

**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**  
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**TESTIMONY OF SHARON HURD  
CHAIRPERSON, BOARD OF AGRICULTURE**

**BEFORE THE SENATE COMMITTEE ON WATER AND LAND AND COMMITTEE ON  
AGRICULTURE AND ENVIRONMENT**

**MONDAY, FEBRUARY 5, 2024  
1:15 PM  
CONFERENCE ROOM 229 AND VIDEOCONFERENCE**

**SENATE BILL NO. 2373  
RELATING TO IRRIGATION**

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

Thank you for the opportunity to testify on Senate Bill 2373. The bill authorizes the director of finance to issue general obligation bonds to finance capital improvements to various irrigation systems. The Department supports this measure provided it does not impact the priorities identified in the Governor's biennium budget.

The Department has identified an additional need of \$8.5 million for multiple state irrigation system improvements. Improvements include: 1) \$2.5 million for the Waimanalo Irrigation System, which will address additional funds for the state's historic preservation requirements, inflationary increases from the 2020 bid, and the inclusion of original items that were left out due to insufficient funding on the original construction bid; 2) \$4.5 million for the Waimea Irrigation System intakes, tunnels, and emergency back up well pump; and 3) \$1.5 million to create a detailed master plan for future irrigation system improvements, including estimated quantities and costs.

Thank you for the opportunity to testify on this measure.





Email: [communications@ulupono.com](mailto:communications@ulupono.com)

SENATE COMMITTEES ON AGRICULTURE & ENVIRONMENT AND WATER & LAND  
Monday, February 5, 2024 — 1:15 p.m.

**Ulupono Initiative supports SB 2373, Relating to Irrigation.**

Dear Chair Gabbard, Chair Inouye, and Members of the Committees:

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 and clean transportation choices, and better management of freshwater resources.

**Ulupono supports SB 2373**, which authorizes the Director of Finance to issue general obligation bonds to finance capital improvements to various irrigation systems.

Ulupono supports funding for critical agricultural water infrastructure across Hawai'i, much of which resides within the management of the State Department of Agriculture (DOA). The DOA is tasked with the operation and maintenance of five irrigation systems and six reservoirs across the state.<sup>1</sup> The Agribusiness Development Corporation (ADC) is also tasked with agricultural irrigation management and water resource development across the state. We are hopeful that the Legislature will consider funding the DOA and ADC 2024 CIP project requests that highlight the important support needed to maintain, repair, and develop these irrigation and water systems. A list of key water infrastructure projects is listed here:

DOA Projects

- **Kahuku Agricultural Park Miscellaneous Improvements, O'ahu—\$3.5 million**
- **Lower Hamakua Ditch Improvements, Hawai'i—\$4.5 million**
- **Molokai Irrigation System Improvements, Molokai—\$2 million**
- **Waimanalo Irrigation System Improvements, O'ahu—\$2.5 million**
- **Waimea Irrigation System Improvements, Hawai'i—\$4.5 million**
- **State Irrigation System Reservoir Safety Improvements—\$23 million**
- **Agricultural Infrastructure Improvements, Statewide—\$2.2 million**

ADC Projects

- **Kekaha Irrigation System Improvements, Kaua'i—\$6.47 million**
- **Kekaha Bridge, Kaua'i—\$2.5 million**
- **Reclaimed Wastewater System, O'ahu—\$178 million**
- **Water and Irrigation Infrastructure, O'ahu—\$4.5 million**

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<sup>1</sup> <https://hdoa.hawaii.gov/arm/irrigation-systems/>

Agricultural water system infrastructure (irrigation systems) is an essential component of our state's efforts to achieve its goals of increasing local food production and food security. This is affirmed in the DOA's 2019 Agricultural Water Use and Development Plan (AWUDP), which documents how Hawai'i's agricultural industry relies on these water systems to deliver inexpensive water to meet and expand agricultural production even during times of drought. The DOA has identified agricultural water systems as the most important infrastructural requirement needed to expand Hawai'i's diversified agriculture industry. However, most of the large-scale irrigation systems in the state are or will soon be more than 100 years old.

Additionally, according to the Association of State Dam Safety Officials' latest Dam Safety Performance Report, more than a third of Hawai'i's dams are rated either in poor or unsatisfactory condition.

In the AWUDP, the DOA estimates the five-year cost of repairs and maintenance for Hawai'i's most critical agricultural water systems at approximately \$168 million—of that amount, about \$90 million is needed specifically for DOA-managed agricultural water systems over that same period. This is substantial for our small state, requiring an average of more than \$33 million per year for five years. While the price tag to repair and maintain these systems may seem high, the cost to replace these plantation-era water systems would be in the billions of dollars. More importantly, continuing to let these systems fall into disrepair puts Hawai'i's food security at risk, particularly the food security of the next generation who will be forced to adapt to a hotter and dryer planet.

### **Climate Change in Hawai'i**

The importance of well-maintained agricultural water systems becomes even greater when the impacts of climate change on Hawai'i's food security are considered. In April 2021, Hawai'i became the first state to declare a climate emergency, when the State Legislature passed [Senate Concurrent Resolution 44 SD1 HD1](#), which also requested "statewide collaboration toward an immediate just transition and emergency mobilization effort to restore a safe climate."

The people of Hawai'i are seeing first-hand local impacts consistent with the effects of climate change: rising air temperatures; decreased rainfall and stream flow; increased rain intensity; increased frequency of drought; and increased frequency of powerful storms. For example:

- Since 1950, temperatures across the Hawaiian Islands have been on the rise, ranging from increases of 0.2 to 0.4 degrees Fahrenheit per decade;
- The annual total precipitation measured at Hilo International Airport decreased by nearly 20 inches since 1950—the most among Hawai'i's four major airports;
- Rain intensity is becoming as much a destructive factor as drought, with the amount of rain falling in the very heaviest downpours from 1958 to 2007 increasing by approximately 12%;
- Even before last year's heartbreaking wildfires on Maui, the area in Hawai'i burned annually by wildfires had increased four-fold in recent decades, according to University of Hawai'i wildland fire researcher Clay Trauernicht; and
- Powerful storms are anticipated to become more frequent, as warmer climates tend to amplify existing weather patterns and variability, according to Hawai'i's state climatologist, Pao-Shin Chu.

These are each detrimental to local food production on their own; and yet, as an isolated island state we are also susceptible to climate change impacts far from our shores due to Hawai'i's continuing over-reliance on food from imports.

### **Irrigation Infrastructure IS Part of Climate Change Adaptation**

For international and domestic food producers, meeting the global demand of a projected 10 billion people by 2050—an increase of 2.3 billion people over just a quarter of a century—will become increasingly challenging as the Earth's climate continues to warm. Researchers estimate this will require an increase in global food production of 60%, if we are to ensure enough food for all.

In the Biden Administration's fact sheet outlining the Infrastructure Investment and Jobs Act, the White House highlighted investments in **infrastructure to make communities more resilient to the impacts of climate change, including** "funds to protect against droughts and floods..."

Irrigation plays an essential role in increasing food production and is an effective method of climate change adaptation. Globally, irrigated land represents only 16% of arable land, but produces 44% of total crop production. For most crops, irrigation can double or triple crop yields. For example, irrigated crop yields for corn, soybean, and wheat are 165%, 75%, and 140% higher than rain-fed yields. In regards to climate change adaptation, irrigation systems mitigate the impact of decreasing rainfall, increasing frequency of drought, and increasing temperatures; and irrigation can help capture more rainfall during storm events, so that water can be used in the future.

According to research by The Nature Conservancy, climate change will bring increased moisture deficits across the United States. Nationally, the total area irrigated will need to increase by 11-54 million acres (an increase of 19-94%) by 2090 in order to maintain food production.

The DOA's AWUDP plan concludes: "The investment into these agricultural water systems is the key to provide adequate water to continue to grow diversified agriculture. As the saying goes, ...without water there is no agriculture..., which is the reason these agricultural water systems were originally constructed—and why they need to be maintained for another 100 years."

We strongly agree. For generations to come, local food production will depend on these systems and their ability to provide water for local farmers and ranchers. This represents a singular opportunity to make Hawai'i more self-sufficient and resilient.

Respectfully,

Micah Munekata  
Director of Government Affairs



February 2, 2024

Senator Mike Gabbard, Chair  
Senator Herbert M. “Tim” Richards III, Vice Chair  
Senate Committee on Agriculture and Environment

Senator Lorraine R. Inouye, Chair  
Senator Brandon J.C. Elefante, Vice Chair  
Senate Committee on Water and Land

**Comments in Support of SB 2373 Relating to Irrigation (Authorizes the director of finance to issue general obligation bonds to finance capital improvements to various irrigation systems.)**

**Monday, February 5, 2024, 1:15 p.m.; State Capitol, Conference Room 229 and Videoconference**

The Land Use Research Foundation of Hawaii (LURF) is a private, non-profit research and trade association whose members include major Hawaii landowners, developers, and utility companies. LURF’s mission is to advocate for reasonable, rational, and equitable land use planning, legislation and regulations that encourage well-planned economic growth and development, while safeguarding Hawaii’s significant natural and cultural resources, and public health and safety.

LURF appreciates the opportunity to express its **support of SB 2373**, and of the various agricultural stakeholder groups who defend the goals of viable agricultural operations and the conservation and protection of agriculture, including important agricultural lands in Hawaii.

**SB 2373.** This bill proposes to authorize the issuance of general obligation bonds to make capital improvements to the State’s irrigation systems.

**LURF’s Position.** Well-functioning irrigation systems are vital to Hawaii’s agricultural industry to ensure that the State’s agricultural crops receive a reliable and consistent supply of water to support and maintain productivity. LURF understands that farmers throughout Hawaii are affected by increasingly often

occurring extended drought and other extreme weather events which emphasize the need for diligent maintenance and repair of these irrigation systems.

In order to ensure that these local farmers may continue to receive a dependable supply of water for crops, funding is necessary to improve, repair and maintain the State's irrigation systems.

Local farmers and ranchers who rely on irrigation systems to service their agricultural lands consider such resources critical to conduct their agricultural operations and to sustain their businesses. These agricultural stakeholders believe measures such as SB 2373 will greatly assist by providing funding and support necessary to make improvements to irrigation systems for the long-term betterment of the State's agricultural industry and are relying on legislation such as this to help them work toward the expansion of diversified agriculture; promote the agricultural self-sufficiency of the State; and to protect water as a valuable and significant resource.

For the above reasons, LURF **supports SB 2373**, and respectfully urges your favorable consideration.

Thank you for the opportunity to provide comments in support of this measure.



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February 5, 2024

HEARING BEFORE THE  
SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT  
SENATE COMMITTEE ON WATER AND LAND

**TESTIMONY ON SB 2373**  
RELATING TO IRRIGATION

Conference Room 229 & Videoconference  
1:15 PM

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

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

**The Hawai'i Farm Bureau supports SB 2373**, which authorizes the director of finance to issue general obligation bonds to finance capital improvements to various irrigation systems.

Since the demise of plantation operations across the islands, we have seen the erosion of irrigation systems. Ditches that carried water fell into disrepair with major leaks in the system, and in cases such as Ka'u, cracks in tunnels created enough losses that there is no longer a significant flow of water. The repair and maintenance of these systems are critical because our farmers and ranchers depend on these irrigation systems for their operations. Water is a basic necessity for farmers and ranchers to maintain and expand their production. The reliability of water is essential for our farmers and ranchers to grow crops and raise livestock efficiently.

The Legislature continues to advocate for increased self-sufficiency and sustainability. Agriculture must play a key role in the process and for there to be agriculture, water is important. As time passes, these systems continue to degrade. Timely funding is needed to restore these systems to increase the opportunities for viable farm and ranch operations.

We request the following systems be added to the bill:

**Lower Hamakua Irrigation Ditch, Hawaii**

Design and construction for improvements to Lower Hamakua Irrigation Ditch  
Total funding \$4,500,000

**Molokai Irrigation System, Molokai**

Design and construction for improvements to Molokai Irrigation System  
Total funding \$2,000,000

**State Irrigation Systems, Statewide**

Design and construction for reservoir safety improvements to state irrigation systems  
Total funding \$23,000,000

**Waimanalo Irrigation System, Oahu**

Design and construction for improvements to Waimanalo Irrigation System  
Total funding \$2,500,000

**Waimea Irrigation System, Oahu**

Design and construction for improvements to Waimea Irrigation System  
Total funding \$4,500,000

**Kekaha Irrigation System, Kauai**

Design and construction for improvements to Kekaha Irrigation System  
Total funding \$6,470,000

**Wahiawa Reclaimed Water Irrigation System, Oahu**

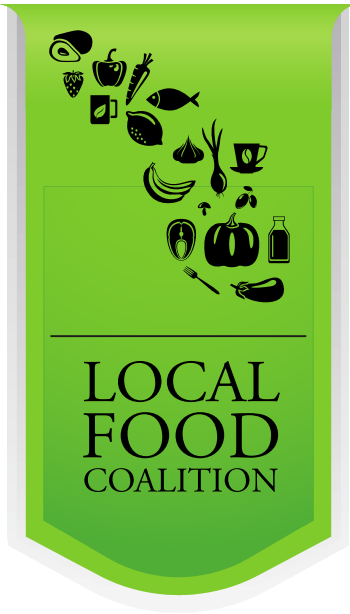
Design and construction for improvements to Wahiawa Reclaimed Water Irrigation System  
Total funding \$178,000,000

**Water and Irrigation Infrastructure, Oahu**

Design and construction for improvements to the state water and irrigation infrastructure on Oahu  
Total funding \$4,500,000

Hawai'i Farm Bureau respectfully requests your **support of SB 2373**, authorizing general obligation bonds to finance irrigation systems. Thank you for this opportunity to provide comments on this measure.





SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT  
SENATE COMMITTEE ON WATER AND LAND  
Monday, February 5, 2024 – 1:15 p.m. – Conference Room 229 &  
Videoconference

**SB 2373 – RELATING TO IRRIGATION**

**SUPPORT**

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

The Local Food Coalition **SUPPORTS** SB 2373, which authorizes  
the Director of Finance to issue general obligation bonds to finance  
capital improvements to various irrigation systems.

Water is a vital and necessary resource for the agricultural industry.  
Without water, farmers and ranchers will not be able to grow food  
and raise cattle to help the state reach its goal of increasing local  
food production and reduce our reliance on imports.

It is important to maintain and improve the various irrigation  
systems across the state to ensure that our most valuable resource  
will be available for our farmers and ranchers now and in the future.

The Local Food Coalition is an organization comprised of farmers,  
ranchers, livestock producers, investors and other organizations  
working to provide Hawaii’s food supply.

Thank you for the opportunity to submit testimony in support of SB  
2373.

Hawai'i Aquaculture &  
Aquaponics Association  
Hawai'i Cattlemen's Council  
Hawai'i Farm Bureau  
Federation  
Hawai'i Farmers' Union  
United  
Hawai'i Food Industry  
Association  
Hawai'i Food  
Manufacturers Association  
Kohala Center  
Land Use Research  
Foundation of Hawai'i  
Maui Farm to School  
Network (Maui F2SN)  
Ulupono Initiative  
College of Tropical  
Agriculture and Human  
Resources - University of  
Hawai'i at Manoa



**Hawaii Cattlemen's Council, Inc.**

COMMITTEE ON AGRICULTURE AND  
ENVIRONMENT

Senator Mike Gabbard, Chair  
Senator Herbert M. "Tim" Richards, III, Vice Chair

COMMITTEE ON WATER AND LAND

Senator Lorraine R. Inouye, Chair  
Senator Brandon J.C. Elefante, Vice Chair

**SB2373**

RELATING TO AGRICULTURE

Monday, February 5, 2024, 1:15 PM  
Conference Room 224 & Videoconference

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

The Hawaii Cattlemen's Council **supports SB2373** which authorizes the director of finance to issue general obligation bonds to finance capital improvements to various irrigation systems.

Critical, aging ag infrastructure, such as irrigation systems, require funding to ensure that these assets continue to remain usable for current and future Hawaii ag producers. Without this sort of infrastructure, food security goals cannot be met due to the high cost of establishing any new irrigation infrastructure in Hawaii.

Thank you for the opportunity to testify. The Hawaii Cattlemen's Council (HCC) is the Statewide umbrella organization comprised of the four county-level Cattlemen's Associations. Our member ranchers represent over 60,000 head of beef cows; more than 75% of all the beef cows in the State. Ranchers are the stewards of over 750 thousand acres of land in Hawaii, or 20% of the State's total land mass. We represent the interests of Hawaii's cattle producers.

Nicole Galase  
Hawaii Cattlemen's Council  
Managing Director

