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SYLVIA LUKE
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STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

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BOARD OF LAND AND NATURAL RESOURCES
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FIRST DEPUTY

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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Testimony of
DAWN N. S. CHANG
Chairperson

Before the Senate Committees on
WATER AND LAND
and
AGRICULTURE AND ENVIRONMENT

Monday, February 5, 2024
1:15 p.m.

State Capitol, Conference Room 229 & Videoconference

In consideration of
SENATE BILL 2184
RELATING TO ADAPTATION PATHWAYS PLANNING

Senate Bill 2184 proposes to expand the authority of the State and counties to develop adaptation pathways plans to modify and relocate infrastructure away from critically threatened areas to locations outside sea level rise and coastal flooding exposure areas. **The Department of Land and Natural Resources (Department) strongly supports this bill and offers the following comments.**

A 2012 study by University of Hawai'i researchers for the United States Geological Survey found that over 13 miles of public beaches have already been lost to beach erosion and construction of coastal armoring including seawalls and revetments. This bill enables the Department and county agencies to work with property owners at a regional scale to identify appropriate adaptation measures and triggers for action for each structure threatened by sea level rise.

Long-term observational data from local tide gauge stations show that sea level is rising around Hawai'i. Beach loss and threats to shorefront development will increase exponentially in coming decades with coastal erosion and flooding exacerbated by sea level rise if adaptation measures are not proactively implemented. As outlined in the 2022 5-Year Update to the Hawaii Sea Level Rise Vulnerability and Adaptation Report, peer-reviewed scientific literature as well as government and multinational reports increasingly point to three to four feet of sea level rise by 2100 as a mid-range scenario for Hawai'i.

Current models indicate that Hawai‘i and other tropical Pacific sites will experience sea level rise that is 16% to 20% higher than the global average¹. These predictions make it imperative to act now.

Adapting to sea level rise and associated coastal hazards is a multi-faceted endeavor. State and county agencies currently use known tools, such as beach and dune restoration, temporary shoreline armoring, and flood mitigation such as elevating buildings to address threats on an ad hoc, parcel by parcel basis. Senate Bill 2184 will build on previous and ongoing efforts to conduct proactive planning to prepare for increasing coastal erosion and flooding with a location-specific suite of adaptation measures. Furthermore, House Bill 1545 addresses the following priority action areas from the 2017 and 2022 Hawai‘i Sea Level Rise Vulnerability and Adaptation Reports:

- Facilitate interagency coordination for holistic adaptation planning (e.g., comprehensive consideration and planning for natural resources, roads, communities; and improved communications between government agencies);
- Conserve and adapt Native Hawaiian cultural resources and sites;
- Integrate equity and justice considerations to vulnerability assessments and adaptation planning and actions;
- Address and stop the loss of shoreline access;
- Integrate economic valuation and ecosystem co benefits of natural coastal resources into planning and actions;
- Make managed retreat a viable option and identify funding mechanisms for adaptation; and
- Implement phased adaptation to sea level rise.

The Department recommends amendments to this bill which would acknowledge the impacts of climate change on cultural resources, include restoration or remediation of the shoreline as a goal, and recognize that commercial and industrial properties are also at risk:

At Section 2, page 5, lines 3 to 7, of this bill:

“Adaptation pathways plan” means a plan outlining the adaptation pathways appropriate for a specific region, or individual parcel within a region, with environmental triggers or infrastructure damage triggers, for the implementation of individual measures identified within the adaptation pathways

At Section 2, page 5, lines 15 to 21, of this bill:

(b) The adaptation pathways may include measures such as elevation and reengineering of development to accommodate occasional flooding and the advancing shoreline, along with a land disposition to partially and temporarily occupy state land, other accommodation measures,

¹ Sweet, W.V., B.D. Hamlington, R.E. Kopp, C.P. Weaver, P.L. Barnard, D. Bekaert, W. Brooks, M.Craghan, G. Dusek, T. Frederikse, G. Garner, A.S. Genz, J.P. Krasting, E. Larour, D. Marcy, J.J. Marra, J. Obeysekera, M. Osler, M. Pendleton, D. Roman, L. Schmied, W. Veatch, K.D. White, and C. Zuzak, [2022: Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines](#). NOAA Technical Report NOS 01. National Oceanic and Atmospheric Administration, National Ocean Service, Silver Spring, MD.

~~and~~ ultimate relocation from locations that are or will be critically threatened by impacts related to climate change and sea level rise, and restoration or remediation of the shoreline after removal of structures and materials.

At Section 2, page 6, lines 1-7, of this bill:

§171- Sea level rise adaptation pathways plan. (a) The department, in cooperation with appropriate state and county agencies, shall prepare and, from time to time, revise regional scale adaptation pathways plans for the implementation of a program to facilitate adaptation of vulnerable private residential, commercial, industrial, and resort development and associated public infrastructure to the impacts of sea level rise and associated flooding, and the restoration or remediation of the shoreline where necessary.

At Section 2, page 7, lines 3-13, of this bill:

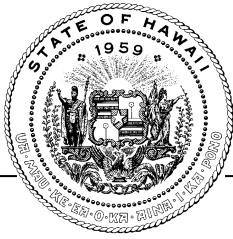
(c) Adaptation pathways plans developed pursuant to this part may incorporate proposed time-limited land dispositions in the adaptation pathways for a habitable structure that is proposed to be modified to withstand occasional flooding with sea level rise and temporarily occupy private land and state-owned land makai of the shoreline. These modifications shall:

- (1) Be shown to have a minimal impact on natural shoreline processes, coastal and cultural resources, and public shoreline safety and access; and
- (2) Include a proposed timeline and environmental triggers for the ultimate removal of development from the shoreline- and remediation or restoration of the land.

At Section 2 page 7, line 17, to page 8, line 2, of this bill:

- (1) Adaptation actions and ~~environmental~~ triggers for actions that are appropriate to the individual location, including but not limited to modification and relocation of private residential and resort development and associated public utilities and infrastructures;

Mahalo for the opportunity to provide testimony in support of this bill.



**STATE OF HAWAII
OFFICE OF PLANNING
& SUSTAINABLE DEVELOPMENT**

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
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Statement of
MARY ALICE EVANS, Interim Director

before the
**SENATE COMMITTEES ON WATER AND LAND & AGRICULTURE AND
ENVIRONMENT**

Monday, February 5, 2024, 1:15 PM
State Capitol, Conference Room 229

in consideration of
**SB 2184
RELATING TO ADAPTATION PATHWAYS PLANNING.**

Chairs Inouye and Gabbard, Vice Chairs Elefante and Richards, and Members of the Senate Committees on Water and Land & Agriculture and Environment:

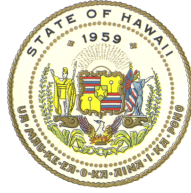
The purpose of SB 2184 is to appropriate funds to the Department of Land and Natural Resources (DLNR) to develop adaptation pathway plans to facilitate natural resource conservation and reduce the loss of public and private infrastructure to damage associated with sea level rise and flooding.

The Office of Planning and Sustainable Development **supports** this bill as it complements current OPSD efforts to address coastal hazards and adaptation planning. In accordance with HRS§225M-2(b)(9) and HRS§225M-9, the OPSD Coastal Zone Management Program (CZM) is engaging in activities to further understand and support adaptation efforts across the state.

- Regional Shoreline Management Study: Assess the feasibility of regional shoreline management by identifying shoreline regions and subregions for adaptation planning and management purposes.
- Managed Retreat Analysis: Analyze the existing challenges and opportunities to implementing managed retreat from the perspectives of policy and legal, and funding and financing. This analysis focuses on managed retreat strategies as they would apply to private properties.

The tasks outlined in SB 2184 would complement the OPSD CZM's work in developing and implementing coastal adaptation planning.

Thank you for the opportunity to testify on this measure.



STATE OF HAWAII
HAWAII CLIMATE CHANGE MITIGATION & ADAPTATION
COMMISSION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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Director, DOH
Chairperson, DOE
Director, C+C DPP
Director, Maui DP
Director, Hawaii DP
Director, Kauai DP
The Adjutant General
Manager, CZM

**Testimony of
Leah Laramee
Coordinator, Hawai'i Climate Change Mitigation and Adaptation Commission**

**Before the Senate Committees on
WATER & LAND
AND
AGRICULTURE AND ENVIRONMENT**

**Monday, February 5, 2024
1:15 PM
State Capitol, Conference Room 229 & Videoconference**

**In support of
SENATE BILL 2184
RELATING TO ADAPTATION PATHWAYS PLANNING**

Senate Bill 2184 expands the authority of the State and counties to develop adaptation pathways plans to modify and relocate infrastructure away from critically threatened areas to locations outside sea level rise and coastal flooding exposure areas and appropriates funds. **The Climate Change Mitigation and Adaptation Commission (Commission) supports this bill.**

The Commission consists of a multi-jurisdictional effort between 20 different departments, committees, and counties. As sea level rise continues to accelerate, the State of Hawai'i must maintain a constant and ongoing effort to adopt policies and programs to support adaptation to a changing world. The State must maintain a diligent focus on continual and ongoing improvement of community engagement, laws, regulations, and policies to meet the challenge ahead and safeguarding our cultural and natural resources while also providing adaptation tools to the people of Hawai'i in an equitable manner.

This bill meets the priorities as outlined in the following recommendations and recommended actions from the 2022 update to the *Sea level Rise Vulnerability and Adaptation Plan*:

2017 Recommendation 1: Support sustainable and resilient land use and community development.

Recommended Action 1.8: Implement the recommendations of the February 2019 Office of Planning and Sustainable Development - Coastal Zone Management Program report titled "Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable

Coastal Areas in Hawai'i": The state should establish and fund programs at the state and county level to incentivize relocation (e.g., willing-seller managed retreat) to benefit community resilience and protect public trust resources.

2022 Recommended Action 1.9: Conduct long-term strategic planning for maintenance, repair and replacement of critical infrastructure within the SLR-XA in advance of emergent need: State agencies should undertake long-term strategic planning initiatives to reduce the use of emergency measures for maintenance and repair of facilities and infrastructure within the SLR-XA.

2017 Recommendation 2: Prioritize smart urban redevelopment outside the SLR-XA and limit exposure within the SLR-XA.

Updated 2017 Recommendation 4: Enable beaches to persist with sea level rise.

Updated 2017 Recommended Action 4.3: Explore legislative and policy mechanisms to designate funding for priority coastal lands and enable the use of a variety of practices and tools and utilize existing programs to acquire beaches and other coastal lands for recreational, cultural, ecosystem and resilience objectives.

2017 Recommendation 5: Preserve Native Hawaiian culture and communities with sea level rise.

2017 Recommended Action 5.3 Develop adaptation plans to preserve access to coastal lands and water within Native Hawaiian communities with sea level rise.

2017 Recommendation 6: Protect nearshore water quality from sea level rise impacts.

2017 Recommendation 9: Promote collaboration and accountability for adapting to sea level rise.

The development of adaptation pathways plans for vulnerable coastal infrastructure is a necessary step towards our collective preparedness for the impacts of sea level rise. The community engaged process outlined in this legislation will create a cooperative way forward for the state and county agencies to safeguard natural resources and support landowners in adapting to current and future hazards.

Mahalo for the opportunity to testify in support of this measure.



UNIVERSITY OF HAWAII SYSTEM

‘ŌNAEHANA KULANUI O HAWAII

Legislative Testimony

Hō'ike Mana'o I Mua O Ka 'Aha'ōlelo

Testimony Presented Before the
Senate Committee on Water & Land
Senate Committee on Agriculture & Environmental
Tuesday, February 5, 2024 at 1:15 p.m.

By

Charles "Chip" Fletcher, PhD

Interim Dean

School of Ocean and Earth Science and Technology

And

Darren Lerner, PhD

Director, Sea Grant College Program

Name, Dean or Director

And

Michael Bruno, PhD

Provost

University of Hawai'i at Mānoa

LATE

SB 2184 – RELATING TO ADAPTATION PATHWAYS PLANNING

Chairs Inouye and Gabbard, Vice Chairs Elefante and Richards, and Members of the Committees:

The University of Hawai'i Sea Grant College Program (Hawai'i Sea Grant) and the Climate Resilience Collaborative (CRC) **support Senate Bill 2184**, which expands the authority of the State and counties to develop adaptation pathways plans to modify and relocate infrastructure away from critically threatened areas to locations outside sea level rise and coastal flooding exposure areas and appropriates funds.

Hawai'i Sea Grant and CRC support this measure and defer to the proposed amendments from the Department of Land and Natural Resources.

Hawai'i Sea Grant's mission is to provide integrated research, extension, and education activities that increase understanding and use of ocean and coastal resources of the Hawaiian and Pacific Islands and support the informed personal, policy, and management decisions that are integral to realizing this vision. Hawai'i Sea Grant is part of a national network of 34 university-based programs associated with the National Oceanic and Atmospheric Administration that promote better understanding, conservation, and use of coastal resources.

CRC is a multi-investigator research project at the University of Hawai'i at Mānoa focused on sea level rise adaptation and climate resilience. CRC is updating coastal models that project the impacts of sea level rise.

The research that goes into identifying Hawai'i's exposure to sea level rise is coming out of the University of Hawai'i School of Ocean and Earth Science and Technology. To maintain our understanding of sea level threats based on the latest science, these researchers need ongoing

financial support from the State. CRC would be happy to provide updated sea level rise data and projections to the Committee or any lawmaker upon request.

CRC and Hawai'i Sea Grant support Senate Bill 2184, provided its adoption does not replace or adversely impact priorities as indicated in our Board of Regents Approved Budget. Thank you for the opportunity to testify on this measure.



2/4/2024

WTL/AEN Committees
Hawai'i State Capitol
Honolulu, Hawai'i 96813

Dear Chair Inouye and Chair Gabbard and Members of the Senate Committees on Water and Land and Agriculture and Environment,

Position: Support SB2184

The Surfrider Foundation is a national nonprofit organization dedicated to the protection and enjoyment of our ocean, waves, and beaches. Surfrider maintains a network of over 150 chapters and academic clubs nationwide, including 4 chapters in the Hawaiian Islands. The Surfrider Foundation focuses on many aspects of the environment such as coastal protection, plastic pollution, and water quality.

The sandy beaches in Hawai'i are facing severe chronic erosion that is being exacerbated by climate change and sea level rise. While it is evident that we need to move away from the coastline, Hawai'i has few mechanisms in place to facilitate the relocation of infrastructure and structures that are in imminent danger from coastal erosion.

Santa Cruz, California faces similar shoreline adaptation challenges and has thus implemented "Adaptation Pathways" as a way to more holistically plan for shoreline changes. Adaptation pathways is a planning approach that addresses the uncertainty and challenges of sea level rise and climate change decision-making (such as uncertainty in the regulatory, political, economic, environmental, and sociocultural conditions of the future). Adaptation pathways utilize "triggers" (like the high wash of the waves) for successive adaptation actions over time. Adaptation pathways may include intermediate actions taken as part of a phased approach to provide time for planning and implementation of endpoint actions, which may include relocation of public and private infrastructure away from the shoreline.

We desperately need more tools in our toolbox to address and adapt to climate change and sea level rise, and shoreline planning through adaptation pathways is one of those important tools. Thank you for your consideration of this testimony in support of SB2184, submitted on the behalf of the Surfrider Foundation's 4 Chapters in Hawai'i and all of our members who live in the state and visit to enjoy the many coastal recreational opportunities offered by all of the islands' coastlines.

Sincerely,

Lauren Blickley
Hawai'i Regional Manager
Surfrider Foundation

SB-2184

Submitted on: 2/4/2024 7:26:26 PM

Testimony for WTL on 2/5/2024 1:15:00 PM

Submitted By	Organization	Testifier Position	Testify
George Vierra	Individual	Support	Written Testimony Only

Comments:

Support 2184

George

SB-2184

Submitted on: 2/5/2024 9:48:02 AM

Testimony for WTL on 2/5/2024 1:15:00 PM

Submitted By	Organization	Testifier Position	Testify
Denise E Antolini	Individual	Support	Written Testimony Only

Comments:

Aloha WTL Chair Inouye, AEN Chair Gabbard and WTL/AEN Committee members,

I write in strong support of SB2184 - Adaptation Pathways - an excellent step forward to protecting our coastal resources for future generations particularly in the face of the climate crisis.

Mahalo!

Denise

LATE