





Aquaponics

in

God's Country

Waimanalo

An aerial photograph of a coastal town, likely in Hawaii, showing a dense residential area with many houses and streets. The town is situated on a hillside that descends towards a beautiful turquoise beach and ocean. The water transitions from a shallow, light blue near the shore to a deeper blue further out. In the background, there are more hills and islands under a clear sky. The text is overlaid on the image.

Ma Ka Hana Ka 'Ike

How Hawaiians Learn

By Doing!



IN OUR SOCIETY
**GROWING
FOOD**

yourself
has become
the most *RADICAL* of acts



It is truly the only effective

PROTEST

one that can - *and will* -
overturn the corporate powers that be.

By the process of directly working
IN HARMONY WITH NATURE,
we do the one thing most essential to

**CHANGE THE WORLD -
WE CHANGE
OURSELVES**

JULES DERVAES
urbanhomestead.org









Lanihale College System

A commitment to quality and excellence in education for the people of Hawaii.

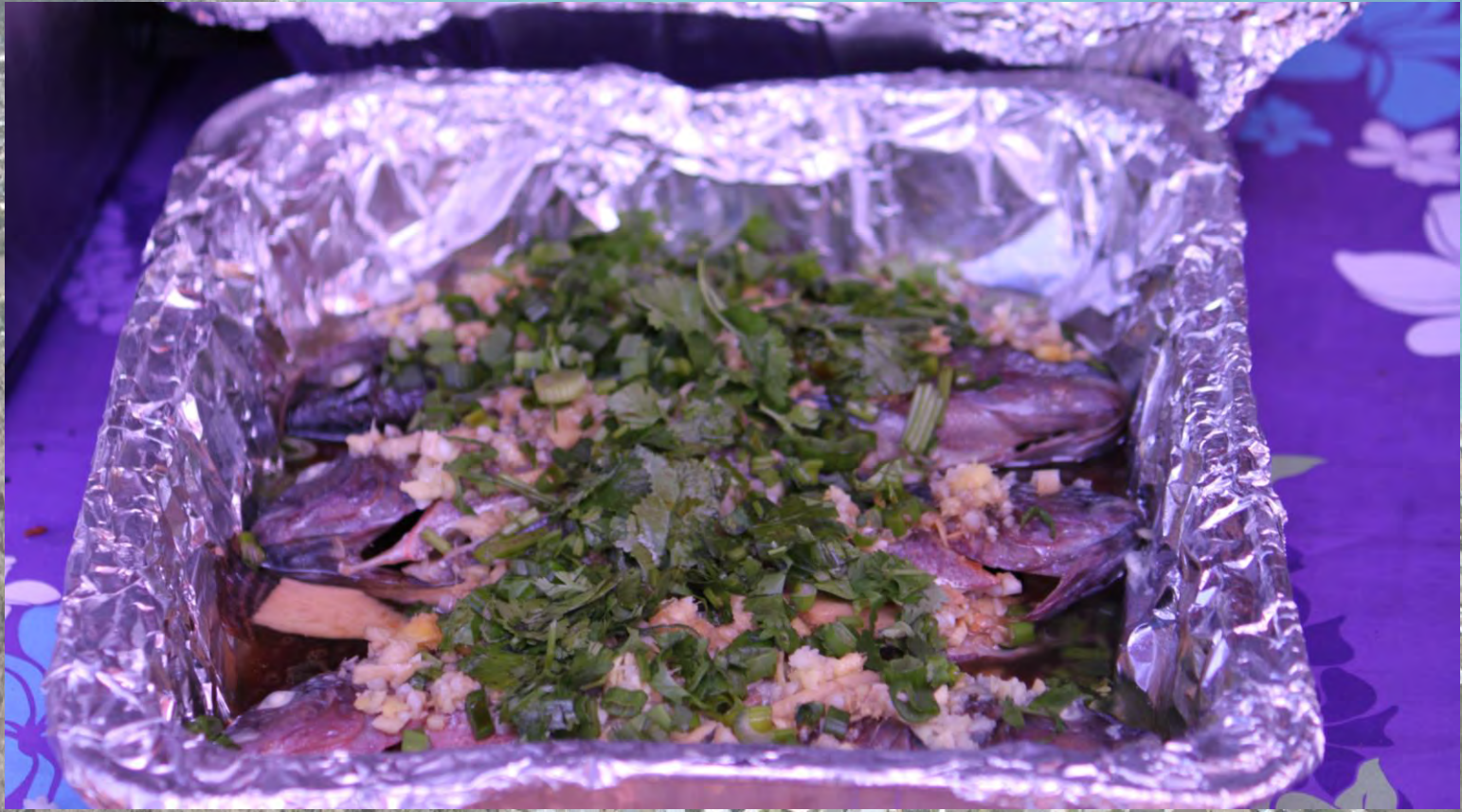
Established in 1967, the Lanihale College System is a public institution of higher learning. It is a member of the State System of Higher Education and is affiliated with the University of Hawaii.

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CSHHS

Hono

and more...





































God's Country Waimanalo Aquaponics Project: Ma Ka Hana Ka 'Ike (In Working One Learns)

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Background

The State Department of Health, Tobacco Settlement Project, Healthy Hawaii 'i Initiative (HHI) supports policy, systems, and environmental changes to prevent chronic disease through good nutrition, increased physical activity, and freedom from tobacco use. HHI identified and worked with a local community on an intervention to improve nutrition as part of a cooperative agreement with the Centers for Disease Control and Prevention (CDC).

Aquaponics is a method of farming that utilizes a symbiotic relationship between fish and plants. It effectively combines hydroponics (raising plants in water) and aquaculture (raising fish in tanks) to make a contained, sustainable, food production system while incorporating traditional Native Hawaiian cultural values.

Project Elements

- Expanding knowledge of the various components of the food system,
- Assembly, maintenance, and planting of an aquaponics system,
- Documentation of the system set-up process and plant growth,
- Integration of Hawaiian cultural values such as the *ahupua'a* system (living mountain to sea) and *malama* (take care of), and
- Food grown to be low-maintenance with high nutritional value and a short time to harvest.



Families work together to prepare healthy meals to share with one another.

Discussion

Learning how to build and use an aquaponics system increased participants capacity to grow healthy foods. Maintaining an aquaponics system encourages healthy behaviors that can decrease risk of chronic disease. Eating fresh, locally grown food is more nutritious and can lead to lower rates of chronic disease.

Project Objectives

Increase the capacity of Native Hawaiian families in Waimanalo to grow healthy foods such as fresh fruits, vegetables and fish locally and sustainably.

Encourage behavior changes that will reduce the overall prevalence of chronic disease amongst participants.

Methodology

Project Selection

- The town of Waimanalo was selected based upon its state ranking for key health indicators and community capacity.
- A community action team was developed.
- The community team decided to work on the food system.
- After a series of meetings, the community agreed on specific projects.
- The community selected an aquaponics project.



Participant Requirements

- Resident of Waimanalo,
- Multi-generational households with children under the age of 18, and
- Families agree to recruit and teach at least one other Waimanalo family, employing a "learn to teach" model.

Evaluation

- Pre- and post surveys were distributed to participating families to assess *knowledge*, *attitudes*, and *beliefs* of aquaponic systems, local food systems, nutrition, and Hawaiian culture.

Results

- 21 families completed the pre and post surveys.
- 100% of those surveyed strongly agree that "Locally grown food is safer for my family to consume".
- 100% of those surveyed strongly agree that "Food grown in our backyard is more sustainable and will allow us to be less dependent on the mainland".
- 94% of participants indicate they intend to maintain their home aquaponic system after pilot project, 89% indicate a need for ongoing technical assistance, and 94% intend to educate other community members about how to develop and sustain a home aquaponics system.



A backyard aquaponics system.















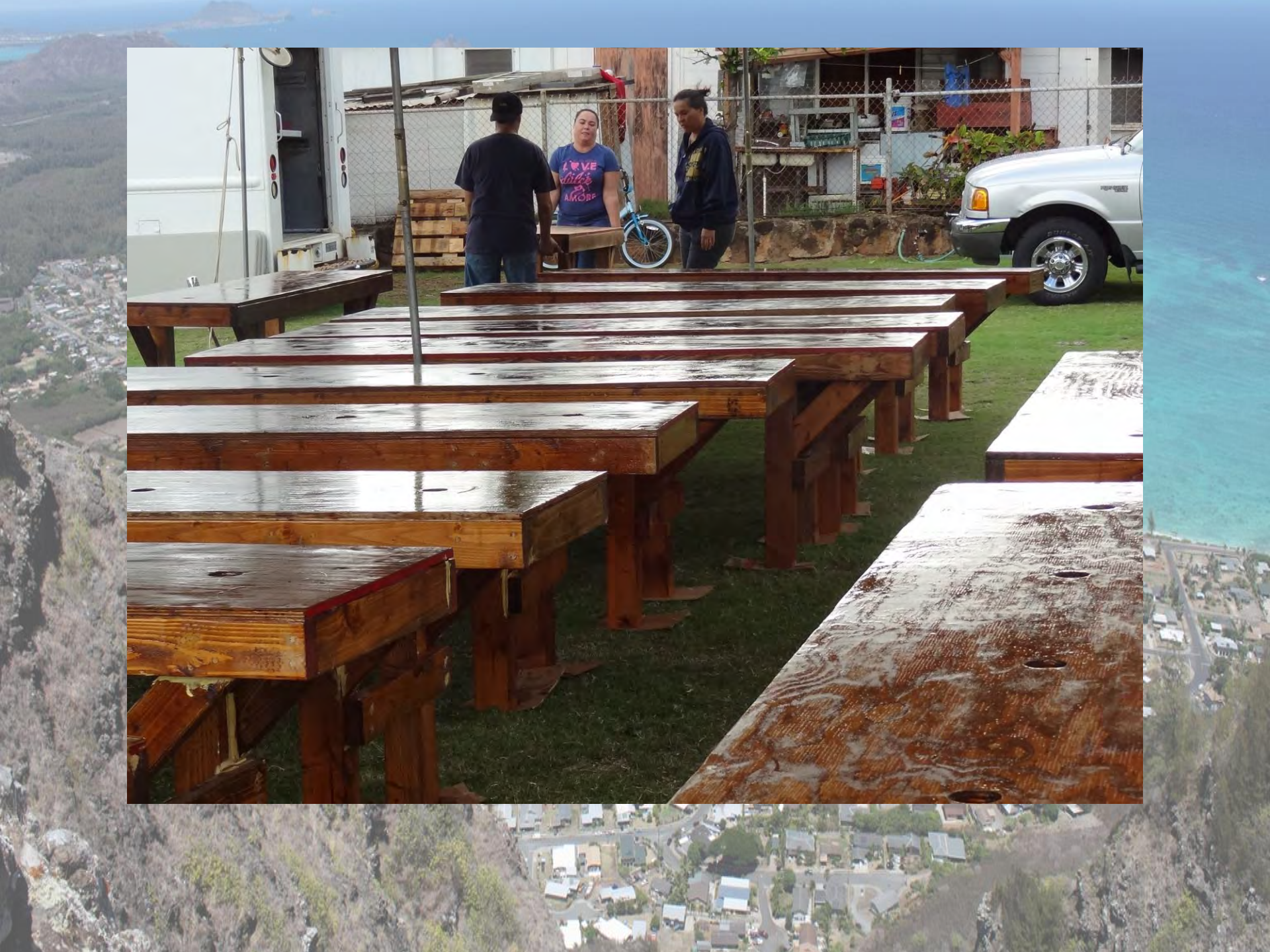


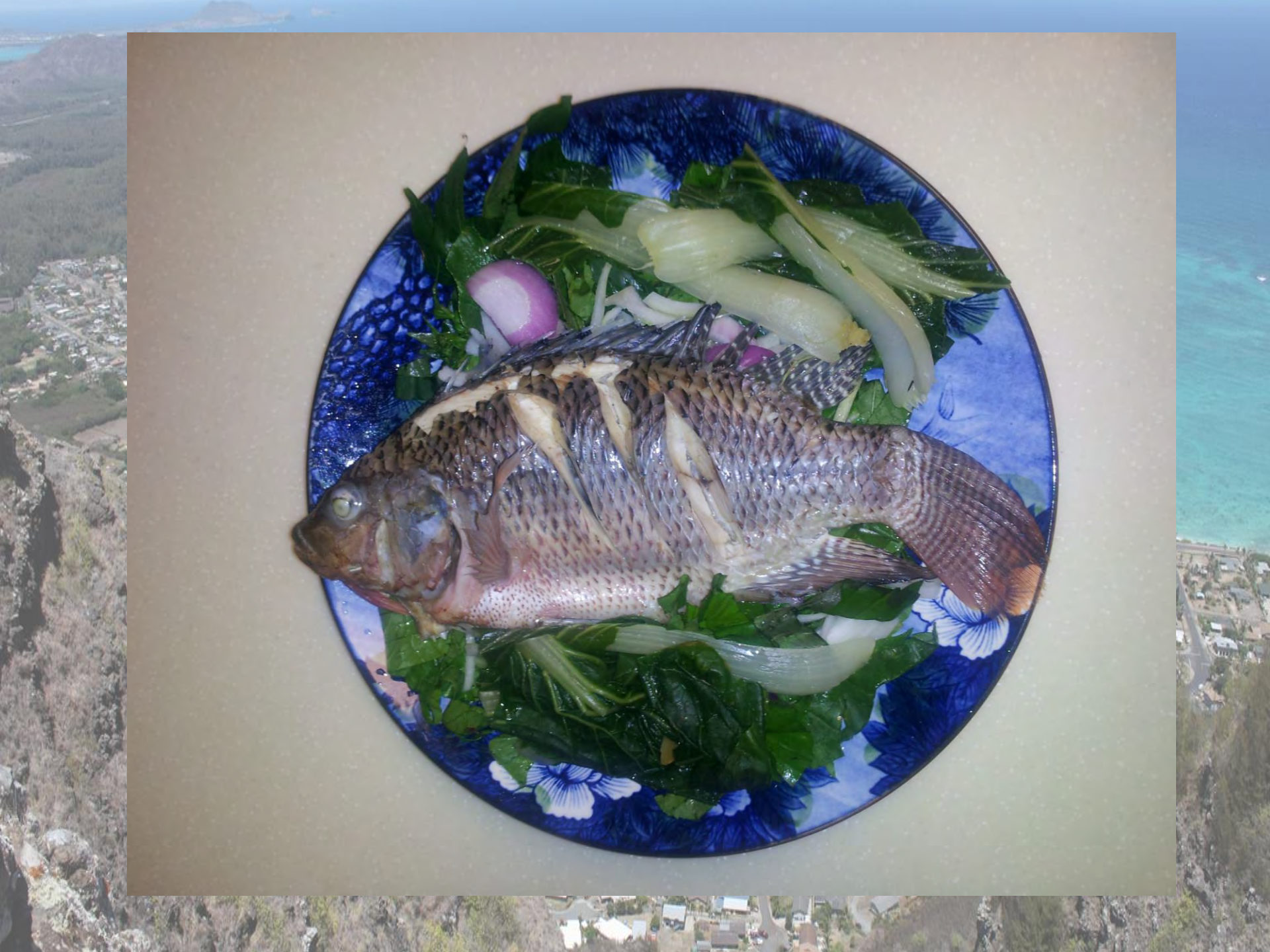














Engaging the Waimānalo Community to Co-Develop Research Questions: *Ma Ka Hana Ka 'Ike* Aquaponics Project

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Background

- As part of University of Hawai'i's Department of Public Health Sciences' PH 704 Class, Community-Based Participatory Research (CBPR), a team of three students partnered with God's Country Waimānalo (GCW) to apply CBPR principles to an aquaponics project, *Ma Ka Hana Ka 'Ike*.
- The community partner, represented by the Executive Director, wanted to engage 'ohana (family/families) who were interested in aquaponics systems in the formulation of their own research questions.

Program/Research Design

Meetings with GCW Executive Director to determine purpose of project and our UH Student's role

- Engage five families (initial *hui*) to help develop research design
- Draft an IRB Proposal
- Assist in developing appropriate measurement tools

Meetings with 'ohana to develop research questions

- Introduction to Research and Participatory Approaches
- Motivation for getting an aquaponics system
- Synthesized research questions
- Questions shaped focus group questions & guide

Community Developed Research Questions

- How will aquaponics improve family relationships?
- How will aquaponics encourage a healthier family diet and better health?
- How will aquaponics affect the family's grocery bill?

Two separate focus groups, one with 3 parents and one with 4 *keiki* were conducted to better understand research questions and begin to identify possible measurements.

Results

Themes from the Focus Groups on their view for Aquaponics

It involves children



"Any time we get them away from video games, Facebook, and YouTube is a positive thing."

--Waimānalo parent

It helps improve family health and diet

"My mom can finally pay all the bills with her regular money instead of going to grocery store and use up all her money."

--Waimānalo keiki

It strengthens the community

"Incorporates nicely with our community because we work well together and community building is always a high priority."

--Waimānalo parent

It brings the 'ohana closer together

"All of us will be sitting at the table enjoying the results of aquaponics, so I think that's where it will all come together and the kids will realize what it's all about."

--Waimānalo parent



It addresses barriers to healthier eating

"If you're never exposed to a balanced diet then you'll never know about it and you'll never perpetuate it. So part of it is education. You learn about different vegetables, fruits. You open your horizons." --Waimānalo parent



Impact

Public Health students learned that the Waimānalo community welcomed CBPR and was interested in engaging in research.

Students gained a deeper understanding of the close-knit community of Waimānalo and how aquaponics can serve as a tool for cultivating sustainability, empowering community, and reinforcing Native Hawaiian values.

Ho'omoe wai kāhi ke kō'ō

Let all travel together like water flowing in one direction.

Ōlelo No'eau #1102



Acknowledgments

- God's Country Waimānalo
- The Waimānalo 'Ohana
- Participants of *Ma Ka Hana Ka 'Ike*
- Parents & *keiki* in focus groups





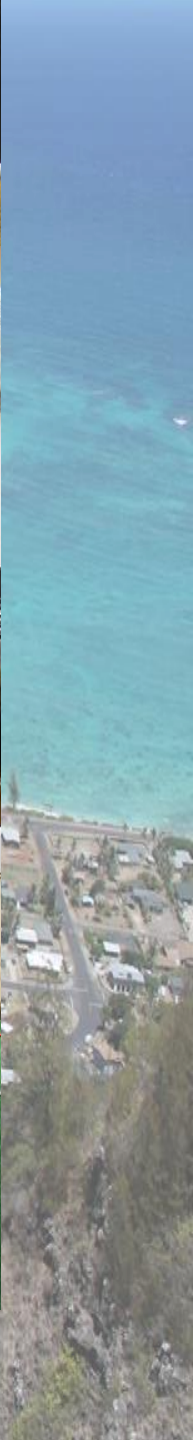












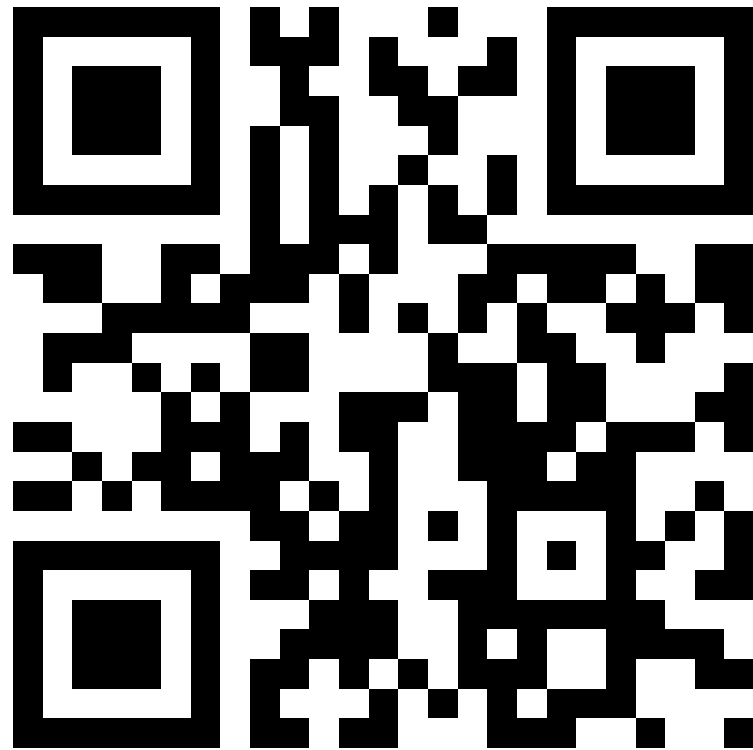






An aerial photograph of a coastal town with a turquoise bay and a rocky coastline. The town is built on a hillside overlooking the water. The bay is a vibrant blue-green color, and the surrounding land is covered in green vegetation and some buildings.

<http://makahanakaike.weebly.com/>



Mahalo Ke Akua

Ma Ka Hana Ka `Ike
Aquaponics in Action
a God's Country Waimanalo Production

Mahalo to Castle Foundation *DHHL *Hawaii People's Fund *Healthy Hawaii Initiative *OHA *PACT *QLCC

MAHALO!