



STORIES OF WATER, STORIES OF RESILIENCE

Community voices of Hāmākualoa

Lilia Davis

Capstone Panel Members:

Dr. Yinphan Tsang

Dr. Creighton Litton

Dr. Leah Bremer

Ahupua'a:
Ha'ikū
Ha'ikū Uka
Hāmākualoa
Pa'uwela
W. Kaupakalua
E. Kaupakalua
Uluamalu
'Ōpana
Keaaula
Keali'iiki
Peahi
Halehaku
Honopou
Mokupapa
Waipi'oiki
Waipi'onui
Hanehoi
W. Hanawana
E. Hanawana

Moku:
Hāmākualoa





Worldwide

Floods are the *most common* of all weather related disasters globally (NOAA)

CLIMATE CHANGE = MORE FLOODS

An IPCC Report shows 1 in 100-year floods may now happen **every 30 years** or less (IPCC AR6, 2021)

Globally, urban populations exposed to flood risk will **double by 2030**. (World Bank, 2020)



Kaua'i

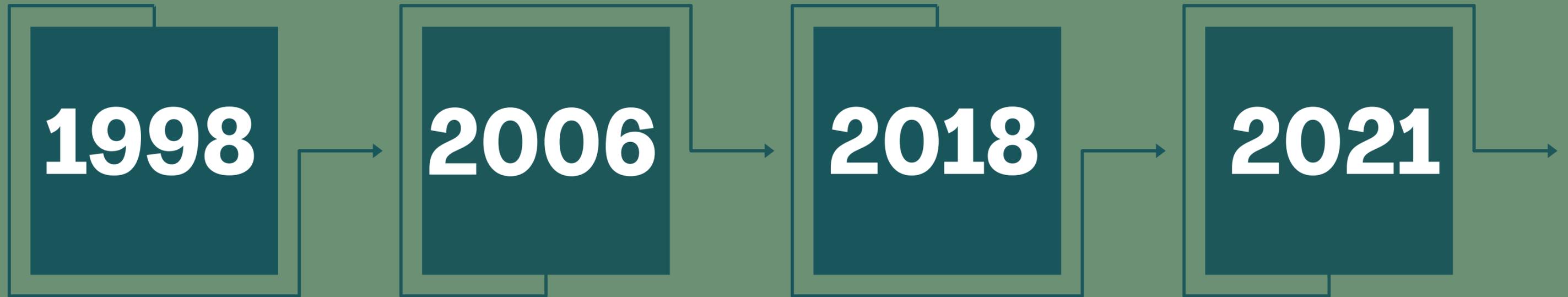


North Carolina



China

Significant Flood Events in Hāmākuāloa



Pc: Maui News

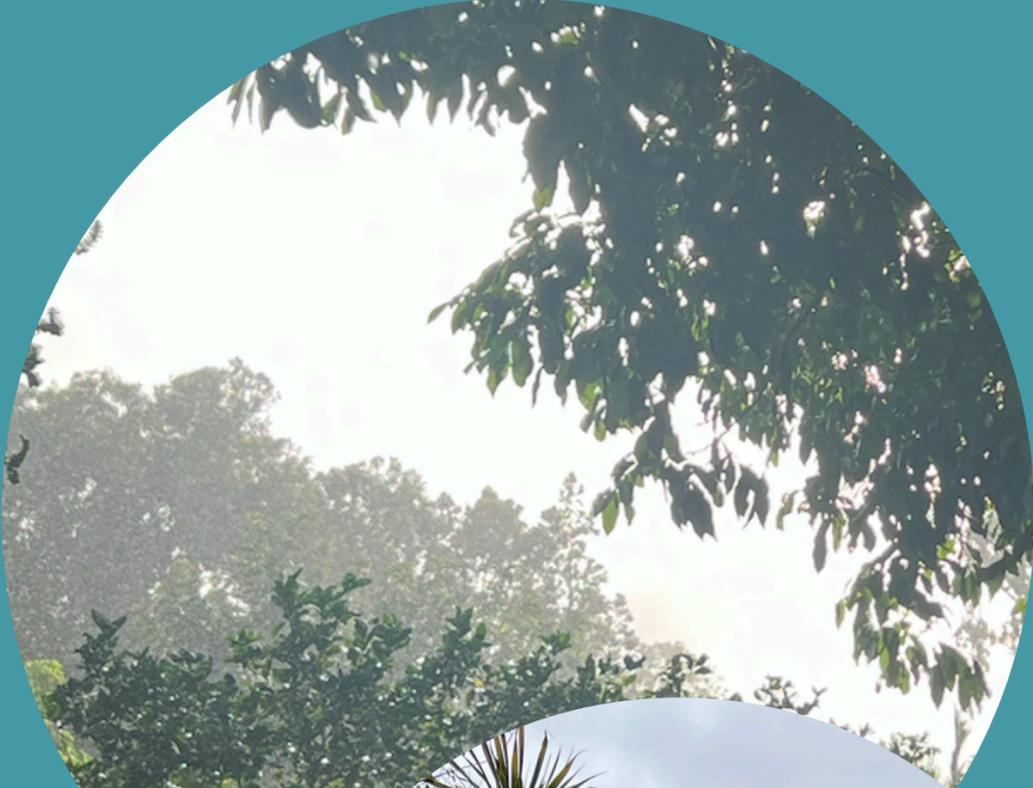


Pc: Keala Storm



Pc: DLNR

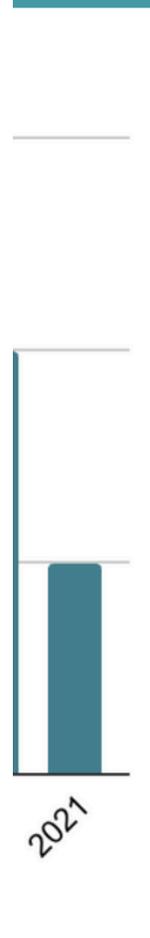
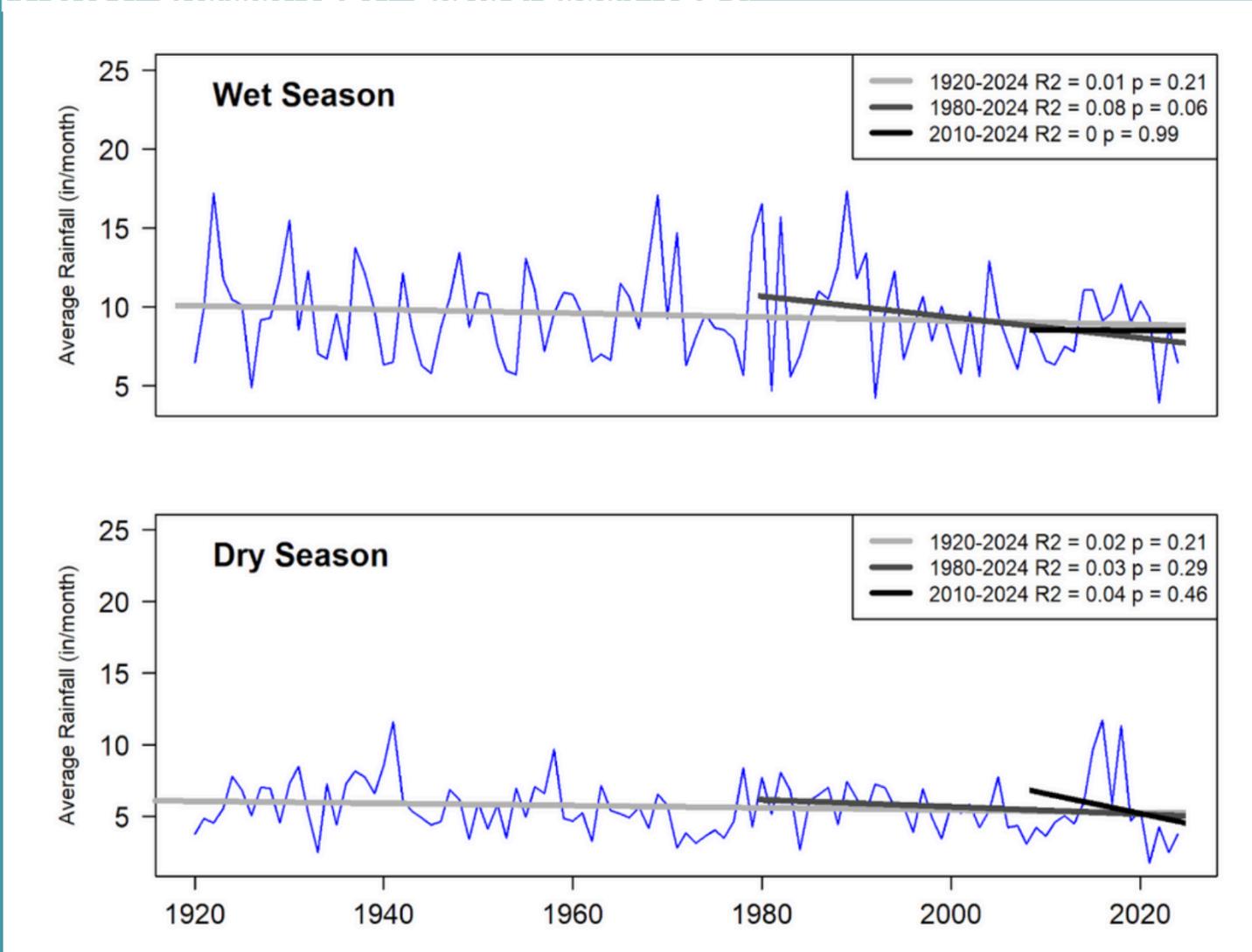




Ka ua Pe'epūhala o Hāmākua.

The (Pe'epūhala) rain of Hāmākua that makes one run to the Hala trees to hide.

Source: Akana (2021), Sterling (1997), Dukui & Elbert (1992)



2021

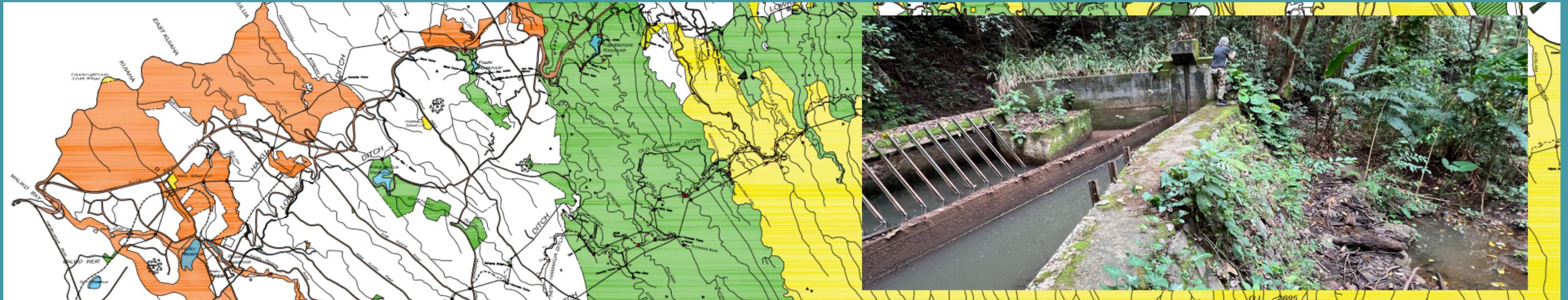
Locally - Hāmākuāloa

**Sugar & Pineapple Industry
Stream Diversions
1909**

**Population
increased 23% from
2000 to 2020.**

**Māhele: 919 Lo'i
1848**

**50% decrease
In rainfall**



Overarching Objective: Explore & enhance flood resilience in Hāmākualoa, Maui

- (i) Document community knowledge regarding the spatial extent and severity of flooding over time.**
- (ii) Understand community perception on the ways that flooding has impacted community well-being and way of life**
- (iii) Support community resilience to flooding through organizing a community-based stream stewardship project.**

Approach



Interviews
9 Interviews
30-60 minutes each
Semi-structured
Snowball Sample
Software Transcribe



Surveys

**Data
Analysis**

**Community
Event**

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30-60 minutes each
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Surveys

ArcGIS Survey123
10 quick questions
Physical & online
33 Responses

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Data Analysis

Qualitative Analysis NVivo
Software
Inductive Coding
Open & InVivo Codes
Poems

**Community
Event**



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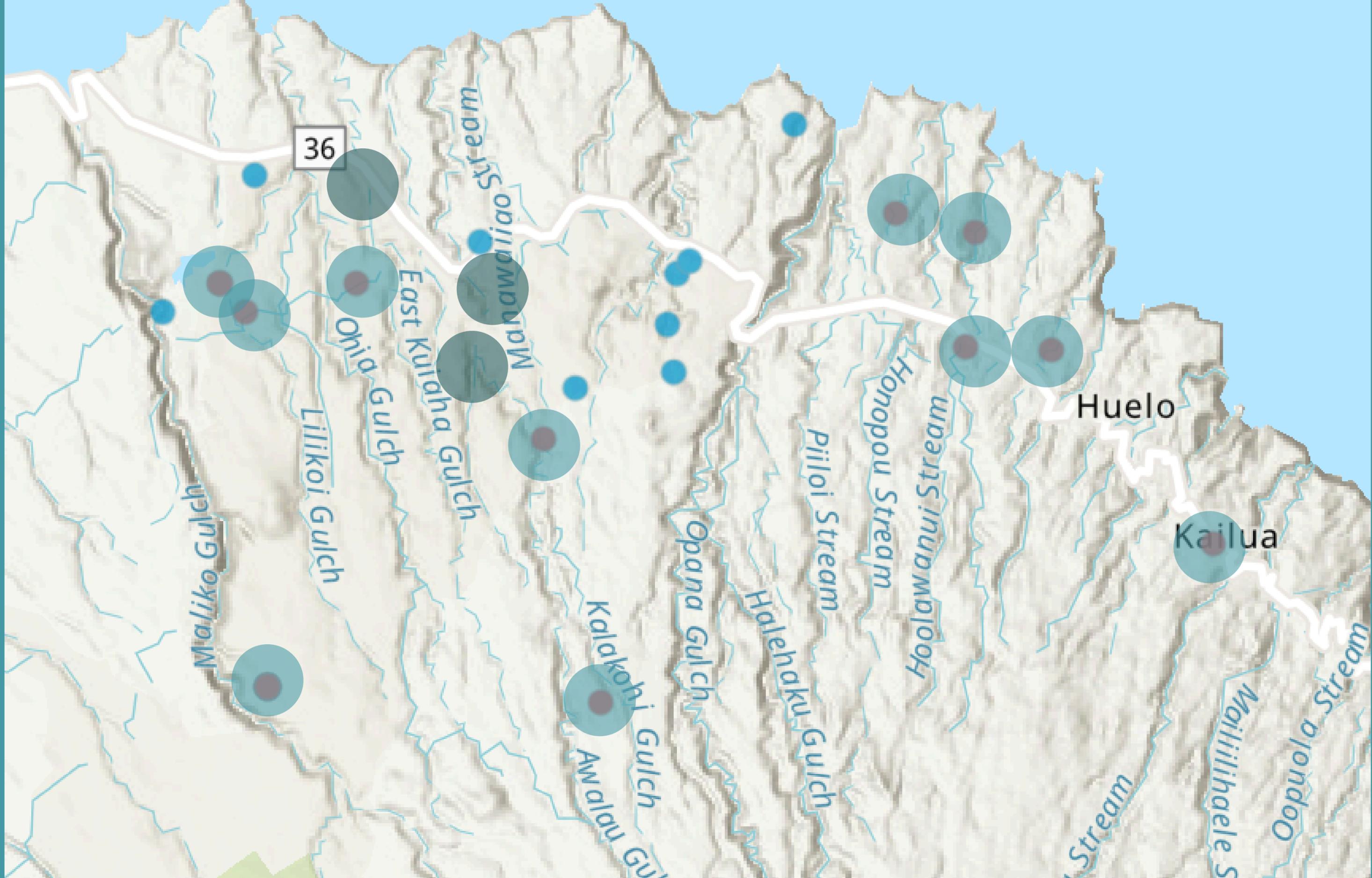
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Poems

Community Event

Partnered with 2 local
Organizations
Advertise Event!
Facilitate Activity
Share about Research

Results:

(i) Document community knowledge regarding the spatial extent and severity of flooding in Hāmākuāloa



Who here has experienced a flood?



Survey:

67% (N=22) experienced floods

Major Floods:

1986, 1998, 2006, 2018, 2021

Stream crossings are hotspots

2021

**“As much as we've had our challenges that day,
A little trauma.
We still are here, we're not scared.
We learned a few things and are not going anywhere.
But we're lucky; we still have our home.”
- Interviewee 7**



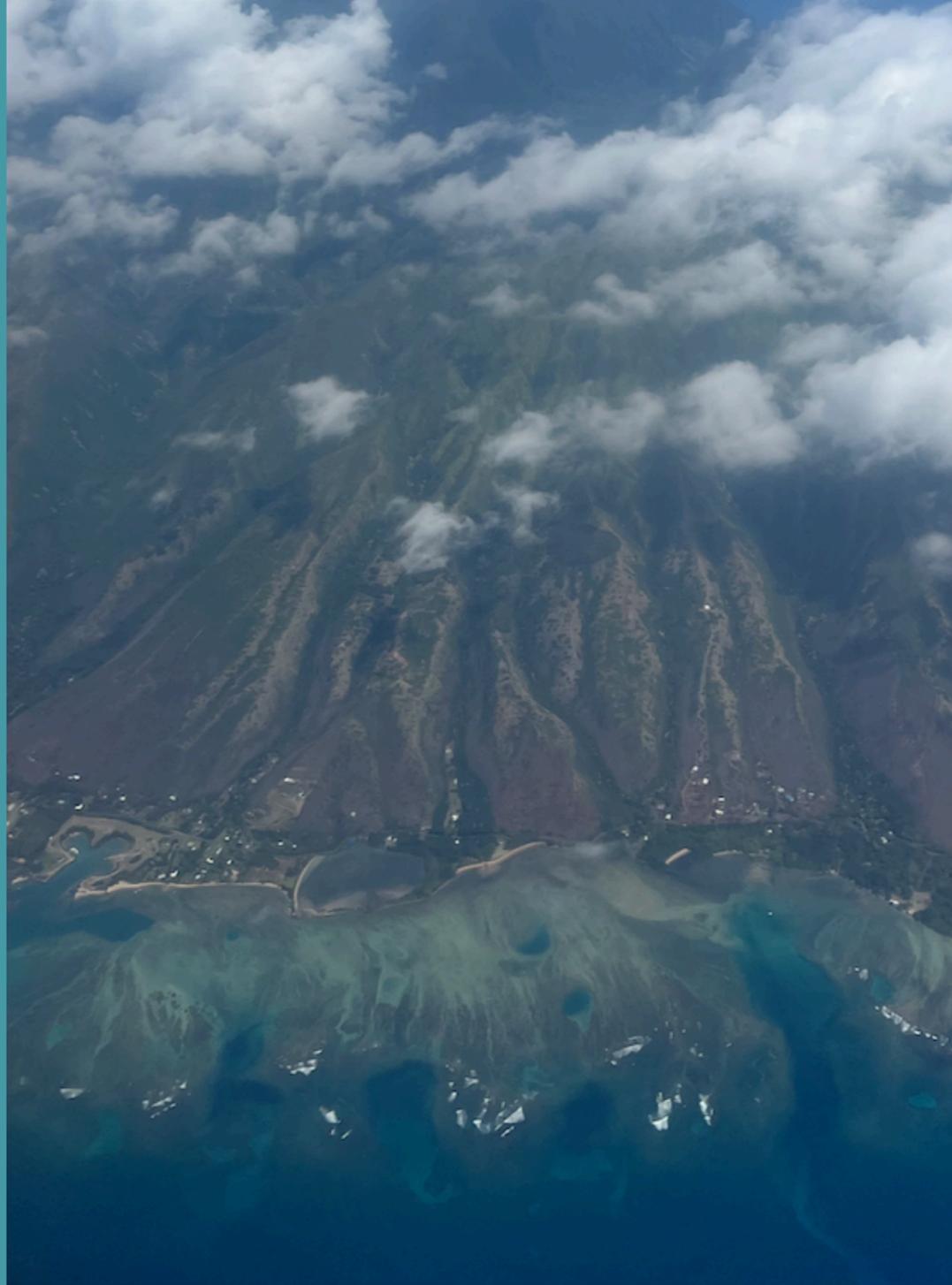
PC: MATTHEW THAYER



PC: LILIA DAVIS

MARCH 8, 2021

APRIL 12, 2025



- Floods have always been here
- Exacerbated by a decline in stream management
- Part of stream restoration is connecting people to streams

Results:

(ii) Understand community perception on the ways that flooding has impacted community well-being , and what they envision for a more resilient future

Interview Key Findings:

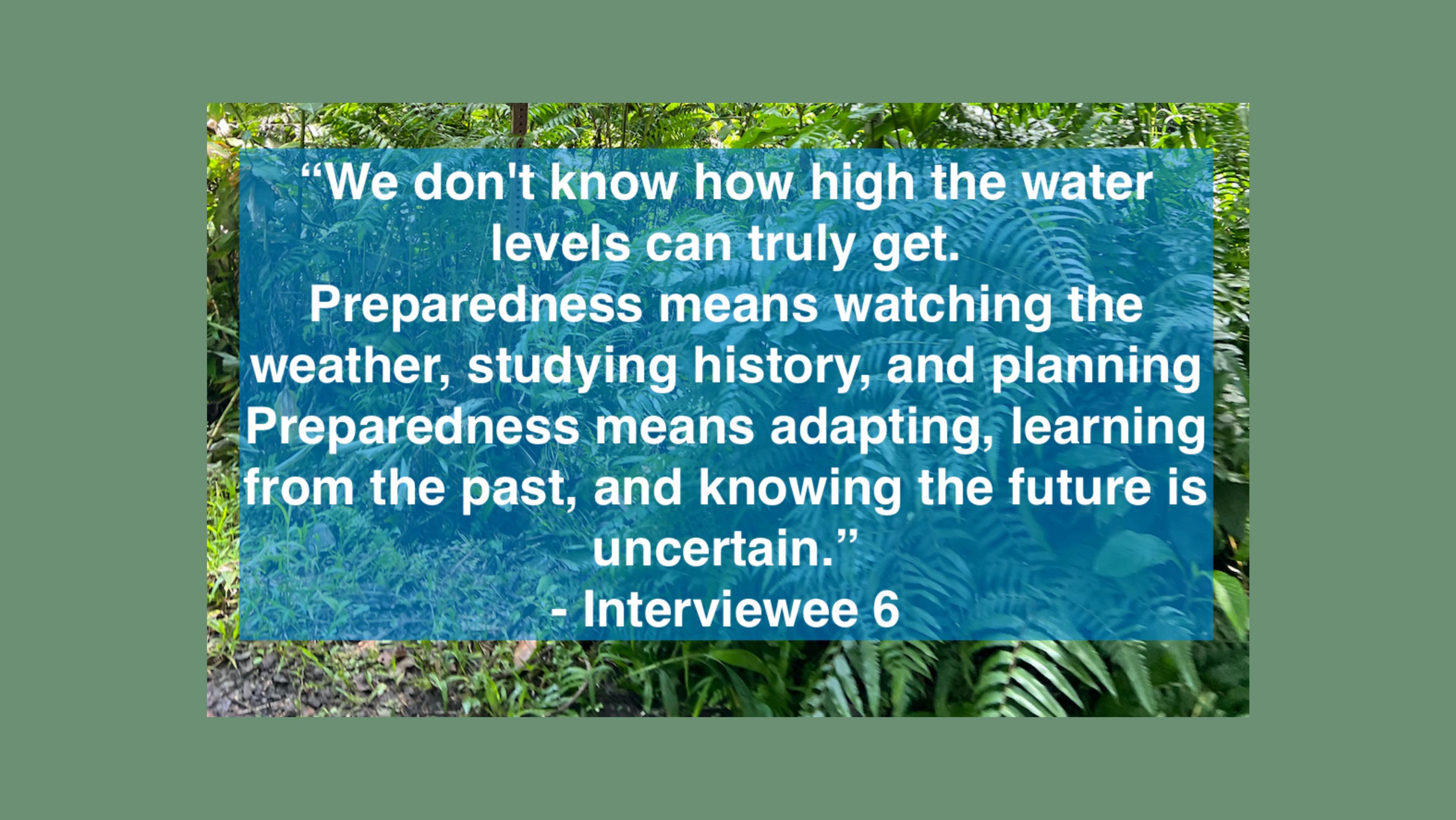
Emotional: Fear, stress, trauma, trust

Physical: Road closures, property loss,
confusing evacuations

Cultural: Disconnection from place,
changing community

*“I used to bring three pairs of clothes
with me on my way to school”*





“We don't know how high the water levels can truly get.

**Preparedness means watching the weather, studying history, and planning
Preparedness means adapting, learning from the past, and knowing the future is uncertain.”**

- Interviewee 6

Next Steps...

Interview Key Findings
Education

Build community capacity
Reestablish pilina with streams



Results:

(iii) Support community resilience by organizing a community-based stream stewardship project.

Community Event: Hosted 30 people & created 18 stream name signs Fostered pilina to place, and created space for convos about streams



Discussion

Resilience = Relationships:
Between people, place, water

Cultural Memory = Data:
Oral history guides flood knowledge

Community = Infrastructure:
Residents are already adapting



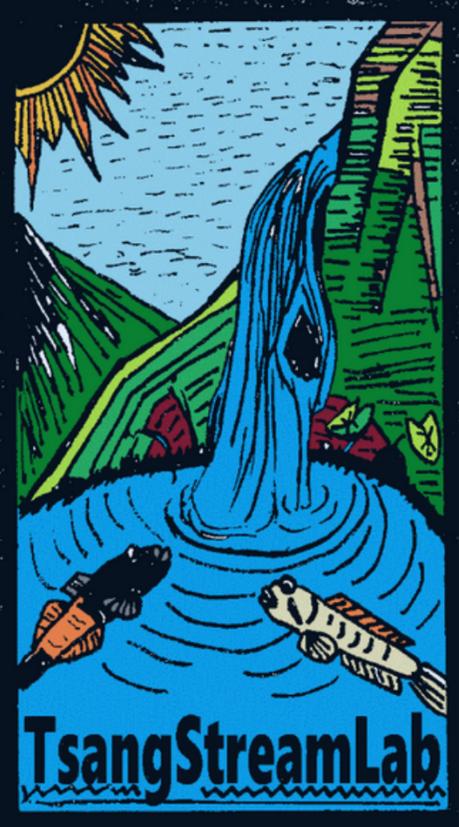


Conclusion

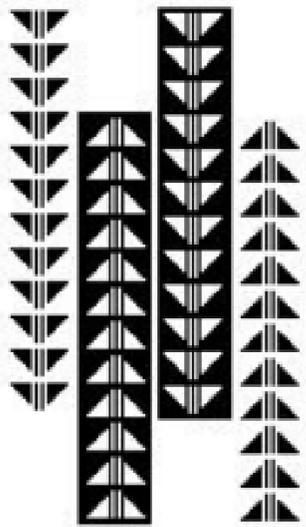
Resilience grows when we
restore relationships

We don't just prepare.
We remember
We reclaim
We restore

Water is a great teacher



HAU'OLI MAU LOA
FOUNDATION



KAMAKAKŪOKALANI
CENTER FOR HAWAIIAN STUDIES



TWIN FALLS
AT WAILELE FARM

Mahalo Nui!

I ulu nō ka lālā i ke kumu ~
I am because of you

- Hau'oli Mau Loa Foundation
- Capstone Panel (Dr. Tsang, Dr. Litton, Dr. Bremer)
- 2025 MEM Cohort
- Dr. Mehana Vaughan
- Piko Lab
- Tsang Stream Lab
- Interviewees
- Hāmākualoa Community
- Friends of Twin Falls
- Ha'ikū Community Association
- Dr. Chris Shuler
- NC/HI Cap-Risa Team
- Kū'oko'a 'Āina Based Leadership Program
- Cy, 'Ōpana 'Ohana, Friends



Questions?

