

Strengthening water career and educational pathways at the University of Hawai'i and beyond

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For more information

PROJECT
SUMMARY:



PHASE I
DRAFT REPORT:

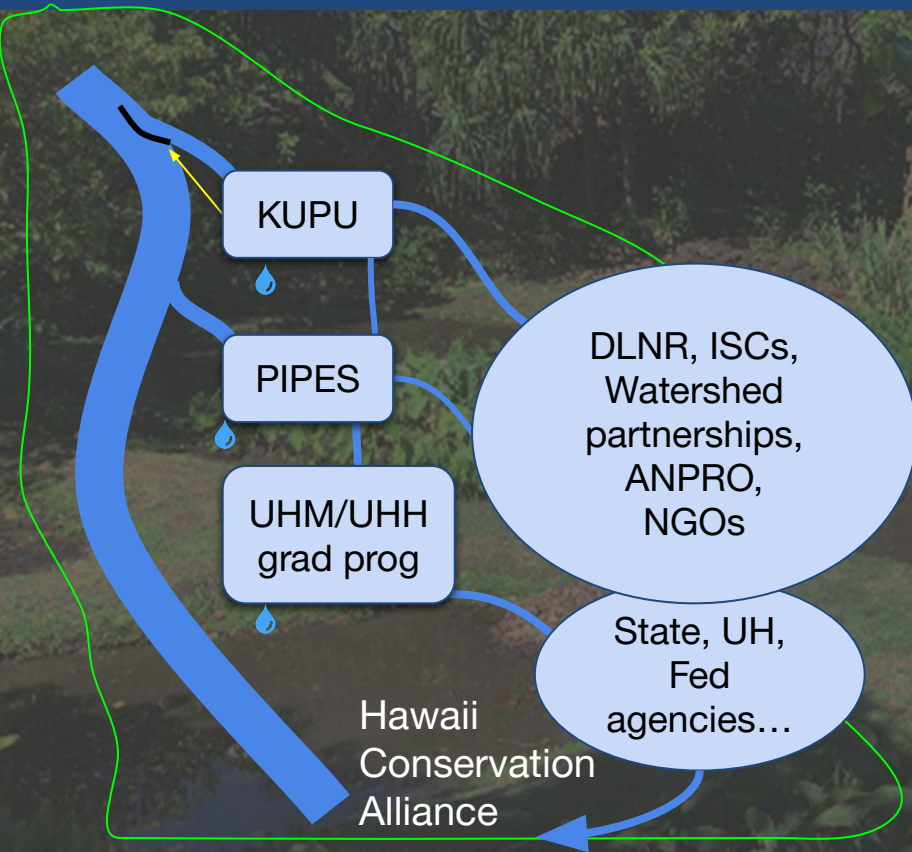


TABLE OF
POSITIONS



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Where are our wai pathways?



- “STEM pipelines” don’t fully capture how students move through educational programs into careers
- In Hawai’i, the educational ‘auwai may be a more realistic and useful metaphor and organizing concept (Kaleialoha Lum-Ho, in prep)
- Ex: Conservation internships and complement instructional programs to support placement
- Long-standing programs seem to have champions and build communities of support
- This effort aims to identify good program design principles

Water Pathways Project Objectives: Y1-Y2 scoping

PHASE 1

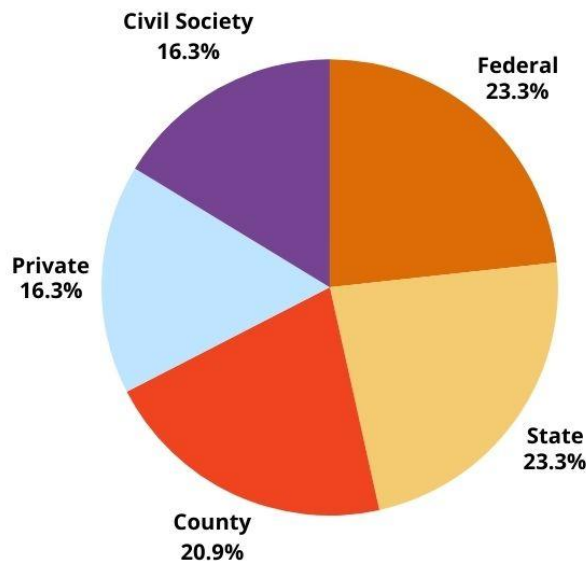
- 1) *Understand the **career opportunities and staffing challenges in water organizations**, particularly as they relate to the training desired from University of Hawai'i
- 2) ***Identify the skills and capacity needed** for thriving water stewardship now and into the future.

PHASE 2

- 3) Identify the **range of opportunities** available to Hawai'i students that relate to current and future water stewardship.
- 4) Identify key features of **sustained and successful models** of education and career pathway programs.
- 5) Understand how **existing assets and pathways within the University of Hawai'i system** contribute to enhanced water-related education and career pathways.

Phase one interviews

- Semi-structured interviews with 43 key representatives of organizations related to water (*January-June 2024*).
 - **Federal** (*n= 10 interviewees*). USGS-PIWSC; US EPA; USFWS; NWS; NAVFAC
 - **State** (*n= 10 interviewees*). DLNR (CWRM; DOFAW; DAR); DHHL; DOH; DOA
 - **County** (*n= 9 interviewees*). Honolulu, Maui, and Hawai'i water utilities; storm and wastewater representatives.
 - **Private** (*n=7 interviewees*) (e.g. landowners, planning companies)
 - **Civil society** (*n= 7 interviewees*) (e.g. boundary organizations, foundations, non-profits).



Phase one interviews: themes

- Motivations and pathways
- Landscape of water-related positions available and skills needed
- Challenges with staffing shortages and retention
- Ideas for the University of Hawai'i (UH) education, professional pathways, and beyond



Phase 1 draft
report

The background of the slide is a photograph of water. The top portion shows a bright, sunlit surface with white foam and ripples. The middle portion is a solid, dark blue horizontal band that serves as a backdrop for the text. The bottom portion shows a darker, more turbulent water surface with some greenish-brown patches, possibly algae or submerged vegetation.

What motivates people to work in water?

Motivated by public service

“So I look at [utility] as loosely interpreted as the public servant of water... the mission that we have is just so important and we serve everybody on the island.” ~county interviewee

“I think people tend to stay here because they like what they do– it’s public health; they feel they have a mission.” ~state interviewee

“So it's really with the mindset of public service, and really trying to do things for the right reasons and hoping to be able to make some meaningful impacts and changes for future generations.” ~county interviewee

Motivated by responsibility and connection to family, community, and place

"I've realized that it's some kind of bigger event or some kind of emotional connection, or kuleana that really draws people to wai. It's definitely what got me into it."

~private interviewee

"My mom used to tell me all the stories about how when she was young.. she would go play in the streams or whatever, and how there used to be a ton of 'ōpae and all these things. And then growing up, you can see that things have changed. And so, that story inspires me too because now I have daughters." ~ county interviewee

Motivated by social and environmental justice

“I work on issues that try to address historical injustices in Hawai‘i, especially the treatment of Native Hawaiians. I want to live in a just society, and I don’t right now, so I work on trying to improve that.”

civil society interviewee

“We ate the fish that we caught. We shared the fish with people back home... And I remember feeling so angry that we were not aware that we were being exposed to something as harmful as mercury... And that's how I got to where I am now and to being so passionate about environmental justice and environmental protection.”

~ federal interviewee

Motivated by interesting, stable, and engaging work

“I just like the creativity with water resources... There's a lot of open endedness to it.”

federal interviewee

~

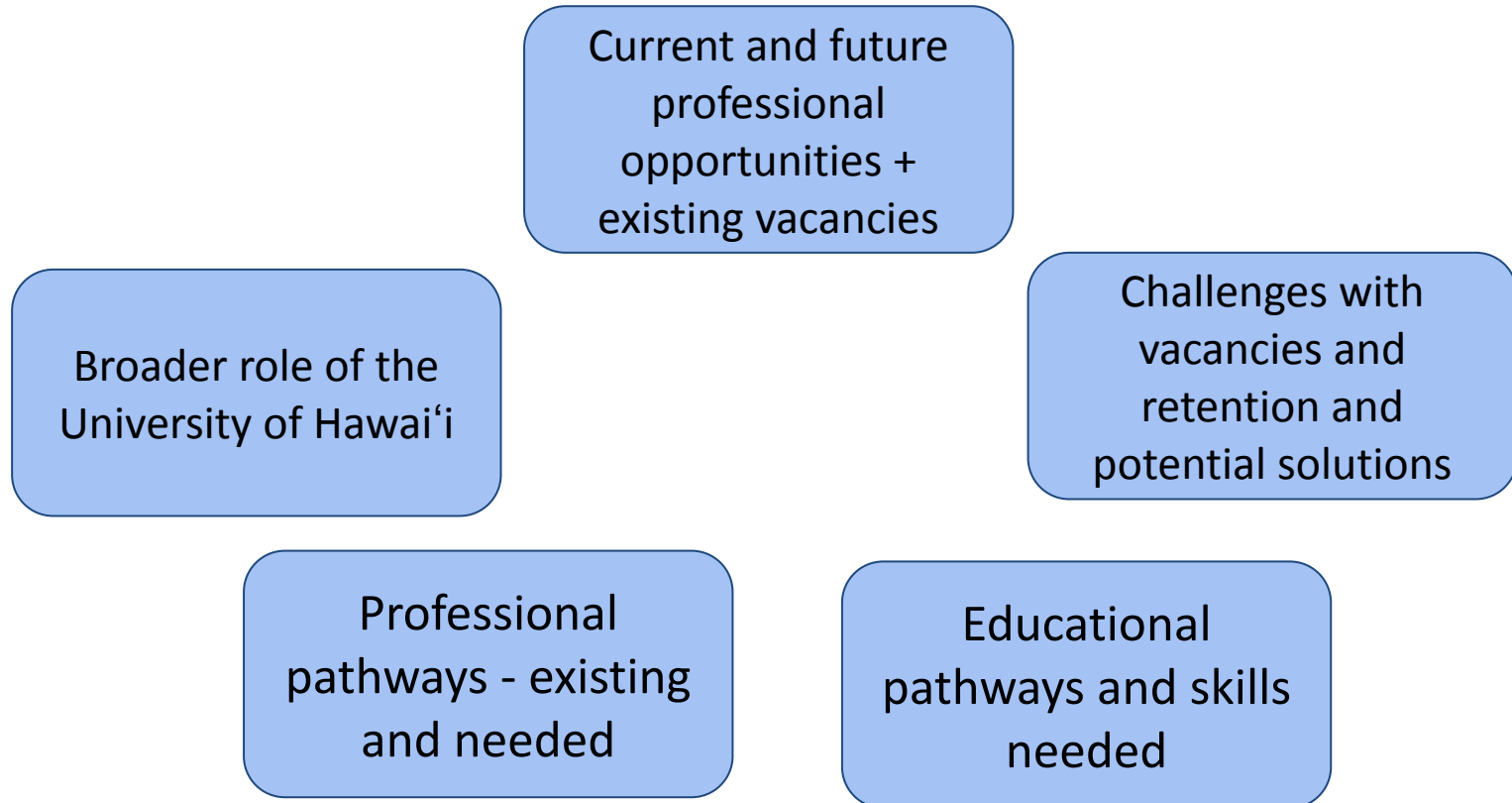
“I think for a lot of people, this is a stable industry to be in. Like every industry, regardless of what you do, requires water and wastewater... so just knowing that okay, job security wise this is always going to be there.”

~civil society interviewee

“I remember the field trip [to a utility] where I saw the artesian well flow out in front of our building. And the water just gushed out under natural artesian pressure and it fascinated me and I just was fascinated with water from then.”

~ county interviewee

Results themes





Key Takeaways Phase 1

Challenges for staffing

- High vacancy rates of ~30-70% were reported, with particular concerns for engineering positions at state and county organizations.
- Low pay and limited advancement opportunities present major challenges for staffing, particularly in state and county agencies: *"I can bring, you know, pizza on Fridays and try to send staff to every conference there is, but ultimately, you want to be paid enough so they can pay that high cost of living in Hawai'i."*
- Limited applicant pool for some positions (e.g. engineers, hydrogeologists, aquatic biologists) and a need for more training in these areas.
- Limited awareness and advertising of job opportunities coupled with slow applicant review and hiring processes
- Institutional culture and position descriptions do not always effectively support recruitment and retention of local candidates with lived experiences and demonstrated interest in mālama 'āina or environmental careers.

Key Takeaways Phase 1 (part 2)

Educational and career pathways needed

- Need graduates with technical degrees and training and holistic understanding of water
 - *"I think the more holistic we are in our training and understanding around water, the stronger our workforce is, no matter what hat in the water sector you're in. Whether you're a water system operator, whether you're a forester in our uplands, where you're out in our oceans, managing, you know, our coral reef ecosystems, like understanding all of the moving pieces of wai in this in our ahupua'a, in our island setting, it really gives you an understanding of how you fit in, and you don't have to do everything, but at least you know how you're connected to that system."*
- Need training in practical skills - communications and public outreach, power dynamics, project management, field and lab work skills, and experiential learning (community work days etc.)
- The University of Hawai'i can play important role in convening across the water sector and in conducting applied and policy-relevant research.
- Many organizations have or have had internships and other professional pathway programs, and nearly all expressed interest in future pathway development.



Phase 2: Mapping the 'Auwai

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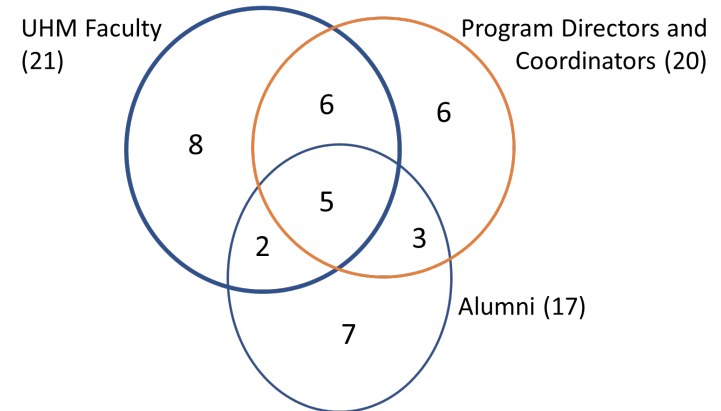
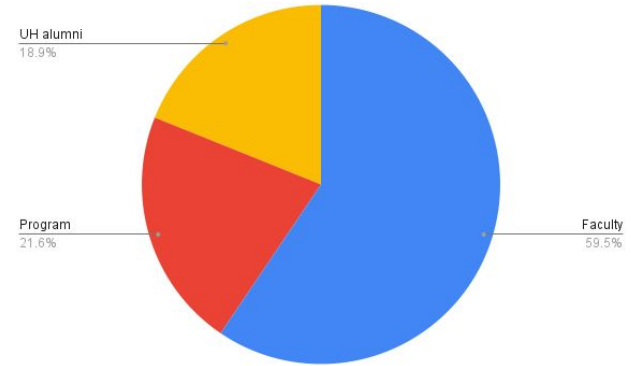
Objectives:

- Identify the **range of opportunities** available to Hawai'i students that relate to current and future water stewardship.
- Identify key features of **sustained and successful models** of education and career pathway programs.
- Understand how **existing assets within the University of Hawai'i system** contribute to enhanced water-related education and career pathways.

Phase 2: Interviews

37 interviews with:

- **UH Mānoa faculty** (21) spanning multiple departments and colleges/schools: SOEST, Engineering, CTAHR, Natural Sciences, Hawaiʻi inuiākea, Social Sciences, Public Health, Law
- **UH Alumni** (17) - including 7 recent UHM alumni working in the Hawaiʻi “water sector” with degrees from Marine Science, Earth Sciences, Urban and Regional Planning, Law, and Geography.
- **Program Directors and Coordinators** (20)- including 9 outside of Mānoa selected for their potential to inform the design of sustainable and effective future freshwater-specific professional programs.

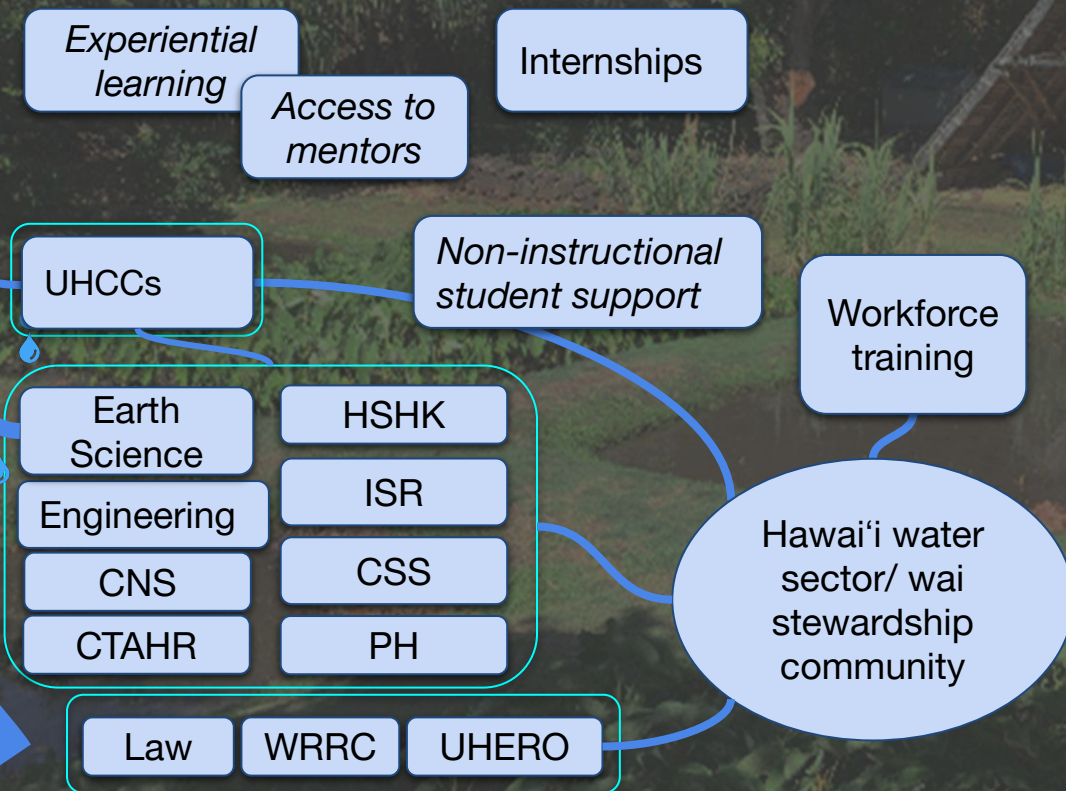


Phase 2: Themes

- Motivations and pathways:
 - o Mentoring relationships are key: family/kumu from lived experiences and cultural practices, faculty-student relationships, employer-student intern
 - o Paths varied in linearity
 - o Enabling institutional arrangements: degree pathways, coursework, but also social/referral networks
- Analysis of core elements (*in progress*):
 - o UHM degree programs
 - o Non-instructional programming: on campus and off-campus, place-based work/experiences
 - Recruitment, retention, job placement

"Connective tissue"

Connecting Hawai'i programs to enable flow?



Next Steps:

- Phase 2 report completion
- Workshops:
 - ◆ Convene Phase 1 and 2 participants
 - ◆ Identify collective priorities
- Years 3-5 planning: work on subset of emergent priorities (e.g. degrees, internships, gatherings, etc.)



Mahalo!

- **Hawaiian Islands Environmental Finance Center**
- **Hawai'i Community Foundation - Freshwater Initiative (Dana Okano and Faisha Solomon)**
- **Wai community interviewees and workshop participants**
- **UH faculty and alumni interviewees**
- **Professional program interviewees**

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What is the “water sector” anyway?

“It’s the scientists at the University who are working on water issues. It’s the people who bring water to your home, like water operators, it’s the people who treat the water after leaving our homes, the wastewater operators. It’s the people working in the Mauka forest in a watershed restoration. It’s people doing lo‘i kalo... Anyone who plays a role in the management and protection of water in Hawai‘i is part of the water sector”

~private interviewee

“If you just imagine... where’s it [the water] coming from? Where’s it going? Where does it wind up and then returns to the hydrologic cycle, to start all over again and so forth. Anyone involved in an aspect of that is part of the water sector. So that’s the broadest definition.”

~county interviewee