

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

**SUZANNE D. CASE**  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

**KEKOA KALUHIWA**  
FIRST DEPUTY

**JEFFREY T. PEARSON, P.E.**  
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  
SUZANNE D. CASE  
Chairperson**

**Before the House Committee on  
FINANCE**

**Friday, February 26, 2016  
1:00 PM  
State Capitol, Conference Room 308**

**In consideration of  
HOUSE BILL 2041, HOUSE DRAFT 1  
RELATING TO WATER AUDITS**

House Bill 2041, House Draft 1 proposes to establish a program within the Department of Land and Natural Resources' (Department) Commission on Water Resource Management (Commission) to implement standardized water loss audits of public water systems in accordance with methods adopted by the American Water Works Association (AWWA). **The Department supports this measure subject to the comments below and provided that this appropriation does not adversely impact appropriations for other priorities in the Executive Supplemental Budget request or any existing funding to the Department's programs, and offers the following comments and amendments to render this proposed water audit program more viable and effective.**

As drafted, this measure would require submission of annual water audits from the county-owned public water systems beginning in 2018 and submission of annual water audits from remaining large capacity public water systems in Hawaii beginning in 2021. This measure assigns the Commission responsibility for preparing and validating the water audits and submitting them to the Legislature. It is not appropriate for the Commission to prepare and validate the audits for the following reasons:

- The counties and private entities that own and operate these systems have an obligation to ensure that drinking water is developed and delivered to their customers as efficiently as possible while maintaining a sustainable water rate schedule.

- There is a growing trend across the continental United States where state and local water authorities are beginning to require public water systems and utilities to conduct annual water audits on their systems.
- The water supply industry trade group, AWWA, considers annual water audits a best practice that should be completed by responsible water utilities.
- The water audits described in this measure should be conducted by the water system owners or operators because they have immediate access to all of the information and data needed to complete the audits and have intimate knowledge of their water system infrastructure and operations.
- The water utility is responsible for preparing its own water audit in all other states that require water audits. These states include California, Colorado, Delaware, Georgia, New Mexico, Pennsylvania, Tennessee, Texas, Washington, and Wisconsin.
- Use of the AWWA Water Audit spreadsheet allows for standardized data input with quality control checks to safeguard data accuracy. Independent validation of the utility's audit will ensure data veracity and objectivity.
- The Commission's role is to encourage and provide technical assistance to the water utilities.
- In preparing its water audit, a utility benefits by understanding the water audit methodology and process.
- Should this measure pass as drafted, the Commission would be responsible for preparing and validating annual water audits of approximately 100 public water systems across the state of Hawaii. The Department estimates that this additional task would require three to four new full-time professional employee positions. In addition, this would require the same amount of funding whether the Commission or the utilities conduct the audits, which we estimate to be \$650,000. The hiring and training of new personnel would delay the program from one to two years. In addition, the Legislature would need to retain staff with the knowledge to evaluate the annually submitted water audits and proposed implementation actions from approximately 100 public water systems.

House Bill 2041, House Draft 1 also appropriates an unspecified sum out of the general fund to establish and implement the proposed water loss audit program. The Department estimates that the water audit program cost would be \$650,000.

Conservation of our precious water resources through efficient delivery and use of water is an effective means to preserve this resource for future generations. We have attached a marked up version of the bill that comports with water audit best practices established by AWWA. We respectfully request your consideration of our proposed amendments.

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# A BILL FOR AN ACT

RELATING TO WATER AUDIT.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. Article XI, section 7 of Hawaii's Constitution  
2 obligates the State to protect, control and regulate the use of  
3 Hawaii's water resources for the benefit of its people.

4           Fresh water is the lifeblood of society. The quantity and  
5 quality of fresh water directly impacts the health, welfare,  
6 economy, and quality of life in Hawaii. Fresh water  
7 infrastructure has been constructed to withdraw water from  
8 available sources, to treat it to acceptable standards, and to  
9 distribute it to our various communities.

10           Based on the department of health's database, there are a  
11 little over fifty county-run public water systems statewide and  
12 another fifty large capacity public water systems and public  
13 water systems operating in designated ground water management  
14 areas. Many of these water distribution systems, however, may  
15 be operating with inefficiencies that result in the loss of  
16 water, increased energy costs, and lost revenue.

1 Water conservation is among the least expensive and most  
2 efficient ways to increase the available supply of fresh  
3 water. It requires improving the efficiency of water delivery  
4 and identifying losses to the system. A water audit helps a  
5 utility understand how much water is lost from a distribution  
6 system through the detailed analysis of data, which the utility  
7 can use to make informed decisions to reduce real or apparent  
8 losses.

9 There is a growing trend across the United States where  
10 states, including California, Colorado, Delaware, Georgia, New  
11 Mexico, Pennsylvania, Tennessee, Texas, Washington, and  
12 Wisconsin, and their water authorities have begun to mandate  
13 water audits by water utilities.

14 The purpose of this Act is to establish a program to  
15 implement standardized water audits of public water systems in  
16 accordance with the method adopted by the American Water Works  
17 Association's Water Audits and Loss Control Programs, Manual of  
18 Water Supply Practices - M36, as amended.

19 SECTION 2. The commission on water resource management  
20 shall establish a five-year program to provide technical  
21 assistance to public water systems to conduct standardized water  
22 audits of public water systems in accordance with the method

1 adopted by the American Water Works Association's Water Audits  
2 and Loss Control Programs, Manual of Water Supply Practices -  
3 M36, as amended.

4 In the first two years, the commission shall establish a  
5 program ~~[and]~~ for the counties to conduct standardized water  
6 audits of public systems operated by the counties. In the  
7 following two ~~[three]~~ years, the commission shall extend the  
8 program to all remaining large capacity public water systems and  
9 public water systems in designated ground water management  
10 areas.

11 In establishing the program, the commission ~~[may]~~ shall  
12 utilize the American Water Works Association's Free Water Audit  
13 Software, Version 5.0 or subsequent versions. The program  
14 elements shall include water audit training workshops, Level  
15 1 validation of water audits and follow-up communication, and  
16 recommendations to improve water audit validity scores and to  
17 address system losses.

18 ~~[Water loss audit reports shall be validated through a~~  
19 ~~process which follows the principles and terminology in the~~  
20 ~~American Water Works Association's Water Audits and Loss Control~~  
21 ~~Programs, Manual of Water Supply Practices - M36, as amended,~~

1 ~~including the American Water Works Association's Free Water~~  
2 ~~Audit Software, Version 5.0 or subsequent versions.]~~

3 SECTION 3. The standardized water audits shall follow the  
4 key parameters for establishing a water audit outlined in the  
5 American Water Works Association's Water Audits and Loss Control  
6 Programs, Manual of Water Supply Practices - M36, as amended,  
7 including:

- 8 (1) Describing the distribution system boundaries to  
9 identify all water sources supplying water to the  
10 system, calculate the system input volume, and  
11 calculate the volume of water supplied into the  
12 distribution system;
- 13 (2) Setting time periods for the audit that are sufficient  
14 to allow analysis and evaluation of the system water  
15 supply;
- 16 (3) Establishing standardized units of measure so supply  
17 and consumption units are the same;
- 18 (4) Assembling records and data from a wide variety of  
19 operations in the water systems, including:
- 20 (A) Water supplied, including volume from own  
21 sources, and water imported or exported;

1 (B) Authorized water consumption, including billed  
2 metered, billed unmetered, and unbilled metered;

3 (C) Water system data, including length of mains,  
4 number of service connections, average length of  
5 customer service lines, and average operating  
6 pressure; and

7 (D) Cost data, including total annual cost of  
8 operating the water system, customer retail unit  
9 cost, and variable production costs; and

10 (5) Identifying, quantifying, and assigning costs to  
11 apparent losses and real losses.

12 SECTION 4. On January 1, 2017, the commission shall  
13 implement the water audit program developed pursuant to sections  
14 2 and 3 of this Act~~[ ]~~, and shall include a process for Level 1  
15 validation of water loss audit reports which follows the  
16 principles and terminology in the American Water Works  
17 Association's Water Audit and Loss Control Program, Manual M36,  
18 as amended including the Free Water Audit Software, Version 5.0  
19 or subsequent versions.

20 The commission shall provide the counties and other  
21 operators of public water systems subject to this Act [~~shall~~  
22 ~~provide the commission with~~] the technical assistance and

1 information necessary to help prepare and validate the water  
2 loss audit reports.

3 SECTION 5. Beginning in 2018, and for each subsequent  
4 year thereafter, the ~~[commission]~~ counties shall submit, on July  
5 1 of each year, a completed and validated water loss audit  
6 report for each public water system operated by the counties for  
7 the previous calendar year to the  
8 ~~[legislature-]~~ commission. Beginning in 2020 [2021], and for  
9 each subsequent year thereafter, ~~[the commission]~~ all remaining  
10 large capacity public water systems and public water systems in  
11 water management areas shall submit, on July 1 of each year, a  
12 completed and validated water loss audit report on ~~[all~~  
13 ~~remaining large capacity public water systems and public water~~  
14 ~~systems in designated ground water management areas]~~ their water  
15 systems for the previous calendar year to the  
16 ~~[legislature-]~~ commission. Each water loss audit report  
17 submitted to the legislature shall be accompanied by information  
18 identifying steps taken in the preceding year to increase the  
19 validity of data entered into the final audit, reduce the volume  
20 of apparent losses, and reduce the volume of real losses.

21 SECTION 6. As used in this Act:



1 "Commission" means the commission on water resource  
2 management.

3 "Public water system" means a system subject to Federal  
4 Safe Drinking Water Act regulations, which provides water for  
5 human consumption through pipes or other constructed  
6 conveyances. Such a system includes any collection, treatment,  
7 storage, and distribution facilities under the control of a  
8 utility and used primarily in connection with the system.

9 "Large capacity public water system" means a public water  
10 system that serves a population of one thousand or more.

11 "Designated water management area" means a geographic area  
12 that has been designated pursuant to section 174C-41, Hawaii  
13 Revised Statutes.

14 "Level 1 validation" means a water audit that has been  
15 subject to third-party 'desktop review' of data that is  
16 immediately available, like supply reports, consumption reports,  
17 and testing reports. Level 1 validation includes utility staff  
18 interviews with third-party validators focused on outlining  
19 organizational practices to make sure that data validity scores  
20 have been assigned correctly and consistently, and confirmed,  
21 corrected, or noted as needing further investigation.

1 SECTION 7. There is appropriated out of the general  
2 revenues of the State of Hawaii the sum of \$650,000 [~~\$350,000~~]  
3 or so much thereof as may be necessary for fiscal year 2016-2017  
4 to establish and implement the program to conduct standardized  
5 water audits of public water systems in accordance with this  
6 Act.

7 The sum appropriated shall be expended by the commission on  
8 water resource management.

9 SECTION 8. This Act shall take effect on July 1, 2016.

**Report Title:**

Water Audits; Public Water Systems; Large Capacity Water Systems; Designated Water Management Areas; Appropriation

**Description:**

Establishes a program to implement standardized water audits of public water systems. Appropriation. (HB 2041 Proposed SD1)

*The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.*

**DAVID Y. IGE**  
Governor

**SHAN S. TSUTSUI**  
Lt. Governor



State of Hawaii  
**DEPARTMENT OF AGRICULTURE**  
1428 South King Street  
Honolulu, Hawaii 96814-2512  
Phone: (808) 973-9600 FAX: (808) 973-9613

**SCOTT E. ENRIGHT**  
Chairperson, Board of Agriculture

**PHYLLIS SHIMABUKURO-GEISER**  
Deputy to the Chairperson

**TESTIMONY OF SCOTT E. ENRIGHT**  
**CHAIRPERSON, BOARD OF AGRICULTURE**

**BEFORE THE HOUSE COMMITTEE ON FINANCE**

**FEBRUARY 26, 2016**  
**1:00 P.M.**  
**CONFERENCE ROOM 308**

**HOUSE BILL NO. 2041 HD1**  
**RELATING TO WATER AUDITS**

Chairperson Luke and Members of the Committee:

Thank you for the opportunity to testify on House Bill No. 2041 HD1. The purpose of this measure is to establish a program to implement standardized water audits of public water systems and makes an appropriation to support this initiative. The Department of Agriculture respectfully offers comments and defers to the Commission on Water Resource Management on implementation.

The efficient use of our limited water resources is of paramount importance to the continued growth and security of our State. Auditing can provide valuable information to help utilities manage their operational and financial resources in a more effective manner.

Thank you for the opportunity to testify on this measure.



## BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843



February 26, 2016

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Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.  
Deputy Manager and Chief Engineer

The Honorable Sylvia Luke, Chair  
and Members  
Committee on Finance  
House of Representatives  
Hawaii State Capitol, Room 308  
415 South Beretania Street  
Honolulu, Hawaii 96813

Dear Chair Luke and Members:

Subject: House Bill 2041, HD1 Relating to Water Audits

We support the intent of House Bill 2041, HD1, which establishes a standardized water loss audit program to reduce water loss and conserve potable water resources. We believe the leadership role of the State Commission on Water Resource Management is essential to ensure large public water systems comply in a consistent state-wide approach utilizing the American Water Works Association M-36 manual, which guides water utilities across the nation.

Thank you for your consideration of our testimony on House Bill 2041, HD1.

Very truly yours,

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



# Wai Maoli

HAWAII FRESH WATER INITIATIVE

827 Fort Street Mall | Honolulu, HI 96813 | (808) 537-6333  
HawaiiCommunityFoundation.org

## Fresh Water Council Members

William Aila

Stephen Anthony\*

Michael Buck

Suzanne Case

Reginald Castanares

Meredith Ching

Derek Chow

Ka'eo Duarte

Sumner Erdman

Mark Fox

Thomas Giambelluca

Timothy Johns

Howard Killian

Patrick Kobayashi

Ernest Lau

Keith Okamoto

Jerry Ornellas

Monty Richards

Kapua Sproat

David Taylor

Dennis Teranishi

Barry Usagawa

\*US Geological Survey  
Liaison/Scientific Advisor to HCF

## Testimony of the Hawai'i Fresh Water Initiative on H.B. 2041 Relating to Water Audits House Committee on Finance Friday, February 26, 2016. 1:00 P.M. Conference Room 308

The Hawaii Fresh Water Initiative strongly supports H.B. 2041, which directs the Commission of Water Resource Management to establish a 5-year program to conduct water audits of public water systems.

The Hawaii Fresh Water Initiative was launched in 2013 and gathered a diverse Fresh Water Council to develop a forward-thinking and consensus-based strategy to increase water security for Hawaii. The blue ribbon panel of water stakeholders jointly and unanimously recommend key strategies and policies with an ultimate goal of creating 100 million gallons per day (mgd) in additional, reliable fresh water capacity by 2030. One of the keys to water conservation is to preserve and increase the available supply of fresh water by identifying losses to the system.

The implementation of water audits is important to establish a baseline for our large capacity public water systems, and to assist in identifying inefficiencies that result in the loss of water, increased energy costs, and lost revenues.

As in other jurisdictions that have successfully implemented water audit programs, we believe H.B. 2041 should authorize the Commission on Water Resource Management to provide technical assistance and review audits conducted by the public water departments. These audits should be conducted according to the process adopted by the American Water Works Association's Audits and Loss Control Programs, Manual of Water Supply Practices – M36, as amended.

For these reasons, we strongly support H.B. 2041 and urge its passage.



From: mailinglist@capitol.hawaii.gov  
 Sent: Friday, February 26, 2016 11:45 AM  
 To: FINTestimony  
 Cc: rbergstrom@surfrider.org  
 Subject: Submitted testimony for HB2041 on Feb 26, 2016 13:00PM

**HB2041**

Submitted on: 2/26/2016  
 Testimony for FIN on Feb 26, 2016 13:00PM in Conference Room 308

Submitted By	Organization	Testifier Position	Present at Hearing
Rafael Bergstrom	Surfrider Foundation Oahu Chapter	Support	No

Comments: The Surfrider Foundation's O'ahu Chapter strongly supports HB2041 and its intent to create a statewide water audit program. The loss of fresh- water resources in our State is of escalating concern and we cannot afford to have losses coming from places that have tangible and obvious solutions. Identifying these areas, whether they be in the realm of failing infrastructure, archaic allocations in the agriculture field, or even residential use is a crucial first step in protecting our most important public-trust resource - fresh-water supplies. Mahalo for your consideration of this important step. Cheers - Rafael Bergstrom, Surfrider O'ahu

Please note that testimony submitted less than 24 hours prior to the hearing, improperly identified, or directed to the incorrect office, may not be posted online or distributed to the committee prior to the convening of the public hearing.

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*Hawai'i Green Growth is a public-private partnership that coordinates across government, non-governmental and cultural organizations, business, academia and philanthropy to achieve Hawai'i's Aloha+ Challenge 2030 sustainability goals.*

**LATE**

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## Testimony of Hawai'i Green Growth In Support of HB2040 Relating to Water Security House Committee on Finance 26 February 2016, 1:00pm, Room 308

Aloha Chair Luke, Vice Chair Nishimoto, and Members of the Committee:

**Hawai'i Green Growth (HGG) strongly supports HB2041 HD1** to establish a program to implement standardized water audits of public water systems, with the proposed implementation amendments from the Department of Land and Natural Resources.

The quantity and quality of fresh water directly impacts the health, welfare and quality of life of Hawai'i's residents and affects the economy. Based on global climate disruption, increasingly severe weather and natural disasters, and projected long-term decline of rainfall, there is an urgency to invest in Hawai'i's freshwater supplies.

Water conservation is among the least expensive and most efficient ways to increase the available supply of fresh water. One of the key strategies for water conservation recommended by the Hawai'i Fresh Water Initiative is to identify and remedy water losses within the water transportation infrastructure. Water audits are an important mechanism to help a utility analyze water loss from a distribution system, and inform key decision-making to improve overall efficiency of water delivery and reduce real or apparent losses.

HGG public-private partners agreed HB2041 is an important shared legislative priority to advance the *Aloha+ Challenge* natural resource and fresh water goals. The *Aloha+ Challenge* is a statewide commitment by the State Legislature (SCR 69), Governor, Mayors and Office of Hawaiian Affairs to achieve six sustainability goals for 2030 in the areas of clean energy, local food, natural resources, solid waste reduction, smart growth and climate resilience, and green jobs and education. Statewide HGG public-private partners are identifying shared measures to track progress and provide accountability with the online *Aloha+ Challenge* Dashboard, while developing an annual policy and action agenda to advance Hawai'i's shared 2030 sustainability goals.

The *Aloha+ Challenge* has been recognized nationally and internationally by the US State Department and Global Island Partnership as a model for locally appropriate implementation of UN Sustainable Development Goals. With the upcoming IUCN World Conservation Congress hosted by Hawai'i in September 2016, this legislative session is an important opportunity for Hawai'i to showcase leadership on sustainable development, conservation and resilience.

As a public-private partnership, Hawai'i Green Growth supports HB2041 to help drive implementation and action on statewide natural resources and fresh water goals.



**LATE**

Testimony in Support of  
**HB 2041. Relating to Water Audits**

Aloha Chair Luke, Vice Chair Nishimoto, and Members of the Committee:

Thank you for this opportunity to provide testimony in support of HB 2041. My name is Kaily Wakefield, and I am second year law student at the William S. Richardson School of Law.

The Commission on Water Resource Management will provide technical assistance and support large public water purveyors throughout our Islands. This will help to ensure that our water transmission systems accurately identify where water loss is occurring, and take steps to reduce leakage and losses.

Successful implementation of baseline audits and loss reduction not only has the potential to save millions of gallons of fresh water per year, but also millions of dollars in avoided water pumping and energy costs. As our weather patterns continue to change in response to the changing climate of the planet, the need for greater protection and intelligent management of our freshwater resources will increase as well.

For the reasons mentioned above, I strongly support HB 2041 for better management and water conservation in Hawai'i. Thank you.

Sincerely,

Kaily Wakefield  
William S. Richardson School of Law  
JD Candidate, Class of 2017  
Resident of House District 48, Senate District 24



**LATE**

Feb. 25, 2016

To: The Chairs and members of the FINANCE Committee

Position: Strong Support for HB 2041 (Relating to Water Audits)

Dear Chair Luke, Vice Chair Nishimoto and Committee members,

On behalf of Surfrider Foundation's Hawai'i Chapters, I am writing in strong support of HB 2041, which establishes a two-year pilot project to leverage state funds for projects and programs that increase water security in the State of Hawaii. Surfrider is working with the Hawaii Fresh Water Initiative to bring diverse parties together to develop a forward-thinking and consensus-based strategy to increase water security for Hawaii.

The two-year pilot program would do the following:

- Establish a water security advisory group of water managers, agricultural water system experts, landowners, watershed partners, Hawaiian cultural experts & conservationists;
- Authorize the advisory group to assign priorities for proposals by public and private agencies and organizations that can provide matching funds to increase water security; and
- Authorize the advisory group to recommend priorities to the Department of Land and Natural Resources for the grant of matching funds for water security programs.

For the pilot project, the advisory group will encourage innovative proposals that:

- Establish new techniques and projects supporting the recharge of groundwater;
- Reduce the use of potable water for landscape irrigation and encourage the reuse of wastewater; and
- Improve the efficiency of potable domestic water or agricultural irrigation water use.

HB 2040 requires the selected projects to submit reports on the amount of water conserved, recharged, or reused, and requires the Department to track progress with the submission of an annual report on the pilot program to the Governor and to the Legislature.

This pilot program will double the impact of state funds deployed to increase water security in the near term, and establish base-line information for the implementation of longer-term programs and projects. **Along with Surfrider, the RAP Coalition and many other groups, we ask you to support HB 2041. Mahalo for your consideration.**

Aloha,  
Stuart Coleman  
Hawaii Regional Manager

