JOSH GREEN, M.D.
GOVERNOR | KE KIAʻĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIAʻĀINA

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA ʻOIHANA KUMUWAIWAI ʻĀINA

P.O. BOX 621
HONOLULU, HAWAII 96809

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RYAN K.P. KANAKAʻOLE
FIRST DEPUTY

DEAN D. UYENO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Testimony of
DAWN N. S. CHANG
Chairperson

Before the Senate Committee on
WATER AND LAND

Friday, March 15, 2024
1:00 PM
State Capitol, Conference Room 229 & Videoconference

In consideration of
HOUSE BILL 1900 HOUSE DRAFT 1
RELATING TO HYDROLOGIC DATA COLLECTION

House Bill 1900, House Draft 1, proposes to appropriate an unspecified amount of general funds for Fiscal Year (FY) 2025 to improve the State's understanding of the complex hydrologic systems in Hawai‘i by providing funding for stream gages, operating and maintaining the Hawai‘i *Mesonet*, and monitoring wells. **The Department of Land and Natural Resources supports this bill provided that its passage does not replace or adversely impact priorities indicated in the Executive FY 2025 Supplemental Budget Request.**

The Commission on Water Resource Management (Commission) acknowledges the need for increased and improved hydrologic data collection across the state of Hawai‘i. Recent studies have shown that annual rainfall has declined in Hawai‘i since the late 1980s and that air temperatures have increased since the 1950s. These trends may impact the availability of water as well as the demand for water in the future. The continuation and expansion of hydrologic monitoring is necessary to advance our monitoring of the impacts of climate change and to better manage the ground and surface waters across the islands. To refine our understanding of the data collection gaps and opportunities, the Commission collaborated with the U.S. Geological Survey (USGS) in a study to outline priorities for expanding Hawai‘i's hydrologic data collection network (*Water-Resource Management Monitoring Needs, State of Hawai‘i, USGS Scientific Investigations Report 2020-5115*). The results of the study demonstrate a great need for increasing groundwater, surface water, and rainfall data collection in Hawai‘i.

The Commission is responsible for managing 376 perennial streams in Hawai‘i. The number of stream gages across the state of Hawai‘i has decreased from 197 gages in 1966 to around 92 continuous gages today. To monitor streamflow in critical areas, the Commission executes an annual joint funding agreement with the USGS to maintain and service stream gages statewide. The Commission's cost-share has proportionally increased from 50% in 2002 to 82% in 2024 due to federal budget restrictions. The Commission also operates its own stream gaging network to supplement the cooperative USGS network. Increasing funding for stream gaging is crucial to monitoring the impacts of climate change and managing surface water resources, including the establishment and monitoring of instream flow standards and protecting public trust purposes of water.

The University of Hawai‘i Water Resources Research Center recently established the Hawai‘i *Mesonet*, a statewide network of climate monitoring stations, with the goal of fielding approximately 100 stations. Besides the installation costs, a key aspect of keeping the *Mesonet* effectively functioning are the ongoing operation and maintenance costs, which include calibrating and replacing instruments, maintaining communication equipment, batteries, and solar panels, and the sometimes-hidden cost of data quality control and storage. Funding for the operation and maintenance of the *Mesonet* will ensure that this system continues to provide high quality data into the future.

The Commission is also responsible for managing 114 aquifer system areas in Hawai‘i. Monitoring groundwater is imperative to understanding the condition and health of an aquifer. The data collected from monitor wells can be used to assess changes in the freshwater lens, seawater intrusion, over-pumping, impacts to climate change, and provides valuable data for numerical ground water modeling. The Commission currently operates 38 standard monitor wells and 13 deep monitor wells across the state and is thankful for the Legislature's approval of capital improvement funds for deep monitor well construction. An increase in operating funds for monitoring wells will allow staff to continue to maintain and enhance our data collection capabilities from existing and future monitor wells.

Mahalo for the opportunity to comment on this measure.

Testimony Presented Before the
Senate Committee on Water and Land
Friday, March 15, 2024 at 1:00 p.m.
By
Thomas Giambelluca, Director
Water Resources Research Center
And
Michael Bruno, PhD
Provost
University of Hawaiʻi at Mānoa

HB 1900 HD1 – RELATING TO HYDROLOGIC DATA COLLECTION

Chair Inouye, Vice Chair Elefante, and members of the Committee:

The University of Hawaiʻi (UH) **strongly supports HB 1900 HD1,** which appropriates funds for Fiscal Year (FY) 2025 to improve the State's understanding of and ability to monitor the complex hydrologic systems in Hawaiʻi by providing funding for stream gages and monitoring wells, and for the operation and maintenance of the *Hawaiʻi Mesonet*.

The need for comprehensive hydrological monitoring in Hawaiʻi is widely recognized and was rigorously evaluated in a study of the data collection gaps and opportunities done by the Hawaiʻi Commission on Water Resource Management (CWRM) in collaboration with the U.S. Geological Survey (USGS). The study identified priorities for expanding and improving Hawaiʻi's hydrologic data collection network (*Water-Resource Management Monitoring Needs*, State of Hawaiʻi, USGS Scientific Investigations Report 2020-5115). The results of that study identified improved groundwater, surface water, and weather data collection as critical needs in Hawaiʻi.

CWRM is responsible for managing and regulating water resources under the State Water Code (HRS Title 12, Chapter 174C). With 376 perennial streams and 114 groundwater aquifer system areas spread across the varied environments of the State, encompassing wide ranges of geologic conditions, soils, vegetation, and climate, CWRM's responsibilities are vast. The networks of stream gages and weather stations needed to manage these resources has declined steeply since the 1960s, with the number of stream gages now reduced to less than half the number that operated in 1966.

Weather monitoring similarly declined in recent decades. While climate information has been gathered for over 100 years by various entities in the islands, the climate observing network in Hawaiʻi was, until recently, fragmented, unmanaged, declining in

spatial coverage, and inadequate to meet the needs of the many stakeholders' dependent on the data, data products, and research the data support. Previously, the mainstay of the climate observing network consisted of stations operated by the sugarcane and pineapple industries. With the contraction and eventual cessation of most large-scale agriculture in the islands, many stations were discontinued.

Weather and climate monitoring benefits not only water resource management, but also weather forecasting, agricultural irrigation management, pasture management, emergency management (including wildfire and flood risk warnings and response), recreation, and numerous other interests. Recent disasters driven by weather extremes illustrate the need for a more comprehensive, high quality, telemetered monitoring network. The inability to provide accurate warnings and to respond to the historic flood events in Halele'a, Kaua'i, and southeastern O'ahu in April 2018, on Hawai'i Island and Maui in response to Hurricane Lane in August 2018, and the devastating Maui fires of August 2023, should serve as a wake up call regarding the need for improved weather observations.

In response to the overwhelming need for better data, the University of Hawai'i (UH) Water Resources Research Center (WRRC) recently established the Hawai'i Mesonet, an eventual 100-station, statewide network of advanced weather and climate monitoring stations. Site selection for Hawai'i Mesonet stations prioritizes areas lacking coverage on all islands, with particular attention to the needs of emergency managers, flood forecasters, wildfire prevention and response agencies, farmers, ranchers, and water resource managers. WRRC was able to secure $1.5M of federal support to purchase the necessary equipment, and has support from UH to install the network. To sustain this valuable investment, it is crucially important that funding be provided to operate and maintain the network and provide easy data access to all those who need the data, including CWRM. Fortunately, WRRC has secured support from the National Mesonet Program (NMP) in the form of payments for data that cover about half of the cost of operations, maintenance, and data management. This bill requests State support to cover the remaining costs of sustaining this important resource.

Thank you for the opportunity to submit testimony in support of HB 1900 HD1 provided that its passage does not impact priorities as indicated in our Board of Regents Approved Budget.

JOSH GREEN, M.D.
Governor

SYLVIA LUKE
Lt. Governor

SHARON HURD
Chairperson, Board of Agriculture

DEXTER KISHIDA
Deputy to the Chairperson

State of Hawai'i
DEPARTMENT OF AGRICULTURE
KA 'OIHANA MAHI'AI
1428 South King Street
Honolulu, Hawai'i 96814-2512
Phone: (808) 973-9600 FAX: (808) 973-9613

TESTIMONY OF SHARON HURD
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE HOUSE COMMITTEE ON WATER AND LAND

FRIDAY, MARCH 15, 2024
1:00 PM
CONFERENCE ROOM 229

HOUSE BILL NO. 1900, HD1
RELATING TO HYDROLOGIC DATA COLLECTION

Chair Inouye, Vice Chair Elefante and Members of the Committee:

Thank you for the opportunity to testify on House Bill 1900, HD1. This bill appropriates funds to improve the State's water resource management and hydrologic data collection. The Department is in strong support of this bill provided that its passage does not replace or adversely impact priorities indicated in the Executive F2025 Supplemental Budget request.

Farmers, ranchers, aquaculturists and floriculturists are faced with a myriad of decisions every day that include weather-related decisions such as when to plant or harvest, when to irrigate and how much water to use, and when to fertilize or apply pesticides. Ranchers are hardest hit when it comes to drought, heavily impacting grass-fed operations. In the years 2008-2018, the USDA Livestock Forage Disaster Program paid out over $50 million to ranchers in Hawaii that sustained grazing losses due to drought.

This bill provides the University of Hawai'i funding to build the capacity of Hawai'i Mesonet which will consist of more than 100 stations spread across seven islands. The locations are selected to fill gaps in the existing network and cover the full range of island microclimates, that include farming and ranching zones. The data collected -- air

temperature, wind speed/direction, relative humidity, rainfall, soil moisture/temperature – is valuable to Hawaii agriculture operations. The Hawai'i Mesonet sensors scan at 1-second intervals and averages are recorded every 5 minutes, is then transmitted every 15 minutes and made available to the public immediately on their website. https://www.hawaii.edu/climate-data-portal/hawaii-mesonet/

The Department considers the data important to Hawaii farmers, ranchers, aquaculturists and floriculturists and stands ready to support the project with outreach and technical/regulatory guidance.

Thank you for the opportunity to testify on this measure.

JOSH GREEN, M.D.
GOVERNOR
STATE OF HAWAII
Ke Kia'āina o ka Moku'āina 'o Hawai'i

SYLVIA J. LUKE
LT. GOVERNOR
STATE OF HAWAII
Ka Hope Kia'āina o ka Moku'āina 'o Hawai'i

KALI WATSON
CHAIRMAN, HHC
Ka Luna Ho'okele

KATIE L. DUCATT
DEPUTY TO THE CHAIRMAN
Ka Hope Luna Ho'okele

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
Ka 'Oihana 'Āina Ho'opulapula Hawai'i
P. O. BOX 1879
HONOLULU, HAWAII 96805

TESTIMONY OF KALI WATSON, CHAIRMAN
HAWAIIAN HOMES COMMISSION
BEFORE THE SENATE COMMITTEE ON WATER AND LAND
HEARING ON MARCH 15, 2024 AT 1:00PM IN CR 229
WRITTEN ONLY

HB 1900, HD1, HYDROLOGIC DATA COLLECTION

March 15, 2024

Aloha Chair Inouye, Vice Chair Elefante, and Members of the Committee:

The Department of Hawaiian Home Lands **supports** this bill which appropriates funds to improve the State's water resource management and hydrologic data collection - effective 7/1/3000.

The importance of comprehensive hydrological monitoring in Hawai'i is well-recognized, as emphasized in a joint study by the Hawai'i Commission on Water Resource Management (CWRM) and the U.S. Geological Survey (USGS). This study highlighted critical gaps in data collection and emphasized the urgent need for enhanced groundwater, surface water, and weather monitoring. CWRM, which is tasked with managing water resources under the State Water Code, faces significant challenges due to Hawai'i's diverse geography and declining monitoring infrastructure. The number and spatial coverage of stream gauges and weather stations have decreased since the 1960s, hindering effective resource management.

Weather monitoring has also suffered, with fragmented and inadequate networks, particularly following the decline of large-scale agriculture. This impacts various sectors, including water resource management, weather forecasting, agriculture, emergency response, and recreation.

Recent disasters, such as floods and wildfires, underscore the necessity for a robust, telemetered monitoring network to provide accurate warnings and response. These events highlight the urgent need for improved weather observations to better protect communities and resources.

Thank you for your consideration of our testimony.

BOARD OF WATER SUPPLY
KA 'OIHANA WAI
CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET • HONOLULU, HAWAI'I 96843
Phone: (808) 748-5000 • www.boardofwatersupply.com

RICK BLANGIARDI
MAYOR
MEIA

ERNEST Y. W. LAU, P.E.
MANAGER AND CHIEF ENGINEER
MANAKIA A ME KAHU WILIKĪ

ERWIN KAWATA
DEPUTY MANAGER
HOPE MANAKIA

NĀ'ĀLEHU ANTHONY, Chair
KAPUA SPROAT, Vice Chair
BRYAN P. ANDAYA
JONATHAN KANESHIRO
EDWIN H. SNIFFEN, Ex-Officio
GENE C. ALBANO, P.E., Ex-Officio

March 15, 2024

The Honorable Lorraine R. Inouye, Chair
and Members
Senate Committee on Water and Land
Hawai'i State Capitol, Room 229
Honolulu, Hawai'i 96813

Dear Chair Inouye and Members:

Subject: House Bill 1900, House Draft 1, Relating to Hydrologic Data Collection

The Honolulu Board of Water Supply (BWS) strongly supports House Bill 1900, House Draft (HD) 1, relating to hydrologic data collection, which appropriates funds to improve the State's water resource management and hydrologic data collection.

BWS supports the maintenance and expansion of the Hawai'i mesonet advanced weather and climate monitoring network and have assisted the University of Hawai'i to add more weather stations on Oahu. Historical and near-real time weather data is essential for continued hydrologic research and monitoring climate change indicators, drought intensity that can exacerbate wildland fires, and early warning high rainfall events that cause localized flooding.

Given the rising temperatures and irregular weather patterns, states must be prepared for possibilities of flooding, storm surge, hurricanes, drought, and wildfires that impact our valuable resources and infrastructures. The National Mesonet Program has evolved into a "nationwide networks of networks," to which the Hawai'i mesonet and the University of Alaska Fairbanks represent the Pacific Region.[1] Thirty-eight states are operating or building networks of weather monitoring stations to provide more precise data than they receive from the National Weather Service. They are using that information to help spot flash floods, assess wildfire risks, inform farming practices and choose locations for renewable energy projects.[2]

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[1] National Mesonet Program. https://nationalmesonet.us/program-history/
[2] Brown, Alex. "These Hyperlocal Weather Networks Can Help States Face Climate Threats." Stateline, November 15, 2022.

Hawai'i must take a proactive vs. reactive approach to deal with such irregular climate change conditions. Like other states, the Hawai'i mesonet is making progress, but needs to expand more mesonet weather stations to gather the necessary data to better predict and forecast complex weather patterns and climate; and protect lives and property.

Thank you for your consideration of our testimony in strong support of HB 1900, HD 1.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: BWS Water Resources

DEPARTMENT OF WATER SUPPLY • COUNTY OF H A W A I ` I
345 KEKŪANAŌ`A STREET, SUITE 20 • HILO, HAWAI`I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

March 14, 2024

TESTIMONY OF KAWIKA UYEHARA, DEPUTY
DEPARTMENT OF WATER SUPPLY, COUNTY OF HAWAIʻI

HEARING BEFORE THE SENATE COMMITTEE ON WATER AND LAND
DATE: Friday, March 15, 2024
TIME: 1:00 p.m.
PLACE: Conference Room 229 & Videoconference

HB 1900 HD1 - RELATING TO HYDROLOGIC DATA COLLECTION

Honorable Chair Inouye; Vice-Chair Elefante, and committee members,

The enhancements to Hawaiʻi's climate and hydrologic monitoring capacity proposed in this bill will greatly assist us in fulfilling our mission as stewards and stakeholders associated with managing water and environmental resources effectively. Therefore, the County of Hawaii, Department of Water Supply (DWS) **strongly supports HB 1900.**

The importance of comprehensive hydrological monitoring in Hawaiʻi is well-recognized, as emphasized in a joint study by the Hawaiʻi Commission on Water Resource Management (CWRM) and the U.S. Geological Survey (USGS). This study highlighted critical gaps in data collection and emphasized the urgent need for enhanced groundwater, surface water, and weather monitoring. CWRM, which is tasked with managing water resources under the State Water Code, faces significant challenges due to Hawaiʻi's diverse geography and declining monitoring infrastructure. The number and spatial coverage of stream gauges and weather stations have decreased since the 1960s, hindering effective resource management.

Weather monitoring has also suffered, with fragmented and inadequate networks, particularly following the decline of large-scale agriculture. This impacts various sectors, including water resource management, weather forecasting, agriculture, emergency response, and recreation.
Recent disasters, such as floods and wildfires, underscore the necessity for a robust, telemetered monitoring network to provide accurate warnings and response. These events highlight the urgent need for improved weather observations to better protect communities and resources.

Thank you for the opportunity to testify on this measure.

Email: communications@ulupono.com

SENATE COMMITTEE ON WATER & LAND
Friday, March 15, 2024 — 1:00 p.m.

Ulupono Initiative supports HB 1900 HD1, Relating to Hydrologic Data Collection.

Dear Chair Inouye and Members of the Committee:

My name is Micah Munekata, and I am the Director of Government Affairs at Ulupono Initiative. We are a Hawai'i-focused impact investment firm that strives to improve the quality of life throughout the islands by helping our communities become more resilient and self-sufficient through locally produced food, renewable energy, clean transportation choices, and better management of freshwater resources.

Ulupono supports HB 1900 HD1, which appropriates funds to improve the State's water resource management and hydrologic data collection.

Data-driven management decisions about our fresh water resources cannot occur without the data on the health of those resources. Since the closing of Hawai'i's last sugar plantation, there has been a steady decline in the number of stream, aquifer, and rainfall data collection stations. These stations provided critical information on the impact that seasonal weather changes and water management decisions had on our streams and aquifers.

Through cooperative agreements with the U.S. Geological Survey and partnerships with the University of Hawai'i, the State of Hawai'i Commission on Water Resource Management (CWRM) has attempted to create a hydrologic monitoring network that provides the data needed to address serious water disputes in areas such as Na Wai 'Eha and West Hawai'i. However, monitoring data still does not exist for vital aquifers such as those in urban Honolulu, where current pumpage exceeds the sustainable limit of those aquifers. If we are serious about leaving the future generations of Hawai'i with thriving freshwater resources, then we must provide CWRM with the funding the commission needs to excel in its mandate to protect the public trust for this vital resource.

Thank you for the opportunity to testify.

Respectfully,

Micah Munekata
Director of Government Affairs

P.O. Box 253, Kunia, Hawai'i 96759
Phone: (808) 848-2074; Fax: (808) 848-1921
e-mail info@hfbf.org; www.hfbf.org

March 15, 2024

HEARING BEFORE THE
SENATE COMMITTEE ON WATER AND LAND

TESTIMONY ON HB 1900, HD1
RELATING TO HYDROLOGIC DATA COLLECTION

Conference Room 229 & Videoconference
1:00 PM

Aloha Chair Inouye, Vice-Chair Elefante, and Members of the Committee:

I am Brian Miyamoto, Executive Director of the Hawaiʻi Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,800 farm family members statewide and serves as Hawaiʻi's voice of agriculture to protect, advocate, and advance the social, economic, and educational interests of our diverse agricultural community.

The Hawaiʻi Farm Bureau supports HB 1900, HD1, which appropriates funds to improve the State's water resource management and hydrologic data collection.

Land cannot support agriculture without adequate, economical water resources. Water is a basic necessity for farmers and ranchers to maintain and expand their production. Water reliability is essential for farmers and ranchers to efficiently grow crops and raise livestock.

Since the demise of plantation operations across the islands, we have seen a decline in stream, aquifer, and rainfall data collection stations. These stations provided critical information on the impact that seasonal weather changes and water management decisions had on our streams and aquifers. The data is needed to guide farmers and ranchers with their current and future agricultural irrigation and pasture management.

The Legislature continues to advocate for increased self-sufficiency and sustainability. Agriculture must play a key role in this process, and for agriculture to thrive, water is essential.

Thank you for this opportunity to provide comments on this measure.

The Nature Conservancy
Hawai'i and Palmyra

The Nature Conservancy, Hawai'i and Palmyra
923 Nu'uanu Avenue
Honolulu, HI 96817

Tel (808) 537-4508
Fax (808) 545-2019
nature.org/HawaiiPalmyra

Testimony of The Nature Conservancy
Support for HB 1900, HD1, Relating to Hydrologic Data Collection
Committee on Water & Land
March 15, 2024, 1:00 p.m.
Conference Room 229 & Videoconference

The Nature Conservancy, Hawai'i and Palmyra Chapter, works across the Hawaiian island chain to use a science-based approach to manage our watersheds and coastal waters. We ask the Senate Water & Land Committee to support HB1900, HD1, and invest in the rainfall and hydrologic data needed to best make informed decisions in the places we work.

To combat the effects of climate change, including drought and flooding, accurate data is needed to describe and predict how our environment is changing. Hawai'i has long needed rainfall and weather data to inform watershed management decisions – including how much water is available now and into the future, the risk of fire, and the scale of flooding are all indicators that would determine design considerations for our future infrastructure. Recent flood events in central and east Maui and north Kaua'i, along with the drought conditions of this year that set the stage for wildfires, have shown that our water cycle deeply connects and affects the people and places we care about.

In collaboration with landowners like The Nature Conservancy to assist in siting these important weather stations, the Water Resource Research Center at the University of Hawaii at Manoa is ready to install and deploy a weather monitoring network across the islands that would be accessible in real-time to all stakeholders. They have worked to involve community partners and land managers whenever possible, ensuring that the data will be in places where it is most needed. To build a long-term dataset requires investment in our future, so that we can see where we are going and where we have come from with our water.

We urge you to help appropriate the funds for this needed data, so that water resource managers can improve guidance to all of us in the State who are reliant on water for life.

Please support HB 1900, HD1.

North Shore Hydrological Services
Matt Rosener, MS, PE, Principal

Testimony Presented Before the Senate Water and Land Committee
Friday, March 15, 2024 at 1:00 p.m.

by

Matt Rosener, Hydrologist/Water Resource Engineer, North Shore Hydrological Services

HB 1900 HD1 – RELATING TO HYDROLGIC DATA COLLECTION

North Shore Hydrological Services is a consulting and design firm working on projects around Hawaii Nei to better manage, conserve, and improve Hawaii's precious water resources. In the work that I do, as the owner of North Shore Hydro, I use weather and water data very often, so I know its availability is critical to developing effective solutions to the challenges we're currently facing. By now, we know that our climate is changing. This is impacting the islands' water cycle now and will continue to do so in the future. Because of this, extension of weather and climate records from existing monitoring stations is extremely important at this time, to ensure high-quality data is informing the mitigation strategies that will be essential to our continued way of life in Hawaii.

Likewise, expansion of our monitoring efforts seems wise given the context of our current situation. A rain gage I installed and operate at Waipā (near Hanalei) on Kauaʻi captured 55 inches of rain in 28 hours during the April 2018 rain bomb storm that caused incredible damage and hardship in this area. This rainstorm shattered the previous 24-hour national record for rainfall, and it affected my thinking about how climate is changing in our environment. Low-lying communities like Hanalei are already vulnerable to flooding, and with sea level rising and rainfall becoming more erratic, the floods will be worse. For many years, the standard method to predict a 100-year flood was based on historical records and the assumption that the future will be like the past. Now we know that this is not true, and we must adapt. All the historical records are still of great importance, but we need to increase our monitoring efforts in these changing times.

The enhancements to Hawaiʻi's climate and hydrologic monitoring capacity proposed in this bill will greatly assist us in fulfilling our mission as stewards responsible for managing water and environmental resources effectively. Therefore, **North Shore Hydrological Services strongly supports HB 1900 HD1.**

Thank you for the opportunity to testify on this measure.

Matt Rosener, M.S., P.E.
Hydrologist/Water Resource Engineer

P.O. Box 1061, Hanalei, HI 96714 / P.O. Box 4032, Port Angeles, WA 98363
(808) 639 2640 / northshorehydro@gmail.com

HB-1900-HD-1
Submitted on: 3/12/2024 4:19:14 PM
Testimony for WTL on 3/15/2024 1:00:00 PM

Submitted By	Organization	Testifier Position	Testify
Jacqueline S. Ambrose	Individual	Support	Written Testimony Only

Comments:

Aloha,

YES TO HYDROLOGIC DATA COLLECTION.
Appropriates funds to improve the State's water resource management and hydrologic data collection

Restore the Commons

Friday, March 15, 2024, 1:00 pm

Senate Committee on Water and Land

HOUSE BILL 1900 HD1 – RELATING TO HYDROLOGIC DATA COLLECTION.

Position: **Strong Support**

Me ke Aloha, Chair Inouye, Vice-Chair Elefante, and Members of the Senate Committee on Water and Land:

HB1900 HD1 appropriates funds to improve the State's water resource management and hydrologic data collection, namely a "Hawaii mesonet" climate-observing network to overcome data that is fragmented, unmanaged, declining in spatial coverage, and inadequate to meet the needs of researchers and stakeholders.

Hawaii lies in the middle of *Moana Nui*, the largest and most complex geophysical feature on the planet. We are blessed to be part of the most phenomenal network of gigantic datasets comprised of tectonic plates, atmospheric and marine currents, sea surface ecology, migrating species, and critical reef habitat, including both North and South poles, and home to some of the finest analytical minds working with international partners on every continent.

At the Water Commission we are so fortunate to work with these folks, converting these massive data sets into local parameters, a process called downscaling, to integrate the data compiled ocean-wide with local correlates. They have periodically updated our rainfall expectations and provided forecasts of long term trends for our place in the Pacific. You doubtless have noticed that our weather news forecasts provide more complex mapping and very accurate projections of temperature, wind direction and speed, projected precipitation and humidity, and ocean swells.

With long-term expectations now in flux with climate change, the new normal seems to be a world of anomalies. It could not be more important than to stay on top of these mysterious changes, from floppy jet streams to rising sea surface temperatures to migrating currents, as the entire wheel of planetary climate begins to shift. The Pacific phenomena obviously affect the rest of the planet, and vice versa.

For these obvious reasons, it is imperative that we continue this work and support the understanding of greater complexity.

It bears remarking that while everyone talks about the weather, few are doing anything about it. It often seems that decision makers remain dilletantes in taking necessary action. After all, we witnessed a devastating wind-driven fire in Lahaina in 2018, got multiple recommendations, and did nothing. Any number of important streams are perennially overgrown into flood hazards, stormwater flows remain curiosities of conjecture, and sea level rise continues to complicate urban infrastructure as we dawdle.

We need action. Basic projections for Hawaii's climate are very clear, and current long-term trends are also very clear: precipitation is both on the decline overall and splitting into perennial drought and torrential flooding rather than used-to-be-normal steady Trade showers. The impacts on ground water and surface streams are also understood. We are taking appropriate action to assure that we can see what's coming, but it's time to start acting upon what we already know. Climate change is upon us, and we cannot afford to wait. It's time we also start funding people to do the work of mitigation and adaptation.

Mahalo for the opportunity to address this issue,

/s/ Charley Ice

Planner, Department of Hawaiian Home Lands and liaison to the Water Commission (10 years) and Hydrologist, Commission on Water Resource Management (25 years) (retired)