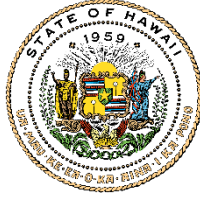


JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



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

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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
AGRICULTURE AND ENVIRONMENT**

**Monday, March 17, 2025
1:01 PM**

State Capitol, Conference Room 224 & Videoconference

**In consideration of
SENATE CONCURRENT RESOLUTION 115 / SENATE RESOLUTION 96
AFFIRMING THE IMPORTANCE OF MARINE ECOSYSTEM RESTORATION TO
ACHIEVE THE STATE'S DECARBONIZATION GOALS**

Senate Concurrent Resolution 115 / Senate Resolution 96 affirms the importance of marine ecosystem restoration to achieve the State's decarbonization goals. **The Department of Land and Natural Resources ("Department") appreciates the intent of these measures and offers the following comments.**

Healthy marine ecosystems are vitally important to the State, providing social, economic, recreational, subsistence, and cultural benefits. The Department supports the restoration of marine ecosystems such as coral reefs and estuaries. However, marine ecosystem processes are complex and dynamic, such that restoration may not further the State's goal to reduce greenhouse gas emissions to at least 50% below 2005 levels by 2030.

Coral reefs, the State's most iconic marine ecosystem, contribute to carbon sequestration primarily through the process of calcification. Corals incorporate carbon into their skeletons in the form of calcium carbonate. However, this chemical process ultimately results in the release of carbon dioxide (CO₂) into the atmosphere.

Globally, seagrass beds and mangroves are important marine ecosystems that sequester carbon and reduce atmospheric CO₂. However, Hawai'i lacks large seagrass beds, and mangroves are non-native and invasive in the State. Hawai'i's fresh and brackish water wetlands, though limited in extent and not explicitly mentioned in these resolutions, play a role in carbon

sequestration. These ecosystems capture atmospheric CO₂ through plant photosynthesis and store it in plant biomass and soil. The anoxic (low-oxygen) conditions typical of wetlands slow down the decomposition of organic matter, leading to the accumulation of carbon-rich peat soils. This process effectively removes carbon from the atmosphere and sequesters it over long periods.

Mahalo for the opportunity to provide comments on these measures.



Environmental Caucus of The Democratic Party of Hawai‘i

March 15, 2025

To: Chair Mike Gabbard, Vice Chair Herbert M. "Tim" Richards, III, and Members of the Committee on Agriculture and Environment

From: Environmental Caucus of the Democratic Party of Hawaii

Date: Monday, March 17, 2025 **Time:** 1:01 p.m.

Place: Conference Room 224 & Videoconference

Subject: Testimony in Strong Support of SCR115/SR96 - Marine Ecosystems in Carbon Sequestration

Aloha e Chair Gabbard, Vice Chair Richards, and Members of the Committee,

The Environmental Caucus of the Democratic Party of Hawaii strongly supports SCR115/SR96, which affirms the importance of marine ecosystem restoration in achieving the State's decarbonization goals.

Key Points in Support:

1. Role of Marine Ecosystems in Carbon Sequestration

- Marine ecosystems such as coral reefs, mangroves, and seagrass meadows play a crucial role in absorbing and storing carbon, significantly contributing to the State's efforts to mitigate climate change.

2. Restoration as a Climate Solution

- Restoring marine ecosystems enhances their capacity to act as carbon sinks while protecting biodiversity and strengthening ecosystem resilience against climate impacts.

3. Protection of Coastal Communities

- Healthy marine ecosystems serve as natural buffers against coastal erosion, sea-level rise, and extreme weather events, safeguarding Hawaii's communities and infrastructure.

4. Economic and Environmental Benefits

- Restoration efforts can support Hawaii's blue economy by bolstering fisheries, promoting eco-tourism, and creating green jobs that align with sustainable development goals.

5. Alignment with Global and State Objectives

- By investing in marine ecosystem restoration, Hawaii can position itself as a global leader in climate action while meeting its decarbonization goals and commitments under international agreements.

This resolution underscores the critical role that marine ecosystems play in achieving a sustainable future. It highlights the urgent need to protect and restore these invaluable resources to combat climate change effectively while ensuring the health and well-being of Hawaii's environment, economy, and people.

We urge the committee to pass SCR115/SR96 and continue to prioritize the protection and restoration of Hawaii's marine ecosystems.

Thank you for the opportunity to testify in strong support of this vital measure.

Respectfully submitted,

Melodie Aduja and Alan Burdick

Co-Chairs Environmental Caucus of the Democratic Party of Hawaii



SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT

MARCH 17, 2025

SCR 115/SR 96, AFFIRMING THE IMPORTANCE OF MARINE ECOSYSTEM RESTORATION TO ACHIEVE THE STATE'S DECARBONIZATION GOALS

POSITION: SUPPORT

Coalition Earth **supports** SCR 115/SR 96, which affirming the importance of marine ecosystem restoration to achieve the state's decarbonization goals.

According to a report produced by the Hawai'i Climate Change Mitigation and Adaptation Commission, global sea levels could rise more than three feet by 2100, with more recent projections showing this occurring as early as 2060. In turn, over the next 30 to 70 years, approximately 6,500 structures and 19,800 people statewide will be exposed to chronic flooding. Additionally, an estimated \$19 billion in economic loss would result from chronic flooding of land and structures located in exposure areas. Finally, approximately 38 miles of coastal roads and 550 cultural sites would be chronically flooded, on top of the 13 miles of beaches that have already been lost on Kaua'i, O'ahu, and Maui to erosion fronting shoreline armoring.

As we work to reduce carbon emissions and stave off the worst consequences of climate change, we must begin preparing for the adverse impact of sea level rise on our shores. We are now quantifying the speed at which we must act. We cannot continue to develop the 25,800-acre statewide sea level rise exposure area—one-third of which is designated for urban use—without risking massive structural damage and, potentially, great loss of life.

Just two years ago, we witnessed the impact of the climate emergency on our shores. On August 8, 2023, wildfires swept across Maui and killed at least 100 people, making it one of the nation's deadliest natural disasters. The spread of the fires has been attributed to climate change conditions, such as unusually dry landscapes and the confluence of a strong high-pressure system to the north and Hurricane Dora to the south. The wildfires destroyed over 2,200 structures, including numerous residential buildings, historic landmarks, and school facilities. In September 2023, a report from the United States Department of Commerce estimated the total economic

damage of the wildfires to be roughly \$5.5 billion. Investing in renewable energy generation could not be more urgent, given the growing threat of climate catastrophes to our island home.

Therefore, **our state should take steps to hasten our transition to a clean energy economy and continue our fight against climate change, including by connecting our push for marine ecosystem restoration with our decarbonization efforts.** Through we often discuss “nature based solutions” in terms of land-based projects (such as the reintroduction of native vegetation), marine ecosystem restoration represents another nature-based solution that can amplify Hawai’i’s carbon reduction goals. Notably, The G7 Climate, Energy and Environment Ministers’ Communiqué issued on April 16, 2023, affirmed the importance of nature-based solutions, including marine ecosystem restoration, to halt and reverse biodiversity loss, mitigate the impacts of climate change, and preserve and enhance carbon sinks.

Approximately 34 percent of the state's coastlines are vulnerable to intensifying coastal hazards resulting from accelerated sea level rise. This preexisting vulnerability has generated new place-based research into the intersection of preservation and sequestration in marine environments. For example, a report entitled “Loko Solutions: Policy Analysis for Carbon Sequestration Potential of Aquaculture in Hawai’i,” prepared for the Greenhouse Gas Sequestration Task Force and released on December 7, 2018, found that when combined with the development of a local carbon market, tax incentives, and streamlined permitting, the sequestration-to-cost potential of aquaculture—an industry that is heavily related to marine ecosystem restoration—would rank “high” in terms of its upward trend over time, stakeholder support, and sociocultural impact. The authors stated, “Because loko i’a production will be more accessible, this will provide social-cultural benefits that will support the local community. Aquaculture efforts that employ best management practices will also be supportive of policies that make such endeavors more accessible and financially feasible.”

Marine ecosystem restoration is also aligned with indigenous practices, which offer a wealth of knowledge about addressing the climate crisis from a place-based, native perspective. As the United Nations Development Programme stated in an article entitled “Indigenous knowledge is crucial in the fight against climate change – here’s why,” published on July 31, 2024:

Because of their ecological knowledge, which is intergenerational and community-based, Indigenous Peoples were among the first to notice the early signs of climate change. Now more than ever, as the climate crisis intensifies, their knowledge and practices offer valuable climate solutions that can advance mitigation efforts, enhance adaptation strategies and build resilience. This knowledge can also complement scientific data with precise landscape information that is critical to evaluating climate change scenarios.

Research shows that despite increasing and extractive commodification of their land, many ecosystems managed by native populations are in better health than nature outside such areas. By preserving these ecosystems, they can act as carbon sinks and protect biodiversity. In this way native peoples provide an environmental service to the rest of the world, which is often unrecognized and merits more robust financial support.

Increasing attention to and public investment in the potential of carbon sequestration through marine ecosystem restoration, while simultaneously enhancing carbon accounting methodologies for direct and indirect greenhouse gas emissions, would help the state meet its clean energy and climate change mitigation goals. Climate researchers have repeatedly asserted that establishing transparent methods to account for direct and indirect greenhouse gas emissions is crucial to ensuring consistency, accuracy, and comparability of greenhouse gas emissions data across the public and private sector. Such methodologies remain emergent, particularly regarding the decarbonization possibilities of marine ecosystems. Yet, scientific data shows that the potential benefits of coordinating marine conservation with carbon sequestration are significant and mutually reinforcing.

*Coalition Earth is a nongovernmental organization that works to preserve the well-being of people and our planet. We champion policies that advance climate resilience, clean energy, public health, and economic fairness for working families. **Contact us at info@coalitionearth.org.***