mean doing anything that needs doing on a farm.

Basic to Mid-Level: Soil scientist to Soil Agronomist.
The base pay range here can be from $20-$80 an hour. It really varies by region, experience, and education level. There are certificates for the lower-level ranges and degrees (Agronomy, Soil Conservation, Botany, etc) for the upper-level of this range. Soil health is the heart of understanding regenerative agriculture. This could mean working full-time on a single farm, conducting research experiments, or traveling throughout a region. You could be visiting new sites each week as a consultant, taking soil samples, and giving recommendations. It could be field work, lab work, or desk work.

Mid-Level: Farm Manager, Agriculture Specialist, Senior Regenerative Designers.
Farm Managers positions do not necessarily require a degree if you have experience, but it helps and may be required in some places. Specialists usually have certifications or degrees. A master's degree here gives you a definite leg up. Generally, the higher your education and experience level, the higher your pay is. There is great variation in the pay range here, 60k a year to 190k. Task include managing entire farms, working with staff and board members, and being able to plan and design all aspects and operations.

Upper Level: Director of Research, Corporate Director.
This is running larger programs or studies. Directing staff, planning and running projects, working with board members and stakeholders, and fundraising. Masters degree and many years of experience are required. The pay range can be 100k to over 200k annually.

Certification Resources

Introduction to Permaculture, taught by Andrew Millison, Oregon State University
- First intro course is free; full certificate program is $900-$1350
- https://workspace.oregonstate.edu/course/free-introduction-to-permaculture

Soil Food Web Course, taught be Elaine Ingham, Soil Learning Center
- First course is $900; full certificate program is $5000
- https://www.soilfoodweb.com/foundation-courses-2/

Practical Permaculture and Agroforestry for Farmers, taught by Mark Shepard, Acres USA
- Cost: $200-250
- https://learn.acresusa.com/courses/practical-permaculture

Water Harvesting Design Certification, taught by Brad Lancaster, Watershed Management Group
- Cost: $1300 (student discounts available)

- https://watershedmg.org/learn/training/certification

Rotational Grazing & Polyculture, taught by Joel Salatin, Polyface Farms
- In-person seminars, prices vary
- https://polyfacefarms.com/courses-workshops

Permaculture Design, taught by Geoff Lawton, Zaytuna Farm
- 3-day in-person sessions
- Cost: $3000
- https://www.zaytunafarm.com

Recommendations to College of Marin

Job Fairs – Where students can meet local job creators, ask questions, and see if they would be a good fit. They might learn about opportunities they didn't know existed or meet people they would love to work with and learn from.

Guest Lectures – Bring in leaders in the field to speak about their work.

Certificate Programs - on campus or connected to other schools. It would be fantastic to have collaboration with other colleges. College of Marin doesn't offer many classes and applying to another college is a barrier for some students. It might just be too much of a hassle. Make it easier to enroll in a hybrid class online with someplace like Santa Rosa Junior College- maybe even have the teacher be able to rotate campuses so at least once a semester students can participate in hands-on learning without having to worry about transportation or scheduling conflicts. Making it easier for students to achieve success in programs it might otherwise be too difficult or costly for COM to create on their own.

Work Study/ Paid Internships – Create a program at COM where students can work for a month or two at one farm before rotating to another. An olive orchard is very different from a dairy. Working with goats is a lot different than a 1500-pound steer. Some farms will only hire people with previous hands-on experience so this could be the best way to help students get started. It's also a chance to discover what they like and don't like without having committed 4 years into a degree they aren't suited for. Students could start with classes on professionalism in a workplace or required knowledge to work in the sites like agriculture, botany, soil science, and how to work with animals.

In all ways of regenerative aquaculture, water is borrowed and repurposed, not 'used'

Designing Aquaculture Certifications at College of Marin

Hands-on training, combining online classes through COM and laboratory courses through the Bolinas field station, would give students purpose, introducing them to the real world and jobs that they may want to pursue.

What roles or career paths would a certification ideally prepare students for?

- Entry-level: Aquaculture technician/Entry-Level Aquarist
- Mid-level: Aquaculture Farm Manager/Aquaculturist
- Advanced-level: Aquaculture Research Scientist

What subjects should be included in an aquaculture certification program?

- Water quality, marine/fish biology & plant biology, how to operate aquaculture farms

What would make a certification from our college recognized or respected in the industry?

- Important topics to incorporate in a curriculum for aquaculture certifications include: Nutrition, Animal husbandry Therapeutics, Marketing of products business, Water quality, how pH works, broader knowledge in business and in agriculture
- A Certificate program should ideally take between 6 months to 1 year.

What should students understand about aquaculture?

- Students can work after community college and don't always need an extensive degree, mostly just finding a good company and working up within it
- It's strategic to get a broad sense of aquaculture and a broad range of experience, then more specific with experience into what you like to do
- People must protect the environment - aquaculture addresses producing crops while preserving the environment and growing food in a sustainable way
- Experience requirements for entry-level positions can include volunteering and internships
- Both paid and unpaid position exist for internships
- Sometimes companies don't like to train interns because this is a large commitment for the employer whereas an employee can just get trained on the job when starting
- Instructors for courses like agriculture and business management can recommend passionate students for summer positions and work-study positions
- There are different roles to fill within aquaculture based off personal interests - feeding fish is more for employees who like to nurture animals whereas other positions are for machinery operations or management

Are there existing certifications or industry standards the COM should align with?

- Laura Rink, Associate Director of Operations for the Heal the Bay Aquarium & Aquaculture faculty at Santa Monical College, provides hands-on learning for the Santa Monica Community College courses in aquaculture and trains Hog Island employees. She had the only panel of students at BECAP

How might COM work with community partners to promote Certificates in Aquaculture?

- Negotiating with Private Businesses that sell regents, have clients and supplies, and can provide tests to do at specific sites
- Encouraging Person to Person contact along with zoom, having flexible ways of navigating the newer world through zoom is just as important as having workshops/classes of grunt work to contribute to the hours needed for the certificates
- Finding sources of Money: can be done via federal funding or business support

Research into local companies

California Aquaculture Association: mission of showing that aquaculture also helps with clean water supply and mitigating the rising food insecurities, important especially when considering how important kelp is

MARE: important groundwork partnership -- they can further connect students as well as spread the message about aquaculture being important for the future of food and water use

Careers in Aquaculture on the Sustain WDN Platform

Entry Level: Aquaculture technician

- **Highlights**: Under resources through California Aquaculture Association they offer both a discount to World Aquaculture Society Aquaculture conference registrations and discounted insurance rates from Ridgemark Insurance when becoming a member for 30$/yr which i think is a very important factor when deciding which resource to follow-through with
- **What was helpful:** Certifications and degrees I think is a very important section because as a college student I would go here or to resources first. The list is very comprehensive, does not focus on one specific state, and provides reasonable state school programs for aquaculture technician
- **What would I like to see more of:** Link to local business SeaTrek is a bit confusing

Entry Level: Entry-Level Aquarist

- **Highlights**: Most work experience needed is volunteering or internship experience, I think highlighting this is important because it shows that even if you have an introduction to something, like handling animals, you can find a pathway; Specifies that training is usually done on the job - takes the stress off of students to know most entry level jobs will provide assistance
- **What was helpful:** Has the most helpful resources towards the top - such as California Aquaculture
- **What would you like to see more of:** Because Aquaculture technician is a related job, it would be great to provide a link to that job on the Sustain WDN page - encouraging more users to want to engage with the page

Mid Level: Aquaculture Farm Manager

- **Highlights**: Under resources, Humboldt State University says most graduates qualify for the American Fisheries Society as Associate Fisheries Scientists. They also further explain how they would like their students to prepare: 'We recommend that high school students interested in fisheries biology take as many challenging biology, chemistry, mathematics, and computer classes as possible, and that they also stress oral and written communications.
- **What was helpful:** Has the most helpful resources towards the top but also the same resources as the entry-level jobs - provides more incentive of once you've done the research once there's not endless work to figure out your path
- **What would you like to see more of:** I would love to see more certifications/degrees from state and UC schools - UC is specific to california so State schools from multiple states would be helpful, I also think some message or positive/uplifting quote could be helpful - potentially from Perry Raso

Mid Level: Aquaculturist

- **Highlights**: Both mid level jobs involve overseeing entry level positions - this potentially means that this type of job provides one that students can 'work up' , having integral steps between job titles while having it all be at the same company is incentive for people my age because it shows stability
- **What was helpful:** Including an explanation for the rise in jobs relating to aquaculture - Increasing global demand for sustainable seafood, new aquaculture technologies, and expansion in fish farming operations - is important because it provides a deeper understanding to what the student wants to pursue. I also think having this under the premise of Matunuck oyster bar is important because it shows change and opportunity in real time
- **What would you like to see more of:** Other local businesses to get involved with - potentially one to gain volunteering or internship experience in or someone to contact at a business to further answer questions students may have

Advanced: Aquaculture Research Scientist

- Highlights: Students need a PHD and/or 5–10 years of experience in aquaculture research and further experience with writing grants for research projects; Wildtype organization focusing on a specific type of implementing research into aquaculture - finding ways of improving the future of seafood - includes open positions and recent up-to-date posts to get engaged with
- What was helpful: Including a full list of related jobs helps to give students a better idea of what they can also go into when they pursue aquaculture, a lot of options require PHD's including Aquaculture Research Director, Aquaculture Sustainability and Environmental Strategy Expert, and Aquaculture Policy Advisor
- What would you like to see more of: Any type of support to introduce students into what grant writing looks like and if they want that to be their future - a template or a possibly youtube video explaining what it means to write grants for research

The Blue Tech industry includes technologies and innovations that support the health and productivity of the ocean ecosystem that plays a critical role in the blue economy, covering areas such as marine robotics, ocean sensors, and renewable

It combines innovation, engineering, and sustainability to address real-world challenges. The industry is relevant globally and particularly impactful in California's coastal regions.
Job Growth: Rapid expansion across engineering, marine technology, and sustainability sectors.

Blue Tech Salaries & Roles

- Entry-Level: $40K–$90K
- Mid-Level: $75K–$170K
- Advanced Roles: $140K–$350K

Top Roles: Junior Engineers, Electronics Designers, Product Managers, Strategy Leads, CTOs.
Education: High School Diploma to PhD, depending on the position.
Experience: Entry-level roles require minimal experience; advanced roles require 5–10+ years.

Blue Tech Certifications

- CompTIA (IT fundamentals, networking)
- Autodesk (CAD skills)
- AWS Cloud or Azure Fundamentals
- Environmental Tech or Science Certificates
- Electronics and Mechatronics

Northern California Programs:

- Santa Rosa Junior College – Environmental Science
- Laney College – Mechatronics / Green Tech
- Solano College – Energy & Sustainability
- San Francisco City College – Engineering & Tech Skills

Recommendations for COM Students

- Start with core engineering or computer science classes.
- Apply to internships related to Blue Tech (ocean, robotics, sustainability).
- Look into certificate programs at local colleges.
- Build a strong portfolio with personal and academic projects.
- Use LinkedIn to find opportunities and connect with professionals.

What COM Should Know

- Blue Tech supports strong career pipelines for California's future economy.
- Students benefit from integrated certificate programs and internships.
- Employer partnerships, field trips, and speaker events can enhance engagement.