Surfing the Silver Tsunami with Work-4-Water:
Elevating Hawai‘i’s Wastewater Workforce from Ridge to Reef

Work-4-Water

Gabby Saba
Program Director

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

The views in this presentation are the presenters and are not reflective of NOWRA.



GABBY SABA

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Program Director,
Wastewater Alternatives & Innovations (WAI)

BA, MT University of Virginia
Oʻahu, Hawaiʻi

Agenda

1) Hawaiʻi Water Sector Workforce Crisis
2) WAI's Work-4-Water Pre-Apprenticeship Program
3) Lessons Learned
4) Call to Action

WAI's Mission

WAI empowers communities to advance wastewater solutions that reduce sewage pollution, protect water quality, and support healthy watersheds





WAI's Vision

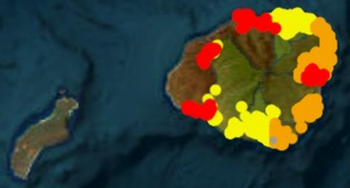
Clean Water for Hawai‘i

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

WAI's Five Pillars

- Innovative Technology
- Water Quality
- Workforce Development
- Education & Advocacy
- Financial & Community Resources

83,000+ CESSPOOL PROBLEM



Kaua‘i
14,300

O‘ahu
7,491



Moloka‘i
1,400

Maui
11,038

Hawai‘i Island
48,596

Priority 1 = 13,821 cesspools
Priority 2 = 12,367 cesspools
Priority 3 = 55,237 cesspools

Source:
2024 Hawai‘i Cesspool Hazard Assessment & Prioritization Tool Report

hawaiicesspooltool.org

Gove et al. 2023 Nature

Increasing land-based sources of pollution and decreasing herbivore fish populations are two of the biggest stressors on the survival of Hawai‘i’s reefs

Gove, J.M., Williams, G.J., Lecky, J. et al. Coral reefs benefit from reduced land–sea impacts under ocean warming. Nature 621, 536–542 (2023). **https://doi.org/10.1038/s41586-023-06394-w**



Photograph: Dr. Greg Asner, Hawai‘i Marine Education and Research Center & Arizona



Photograph: Dr. Greg Asner, Hawai‘i Marine Education and Research Center & Arizona State University

THE COST & WORKFORCE IMPACT OF CESSPOOL CONVERSIONS

📜 Act 125 Mandates 83,000+ Conversions Completed By 2050

💵 Conversion Costs $30,000-$50,000 Per Home

💰 Estimated Total Cost ~$3-4 Billion

🛠️ Long term O&M, Regulation & Inspection Of Systems = 📈 Workforce Capacity

Ahupua‘a

- **Interdependence mauka to makai**
  - water quality & wastewater management
- **Modern water & wastewater management can learn from ‘Ike Kūpuna:**
  - Integrated watershed management
  - Community stewardship
  - Sustainable pono practices
- **‘Āina based education**
  - Ground haumāna in cultural values
  - Engage next generation of watershed stewards in Good Jobs



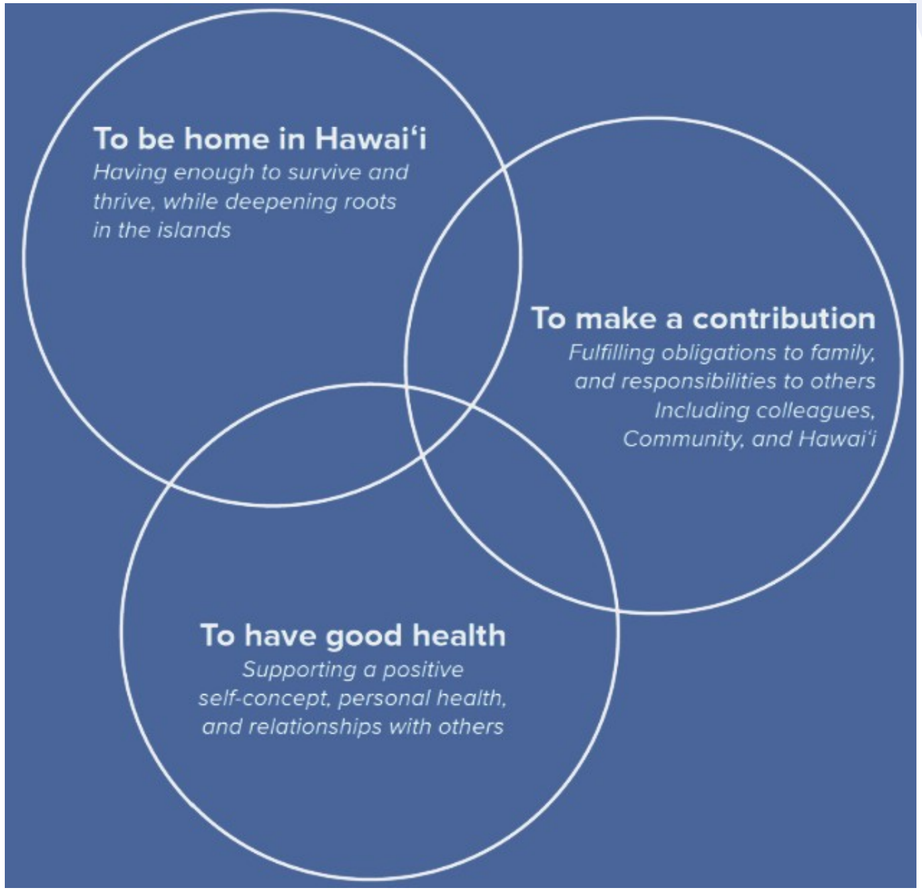
WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Hawai‘i Workforce Crisis

Hawai‘i Workforce Funders Collaborative

- ~30% of 170,000 youth entering HI workforce over next decade, face lack of opportunities to build a sustainable future here
- Local workers value “Good Job” more than wages
- Factors like ability to help a worker fulfill family obligations, community impact, environmental sustainability and physical and mental health play a crucial role in how jobs are perceived

A Good Job in Hawai‘i

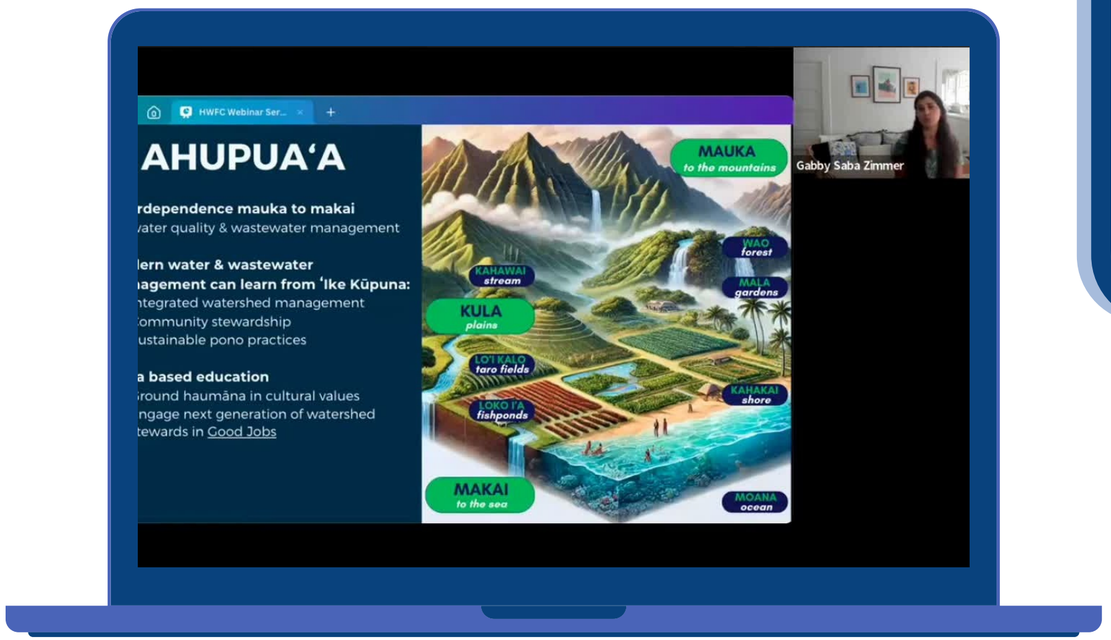


From Crisis to Opportunity: Building Hawai‘i's Workforce Resilience

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Hawai‘i Workforce Funders Collaborative Webinar

Hawai‘i Workforce Funders Collaborative



[“Turn the Tide: Solving Hawai‘i’s Wastewater Work force Shortage]

“We were honored to hear from Gabby, Stuart, and their team as they shared valuable insights into the challenges facing Hawai‘i’s evolving wastewater sector—and the promising opportunities ahead. It’s clear that through cross-sector collaboration and strengthening partnerships, we can find innovative, community-driven solutions to strengthen and grow this vital workforce.”

LorMona Meredith, Director of Community Programs,
Hawai'i Workforce Funders Collaborative

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

“Good Jobs” in Water Sector

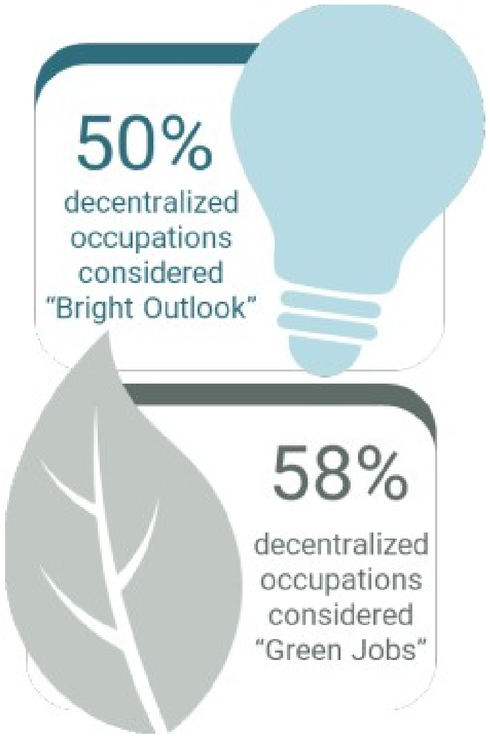


Pipeline to a Sustainable Workforce:

A Report on Decentralized/
Onsite Wastewater Occupations

EPA Office of Wastewater Management
February 2021

EPA



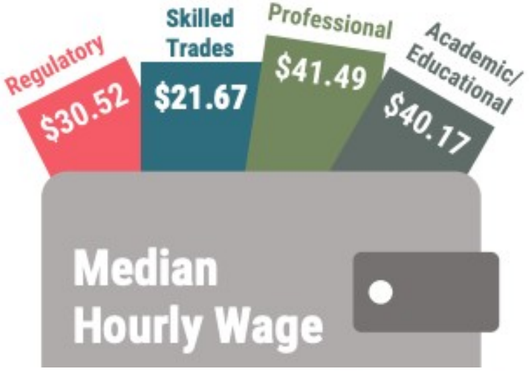
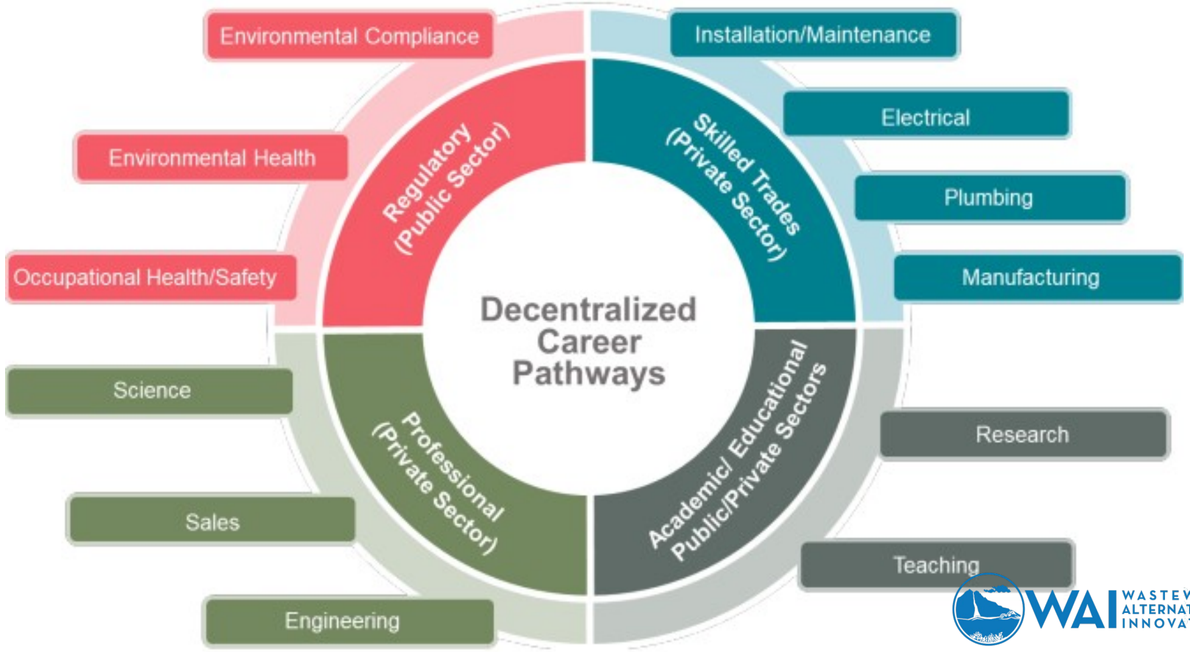


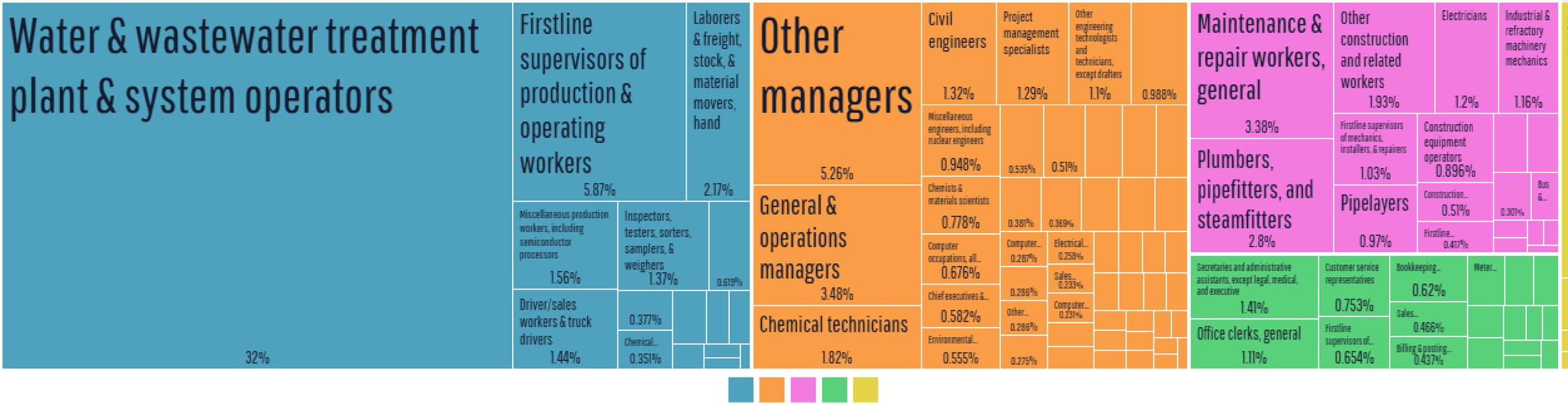
Figure 2: Decentralized Wastewater Career Pathways and Associated Job Clusters



WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Source: Data USA Sewage treatment

2023 National Occupation Distribution



[Source: Data USA Sewage treatment facilities]

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Water Sector Silver Tsunami



High demand, low supply across US & Hawai‘i

Rapidly losing experts who have operated & maintained systems for decades

⅓ of US water sector’s current workforce eligible for retirement in the next 10 years (EPA, 2024)

30%-50% of water industry positions will be left vacant in the next 10 years (EPA, 2024)

Waste Water Treatment Plant operators with Certificates in Hawai‘i decreased by 49% from 2012 to 2024 (HDOH, 2024)

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Water Sector Workforce Needs

Address Water Sector Specific Shortage

- High vacancy rates in water supply, engineering and operations
- Some positions remain unfilled for years
- Engineering roles among the most difficult to fill

Workforce Development & Training Access Needs

- Expanding capacity + aging initiatives exasperate current workforce demands
- Lack of accessible specialized training opportunities
- Geographic disparities in rural areas and outer islands

Career paths in the water sector are diverse and require specialized training:

- Drinking water utility
- Wastewater management
- Water Resource Planners
- Water System Operators
- Engineers
- Ecologists
- Chemists
- HR Professionals



Source: City & County of Honolulu Department of Environmental Services

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Work-4-Water

1. Enhance public awareness
2. Increase water sector participation
3. Improve wastewater knowledge
4. Strengthen water & wastewater career pathways

DOL Pilot Program

Focus on Maui and Hawai‘i Counties

EPA Expansion

Expands program to state and includes On-the-Job Training

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement 84195601 to WAI. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial

Work-4-Water
Program Overview

Work-4-Water (W4W) is a **FREE 8-week pre-apprenticeship program** to help strengthen career pathways into the water & wastewater sector. As a W4W student, you can access career services and additional scholarships for On-the-Job Training.

$250 Stipend

Upon course completion, additional stipend upon On-the-Job (OJT) Training completion.

Job Security

Jobs in the water and wastewater industries offer competitive pay and benefits. W4W provides access to optional career services and additional scholarships to facilitate OJT placements.

COURSE

Networking

Industry exposure, including opportunities to establish connections with potential future employers.

Impact

Help protect Hawai‘i’s natural resources and make a positive impact to your community!

NEXT COHORT
Starts Spring 2027

COurse Location
Online Course

COURSE FREQUEN
Self-Paced

SCAN TO LEARN MORE

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Supporting Thriving Water Futures through Education and Career Pathways: Perspectives from the Hawai‘i Water

UHERO
THE ECONOMIC RESEARCH ORGANIZATION AT THE UNIVERSITY OF HAWAI‘I



Work-4-Water's approach acknowledges the challenges facing students.

- **Flexible scheduling:** Night and weekend classes designed for working participants
- **Hybrid learning model:** Combination of self-paced asynchronous content and live engagement
- **Modular instruction:** 3-hour self-paced webinar per topic
- **Accountability & skill-building:**
  - Comprehension quiz to reinforce key concepts
  - Application-based exercise to connect learning to real-world water careers
- **Community & workforce connection:**
  - In-person networking and hands-on opportunities with water sector professionals
- **Ongoing Challenge**
  - Consistent participation in in-person events remains a barrier due to work schedules, transportation, and competing responsibilities

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Innovative Learning

Self-paced Webinars

Onsite System Overview

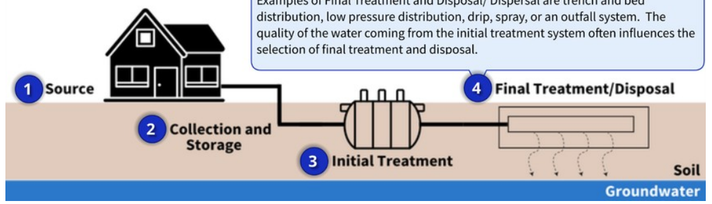
Onsite Treatment Train of Wastewater

An onsite wastewater treatment system is a system at or near the residence that collects, treats and disperses wastewater generated at the home. Specifically, the treatment train will include a wastewater source, collection and storage, an initial treatment component and final treatment/disposal phase.

Each of these four steps in the treatment process need to be checked as part of the Operations & Maintenance process. When these component are put together properly, and when all are functioning as they are intended, they achieve the goal of providing effective wastewater treatment.

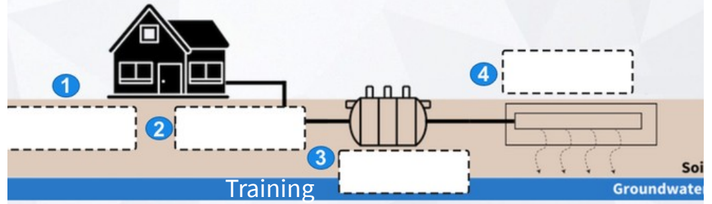
Final Treatment

Examples of Final Treatment and Disposal/ Dispersal are trench and bed distribution, low pressure distribution, drip, spray, or an outfall system. The quality of the water coming from the initial treatment system often influences the selection of final treatment and disposal.



Check for Understanding

Sort the steps in the treatment train. Click "Submit" to confirm your selection. If your sort is incorrect, the incorrect choices will be reset, and you'll have the chance to reorder them and submit your response again.



Training

Misalignment

Final Treatment/ Disposal | Initial Treatment | Source | Collection & Storage

Submit

Weekly Zoom Class

Case Study #2

Read each case study carefully. Choose the appropriate system(s) that can be installed at each given site location.

Site Conditions Description: The installation location is on a site where there is a groundwater table of 4 feet. The percolation rate is 99 min/in and the ground slope is 7%. The site is 75 feet from coastal waters. * 1 point

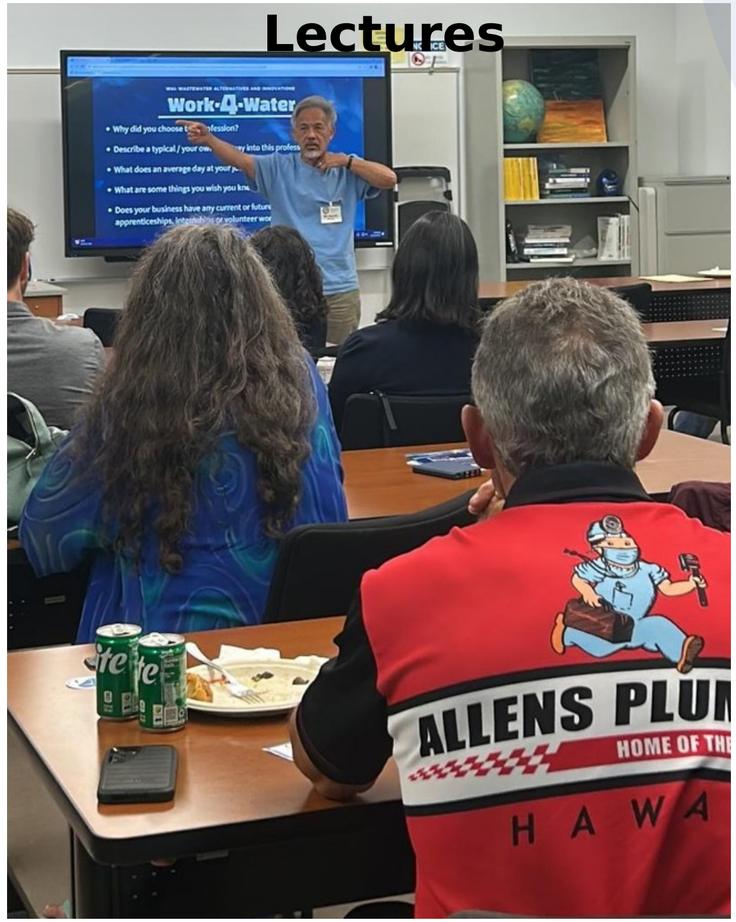
Site Conditions for Different Onsite Disposal Technologies

Technology	Technology Status	Proximity to Groundwater	Soil Perc Rate	Maximum Ground Slope	Proximity to Coastal Waters
Absorption Bed	Approved	> 3 feet	< 60 min/in	<12 %	> 50 ft away
Absorption Trench	Approved	> 3 feet	< 60 min/in	8 % < slope < 12 %	> 50 ft away
Seepage Pit	Approved	> 3 feet	< 60 min/in	≥ 12 % and absorption system not feasible	> 50 ft away
Evapotranspiration	Approval Required	< or ≥ 3 feet	> 60 min/in	< 12 %	> 50 ft away
Constructed Wetland	Approval Required	> 3 feet	> 60 min/in	< 12 %	> 50 ft away
Drip Irrigation	Approval Required	> 3 feet	> 60 min/in	Bed if < 8 % Trench if 8 % < slope < 12 %	> 50 ft away

- [ ] Absorption Bed
- [ ] Absorption Trench
- [ ] Seepage Pit
- [ ] Evapotranspiration
- [ ] Constructed Wetland

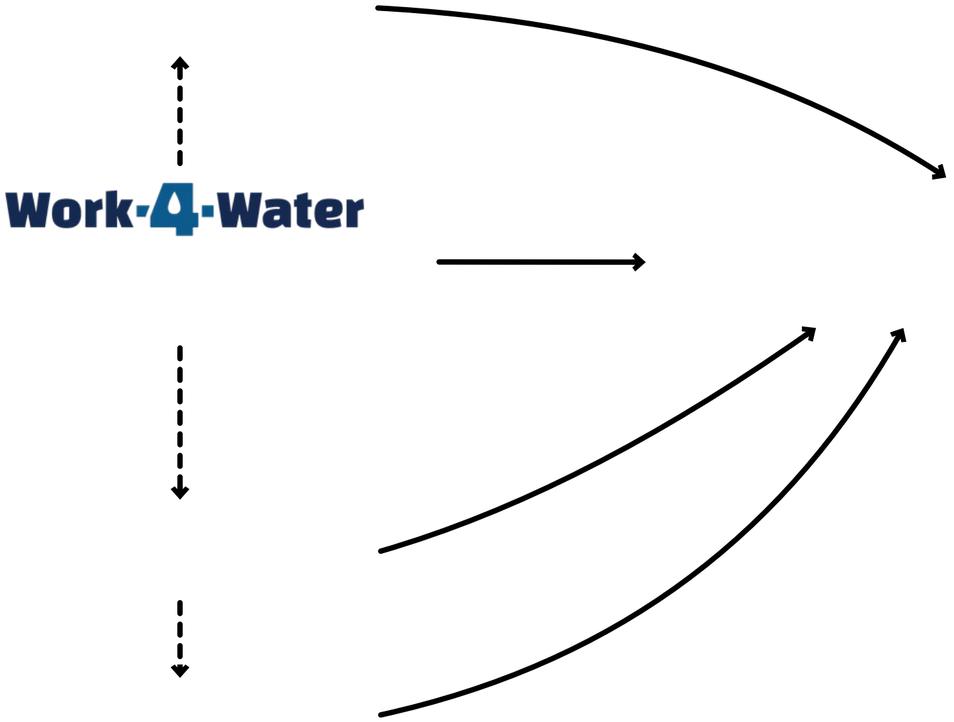


Industry Expert Lectures



WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Department of Labor Pilot Overview



- February 2023 - January 2025
- Maui, Molokaʻi, Hawaiʻi Island
- 97 total graduates
- Introduction to Hawaiʻi Wastewater Field
- Decentralized Wastewater Specialist Certificate
- Career Services
- $500 stipend
- x6 Networking Career Expo Events at University of Maui College & Hawaiʻi Community College

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

W4W Demographics

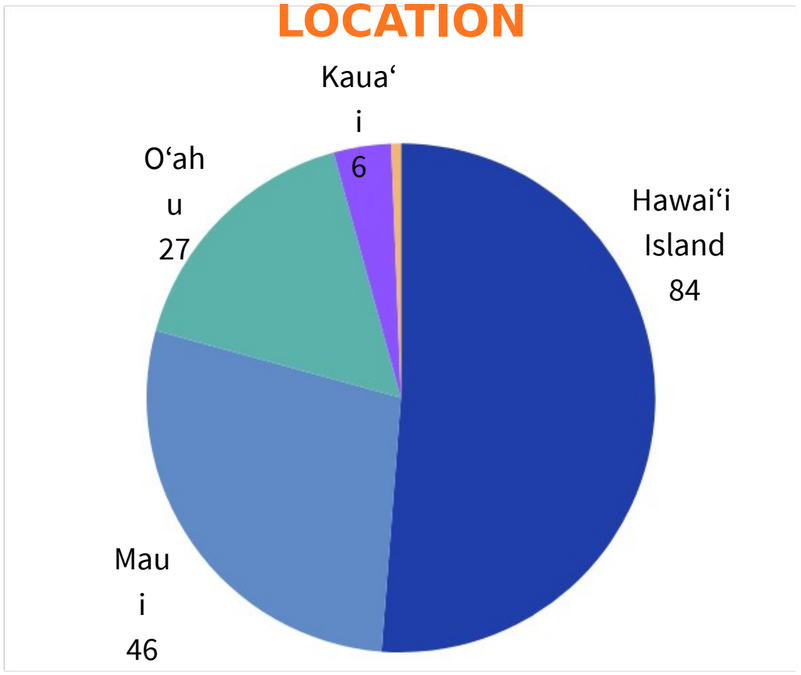
Both DOL and EPA as of 09/29/26

Total Number of Applicants 194 DOL + 205 EPA = **399 to date**

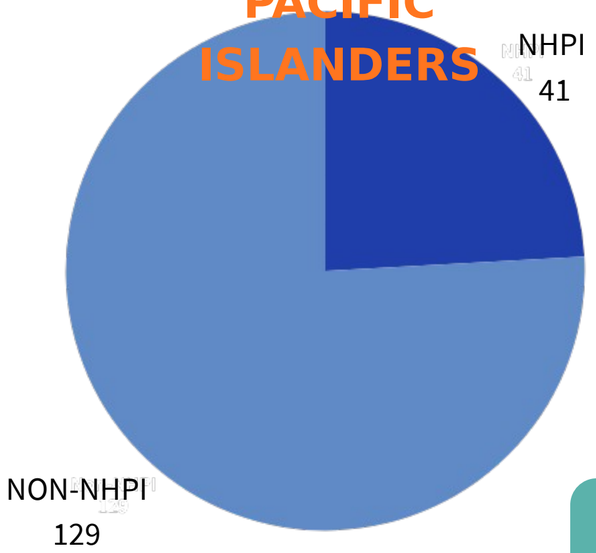
Total number of Graduates 97 DOL + 67 EPA = **164 to date**

Native Hawaiian or Pacific Islander Graduates 27 DOL + 21 EPA= **48 to date**

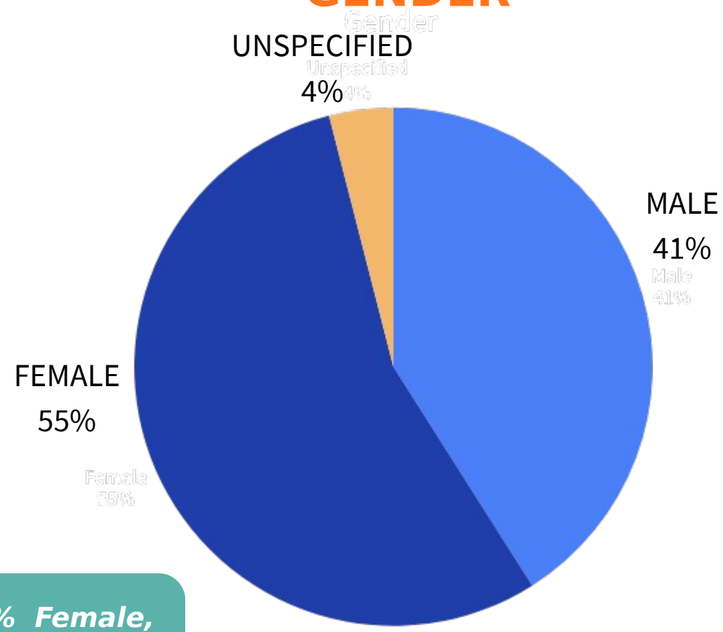
LOCATION



NATIVE HAWAIIAN & PACIFIC ISLANDERS



GENDER



55% Female, while the industry average is only

EPA Expansion Overview

Goals

Increase Public Awareness

Expand Across All Islands

Work Based Learning

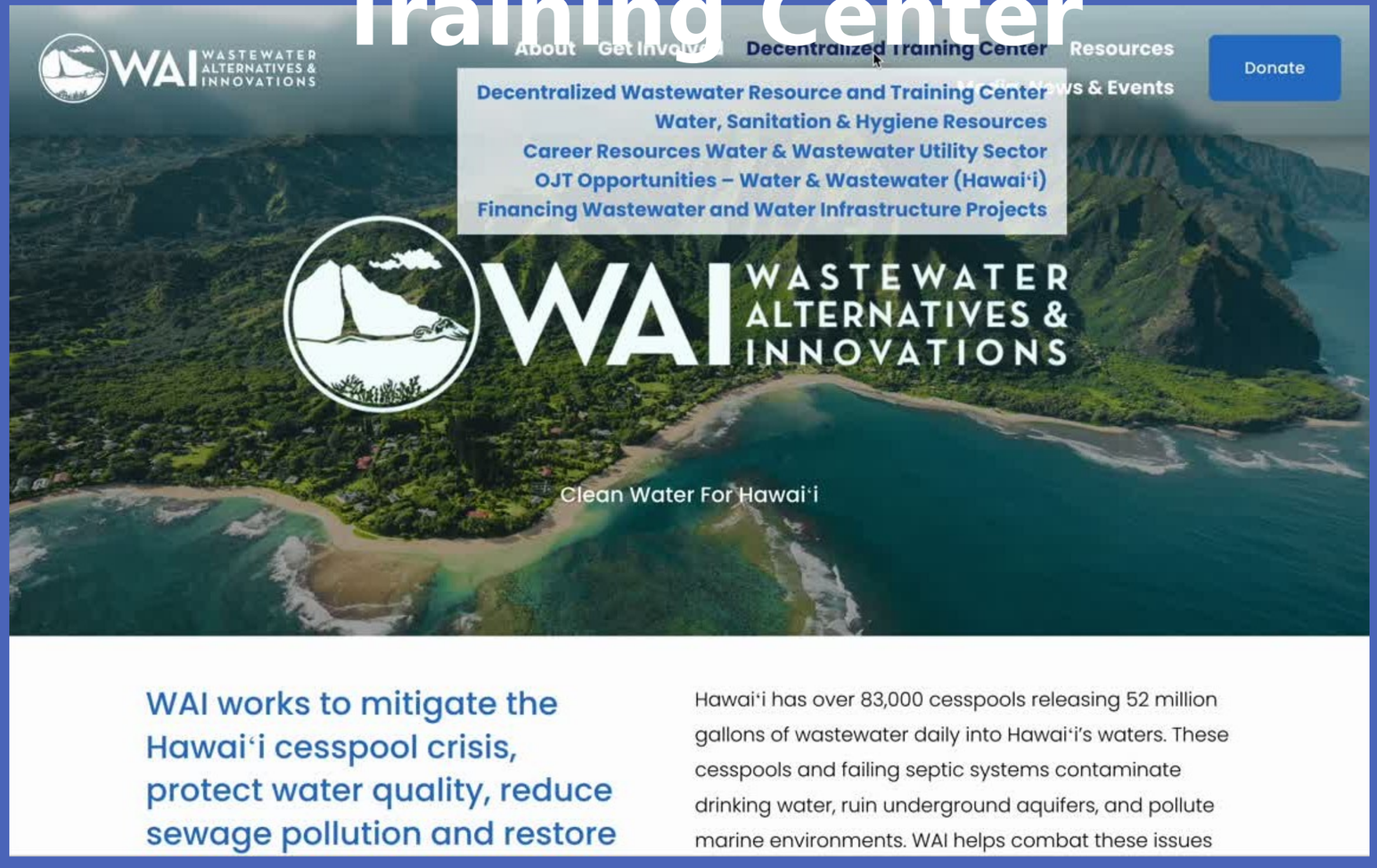
Online Resource Library

- September 2024 to August 2027
- Statewide
- Goal of 140 graduates and 21 OJT Placements
  - So far: 32 graduates and 4 OJT Placements
- Introduction to Hawai‘i ***Water*** and Wastewater Field
- Weekly Talk-Story Sessions
- Decentralized Wastewater Specialist Certificate
- On-the-Job (OJT) Training
- $250 stipend

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Decentralized Wastewater Resource and Training Center

1,715 unique users cumulatively view the resources pages 4,368 times *(Sept 2026)*



www.waicleanwater.org/dwrtc

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

EPA Expansion Outcomes

- **100%** of participants reported an increase in knowledge.
- **100%** would recommend the course.
- Course components were highly rated:
  - **98%** satisfied with the curriculum.
  - **94%** with the online self-paced webinars.
  - **90%** with career pathway guidance.
- **92%** feel prepared for a career in wastewater management.
- **78%** are now actively seeking jobs in the wastewater field.
- **96%** are interested in further education.

Source: Optional graduate exit poll completed by 49 of the 67 graduates from the Summer 2025 and Spring 2026 Sessions

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Workforce Solutions + Lessons Learned

Targeted Recruitment & Outreach Efforts

- Community outreach in rural areas is most successful in person
- K-12 ʻĀina Based Learning engages next generation
- Public education & awareness of career pathways

Customized Career Services

- Local career, education and training pathways
- Resume development and interview prep
- Networking opportunities

Stipends & Scholarships

- Reduces barriers to access specialized training
- Increases training recruitment and retention

Local Pre-Apprenticeship & Apprenticeship Opportunities

- Pre-apprenticeship increases exposure to diverse interests
- Apprenticeships offer on-the-job training
- Reduces risk for employer and employee

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Community Engagement & Outreach

engaged over 9,400 community members as of 05/01/26

Town Halls



Career Fairs







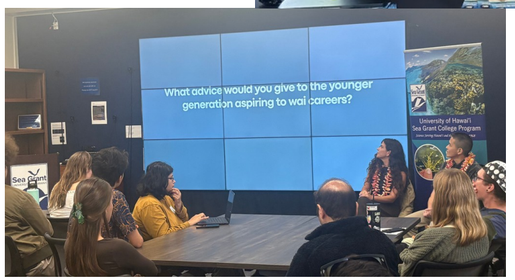
Classroom Lessons





Partner Events



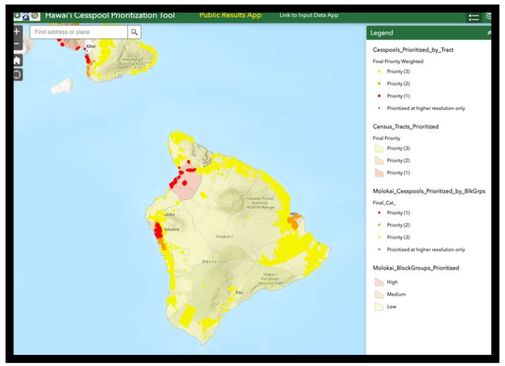


WAI WASTEWATER ALTERNATIVES & INNOVATIONS

K-12 Outreach Lessons



Gabby at Kamehameha School 5th Grade Class





Gabby at Waimea High School 11th Grade Class

Mālama i Ke Kai

caring for the ocean

Lessons designed for K–12 students, explores Hawai'i's wastewater challenges, pollution risks, and how to use the Cesspool Prioritization Tool across the islands.



Courtney at Volcano Arts and Sciences 9th Grade Class

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

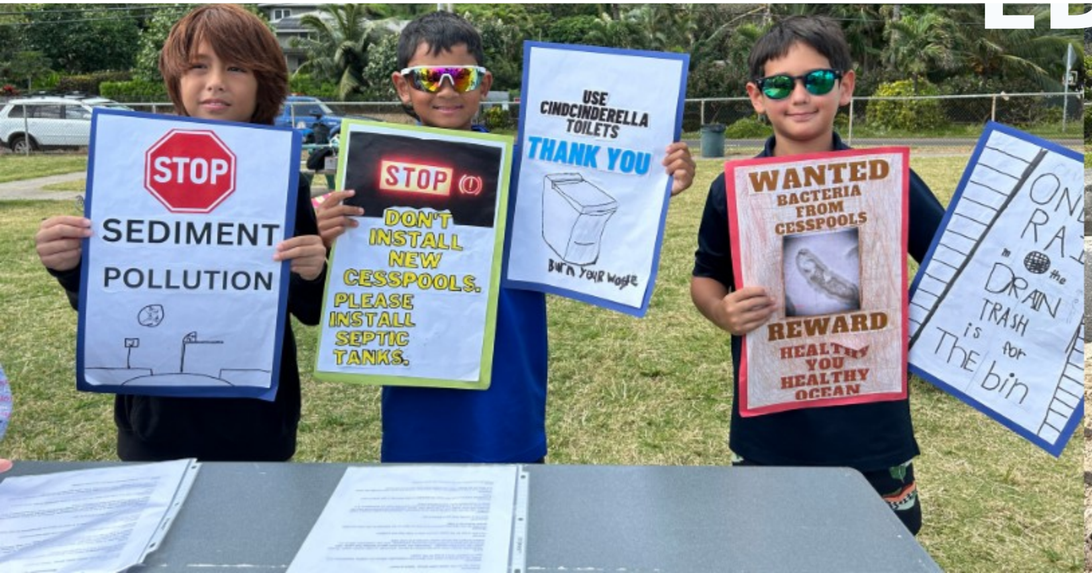






‘ĀINA BASED EDUCATION

Ola I Ka Wai with Kamehameha Schools

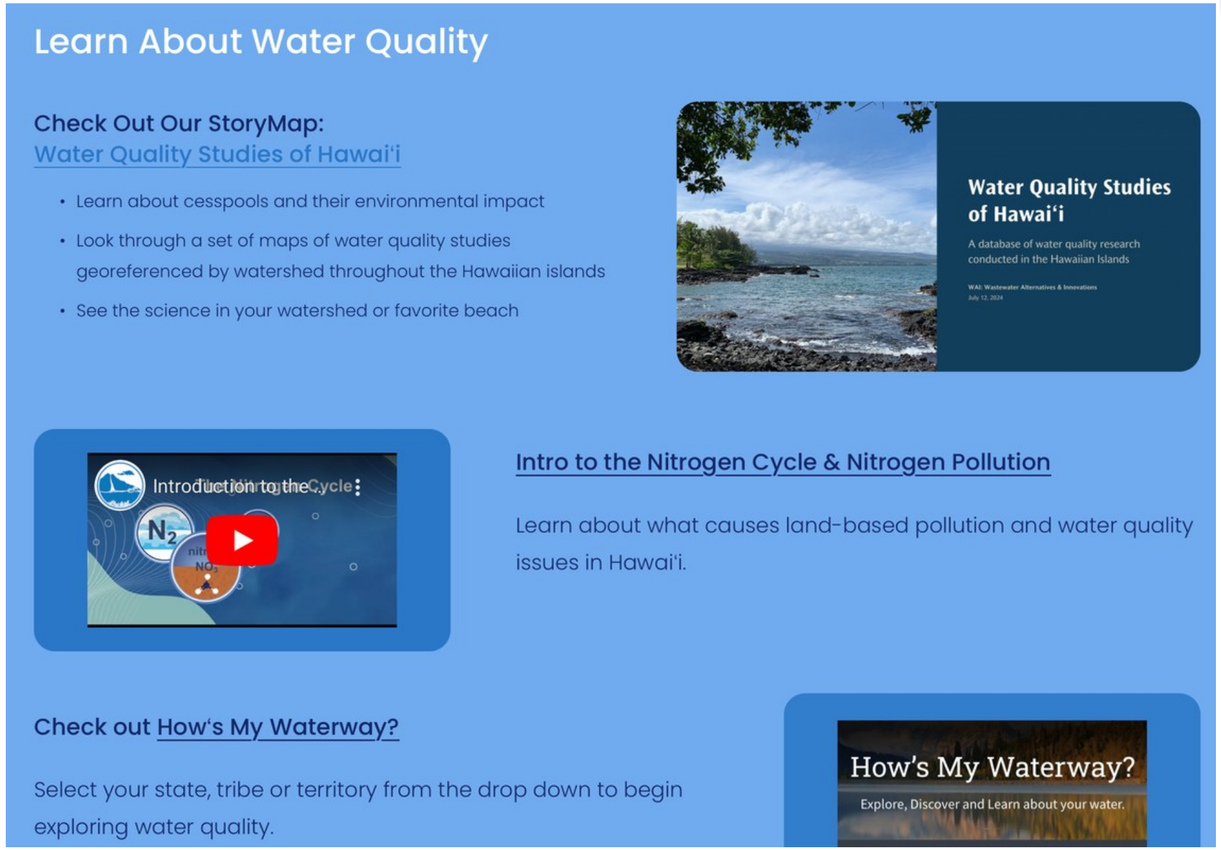






Relevant & Applicable Curriculum

- Culturally responsive
- Hawai‘i specific challenges
- Customized materials
- Local water quality data
- Access to local resources
- Rural community needs
- Decentralized wastewater focus
- Virtual, multimodal learning



https://www.waicleanwater.org/

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Customizing Career Pathways

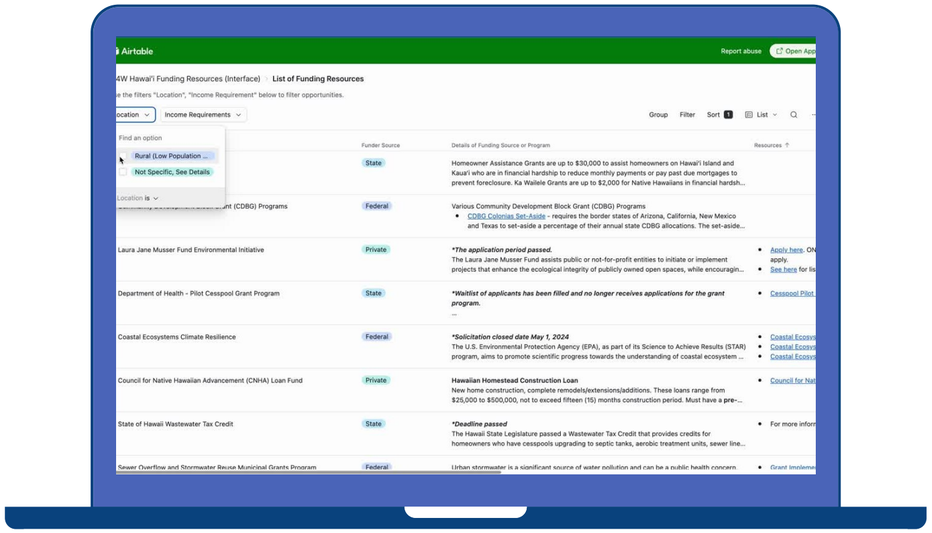
- Career Services
- Resume development
- Custom career pathways
- Occupational profiles
- Connection with On-the-Job Opportunities
- Financial & Networking Resources
- $250 Stipend





WASTEWATER ALTERNATIVES & INNOVATIONS

Funding and Scholarship



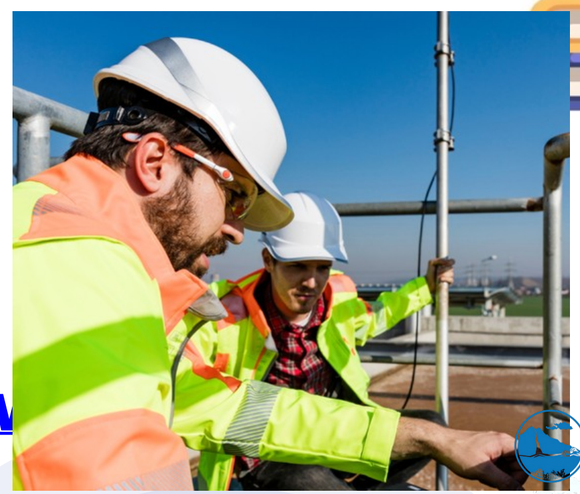
Scholarships

Whether you're just starting out or already working in the water and wastewater sector, be sure to explore these Hawai'i-specific scholarships designed to support your growth and career development.

- Hawai'i WEA Scholarships
- Water Quality Rebate Program
- AWWA Scholarship Program
- One AWWA Operator Scholarship
- Hawai'i Section Student and Operator Scholarship
- WEF Canham Graduate Scholarship
- NOWRA Emerging Professional Scholarship



[Resources on our Decentralized Training Center]



www.waicleanwater.org/dw
rtc

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

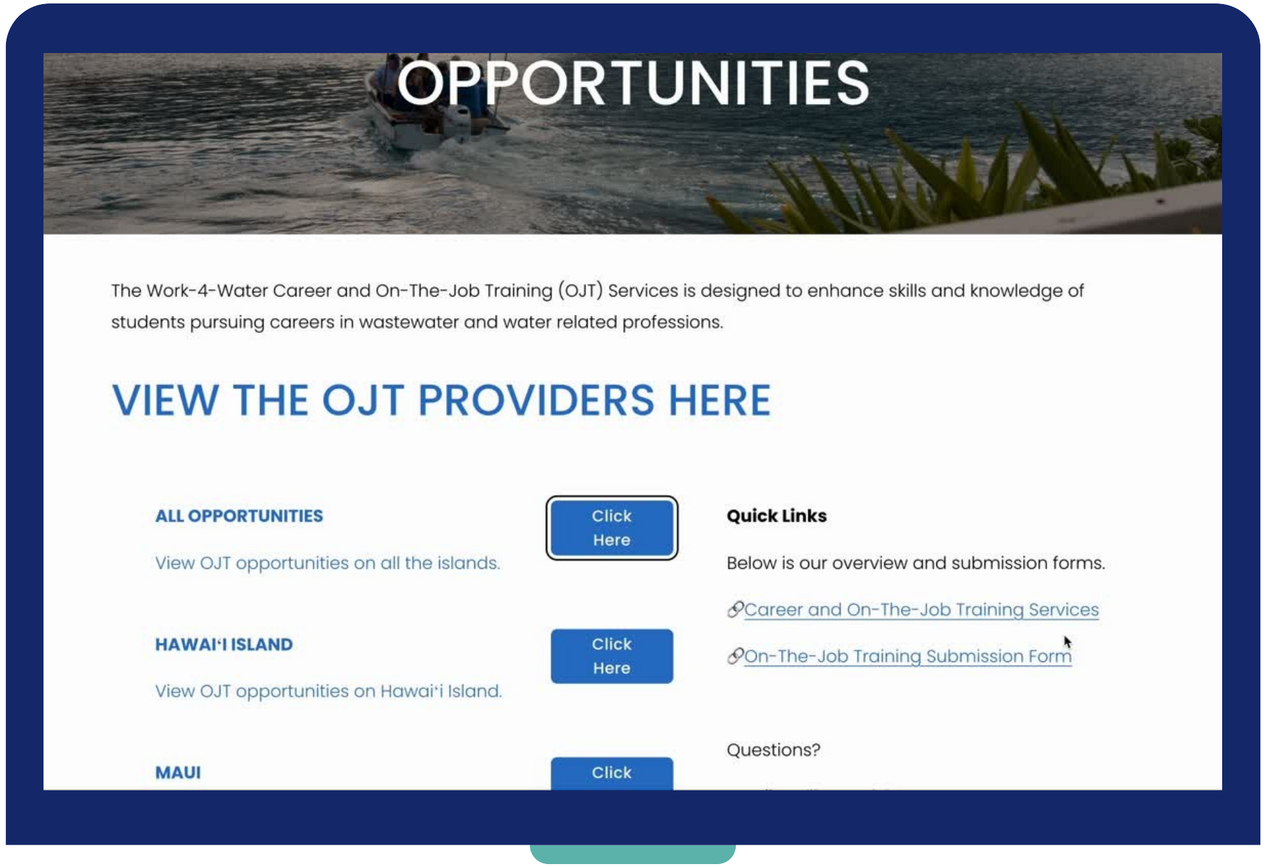
What is OJT?

On-the-Job Training (OJT) provides hands-on experience in real work settings, helping you gain the skills and knowledge needed for specific roles.

Key Features	Benefits	How to Pursue OJT
• Exposure to workplace tasks. • Learning integrated with actual job duties. • Opportunity to apply theoretical knowledge practically.	• Enhances understanding of the industry and job roles. • Improves employability and readiness for future positions. • Offers a cost-effective way to learn while earning.	• Identify companies offering OJT programs in your field of interest. • Research and reach out to potential employers. • Prepare your resume and tailor it to highlight relevant skills. • Attend interviews and express eagerness to learn.

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Work-4-Water
Career Resources & Services



https://www.waicleanwater.org/ojt-opportunities

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Career Resources

WATER & WASTEWATER SECTOR DECENTRALIZED WASTEWATER RESOURCE AND TRAINING CENTER

OPERATIONS & MAINTAINENCE

- Wastewater Treatment Operator
- Drinking Water Treatment Operator
- Electrician / Mechanic
- Waste Collections Operator
- Plumber

ENVIRONMENTAL & COMMUNITY FOCUSED

- Planner
- Watershed Program Coordinator
- Environmental Protection Specialist
- Community Outreach Specialist
- Soil and Plant Scientist

ENGINEERING AND TECHNICAL SERVICE

- Engineer
- Laboratory Technician
- GIS Technician
- Water Quality Analyst
- Hydrologist

MANAGEMENT & COORDINATION

- Utility manager / Supervisor
- Compliance Officer
- Project Manager
- Program Manager
- Infrastructure Grants Admin
- General Contractor

*A recent hiring round for **Assistant Wastewater Treatment Plant Operators**, several applicants who had completed the Work-for-Water program really stood out to HR hiring. It's clear that the program is helping to prepare folks well and get them noticed during*

WAI WASTEWATER ALTERNATIVES & INNOVATIONS



“My Takeaway: Wastewater is a huge industry in Hawai‘i with lots of different ways to plug in. There are many business and career opportunities associated with cesspool conversion.”

Work-4-Water

STUDENT TESTIMONY

Success Stories & Career Services

WORK-4-WATER · PARTICIPANT FEEDBACK

In Their Own Words

What participants shared about the program



> "Water is life — everyone should take it."
>
> PARTICIPANT

> "Incredible that this course is free and accessible to anyone."
>
> PARTICIPANT

> "An amazing program — wish there were more like it for high schoolers."
>
> PARTICIPANT

> "You all are incredible — thank you for empowering so many people."
>
> PARTICIPANT

♥ 84 applicants → 35 graduates

Open-ended survey responses · spring 2026 cohort

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Hawai‘i Engineering Capacity: Engineering Placements

Cesspool conversion permits require a licensed engineer, but engineering positions are the most difficult to fill in Hawai‘i

WAI Celebrates it’s Work-4-Water Graduates in Engineering Placements

HAWAII ENGINEERING SERVICES



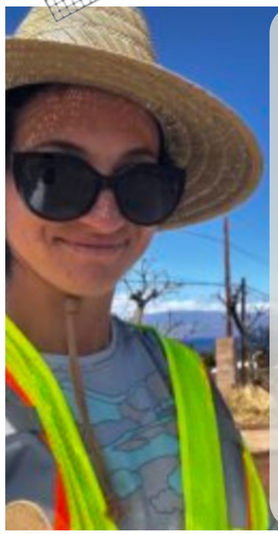
Work-4-Water

Graduate Placement

After graduation Leni was able to receive a scholarship for paid On-The-Job Training as a Project Engineer with Hawaii Engineering Services.

Leni Adams
Fall 2025 Cohort Graduate

cdf



Work-4-Water

Graduate Placement

After graduation Arianna started working for CDF Engineering in Lahaina, helping with wildfire recovery efforts.

Arianna Feinberg
Fall 2023 Cohort Graduate

COLLEGE OF ENGINEERING
UNIVERSITY of HAWAI‘I at MĀNOA





ECO SOLUTIONS HAWAI‘I

W4W Grad John found his career path in wastewater through our program, which gave him the foundation to make a successful transition.

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Water Sector Success Stories &

Lahaina survivors taking course to support career change



Kahina and Swope, Sweet ʻŌkole Cesspool and Septic Pumping LLC. (Cohort 2 Grad)

A recent hiring round for Assistant Wastewater Treatment Plant Operators, several applicants who had completed the Work-for-Water program really stood out to HR hiring. It's clear that the program is helping to prepare folks well and get them noticed during the hiring process!

Work-4-Water empowers graduates, like Oli, with technical skills and confidence to pursue careers protecting Hawaiʻi's water and public health.



Sal Pumping needing CDL drivers and collaborating with Hawaiian Trades Academy

Entrepreneurs like Jacob who used the program as an alternative to getting a contractor license and to launch his own stormwater company Backflow Solutions Maui LLC

Operators like Shawn getting a PWC scholarship helping pass Operator exam



Lyn Warne hosting community workshops for Puna community sharing WAI resources - especially financial resources

Graduates like Vachon, took the program and learned the clean water is a human right and decided to start his own company Weekend Warriors Waste Water



Call to Action

Collaborate on Work Based Learning

Collective action & investment towards building a robust and sustainable wastewater workforce ecosystem in Hawai‘i.

waicleanwater.org/partner-with-w4w

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

With Work-4-Water



- **Building Tomorrow's Workforce**: Connect graduates with OJT in the water & wastewater roles
- **Ready to Hire?** Partner with us to find motivated and skilled students for your team
- **Make a Difference**: Help us shape the future of water professionals
- **Contact Us**: To learn more about hiring a graduate, visit our W4W partner webpage.

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

Work-4-Water

2026 Cohorts *now enrolling*

Start Date: Sept 3, 2026

Eligibility: Hawai‘i Resident

Course Duration: 8 Weeks

- Free Training
- $250 Course Completion Stipend
- Career Services Available
- Extra Scholarships Offered to Support On-The-Job Training (OJT)

Interested?

Sign Up Here

waicleanwater.org/work4water

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

EPA Rural, Small and Tribal Grant Project

3 Core Objectives

1. **HDRME Training Program**
   - 12-week program on developing and managing decentralized wastewater systems
2. **Establish Responsible Management Entities (RMEs)**
   - Facilitate stakeholder engagement to help communities establish RMEs to improve decentralized wastewater system management, targeting rural areas with a high cesspool density.
3. **Community Outreach and Public Education**
   - Educate the public on cesspool issues and decentralized wastewater management with community meetings & workshops



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EPA Announces $49 Million in Technical Assistance to Help Rural, Small, and Tribal Communities Address Wastewater Challenges

April 29, 2025

Contact Information
EPA Press Office (press@epa.gov)

WASHINGTON – The U.S. Environmental Protection Agency (EPA) announced $49 million in funding to technical assistance providers to help communities address wastewater challenges through the Rural, Small and Tribal Clean Water Technical Assistance Grant Program.

This funding will be for projects helping hundreds of communities with wastewater infrastructure and Clean Water Act compliance projects advancing the agency's Powering the Great American Comeback initiative by ensuring that all Americans can rely on clean air, land and water.

"Small and rural communities are the backbone of this great country, and EPA is committed to partnering with them to provide clean and safe water that supports healthy people, agricultural production, economic opportunity, and vibrant ecosystems," **said**

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

SCHEDULE A CONSULTATI ON TODAY!

WAI WASTEWATER ALTERNATIVES & INNOVATIONS

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https://www.waicleanwater.org/work4water

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Work-4-Water

Dedicated to Charger & Luna





gabby@waicleanwater.org