

DAVID Y. IGE  
GOVERNOR OF HAWAII



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

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

**Testimony of  
SUZANNE D. CASE  
Chairperson**

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

**Monday, March 29, 2021  
1:00 PM**

**State Capitol, Via Videoconference, Conference Room 229**

**In consideration of  
SENATE CONCURRENT RESOLUTION 159  
URGING THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO  
EXAMINE AND CONSIDER REEF INSURANCE TO SUPPORT NATURE-BASED  
SOLUTIONS TO PROTECT HAWAII'S COASTLINES AND COASTAL  
INFRASTRUCTURE FROM NATURAL DISASTERS.**

Senate Concurrent Resolution 159 urges the Department of Land and Natural Resources (Department) to examine and consider reef insurance to support nature-based solutions to protect Hawaii's coastlines and coastal infrastructure from natural disasters. **The Department supports this measure and offers the following comments.**

The Department is responsible for managing and administering the aquatic and terrestrial wildlife resources of the State. These natural resources are impacted by a variety of environmental and anthropogenic factors, including impacts from climate change, such as rising and warming seas, and increasing storms and drought. The Department is actively seeking new tools for adaptively managing our natural resources during these times of climate uncertainty, including nature-based solutions and public-private funding mechanisms. Specifically, the Department's Division of Aquatic Resources (DAR) is partnering with local communities, NGOs, University researchers, and private businesses to:

- develop hybrid reef structures to protect vulnerable coastlines and increase fish habitat;
- develop innovative and cutting-edge coral restoration techniques to build local capacity to repair and restore reefs that are damaged by storms, bleaching, or other impacts;
- identify the most resilient reefs to focus management efforts on through our Holomua: Marine 30x30 Initiative; and
- increase herbivorous fish populations to help keep our reefs healthy and resilient.

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

**ROBERT K. MASUDA**  
FIRST DEPUTY

**M. KALEO MANUEL**  
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

Reef insurance is a new concept that has been tested in Mexico where the government of Quintana Roo recently received an \$850,000 insurance payout after hurricane Delta impacted the Cancun region in 2020. The Nature Conservancy recently completed a two-year feasibility assessment for reef insurance in Hawaii, and it appears there is interest and applicability in the islands. Further, the cost of insurance appears to be significantly less in Hawaii, potentially making it more attractive for coastal property owners and others who have a vested interest in keeping our reefs healthy and resilient.

Our reefs are the lifeblood of our economy, providing millions of dollars in revenue from fishing and tourism, as well as coastal protection, cultural renewal, and recreational opportunities for residents and visitors alike. As damaging impacts from a changing climate become more frequent and severe, we must find new ways to manage, protect, and restore them.

Restoration and effective management of coastal ecosystems, referred to as nature-based solutions, can help lessen the impacts of natural disasters. Reefs are our first line of defense – and focused investment to build and repair their resilience is essential to preserving this natural infrastructure. The Department looks forward to working with The Nature Conservancy and other partners to expand the opportunities for reef insurance and nature-based solutions in Hawaii.

**The Department notes that fulfilling the requests made by this resolution will require additional resources and capacity, which the Department currently lacks.** DAR staff have full workplans for the remainder of 2021, focusing on priority projects associated with DAR's Holomua: Marine 30x30 Initiative. Completing the requested investigation and report prior to the 2022 session may not be possible without appropriation of additional resources.

#### Additional info

A marine heatwave in 2015 caused Hawaii's first mass bleaching event, during which 50% of coral reefs bleached, and live coral cover declined by 30% statewide. The impacts were not evenly distributed, with 92% of coral colonies on some reefs in North Kona and South Kohala. Marine heatwaves are expected to occur with increasing frequency in the coming decades.

In addition, erosion and chronic flooding are predicted to increase as a result of sea-level rise. Beach erosion is already a significant and growing issue in Hawaii, with 70% of beaches experiencing erosion. Ongoing sand replenishment and proposed structural erosion controls are not only costly, they often have detrimental effects on marine life and coastal systems.

An expected sea-level rise of only 2-4 inches by 2030 is likely to double flooding events. A predicted rise of 3.3 ft over the next 30-70 years will result in more than \$19 billion in economic damages *excluding* vulnerable coastal infrastructure, and flooding of more than 38 miles of roads and highways, severely limiting trade and transportation throughout the state.

Thank you for the opportunity to comment on this measure.

**Testimony of The Nature Conservancy  
In Support of SCR 159, URGING THE DEPARTMENT OF LAND AND NATURAL RESOURCES  
TO EXAMINE AND CONSIDER REEF INSURANCE TO SUPPORT NATURE-BASED  
SOLUTIONS TO PROTECT HAWAI'I'S COASTLINES AND COASTAL INFRASTRUCTURE  
FROM NATURAL DISASTERS.**

**Committee on Water and Land & Committee on Agriculture and Environment  
Monday, March 29, 2021, 1:00 PM  
Conference Room 229 Via Teleconference**

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

**The Nature Conservancy supports SCR 159, Urging the Department of Land and Natural Resources to Examine and Consider Reef Insurance to Support Nature Based Solutions to Protect Hawai'i's Coastline and Coastal Infrastructure from Natural Disasters.**

The Nature Conservancy (TNC) worked in partnership with the State government of Quintana Roo, re-insurance company Swiss Re, the tourism industry, and local community in the Cancun region of Mexico to develop the world's first reef insurance policy, purchased in 2019. That policy paid out \$850,000 for reef repair after Hurricane Delta hit the region in 2020.

TNC recognizes that the Department of Land and Natural Resources (DLNR) has multiple urgent priorities that they must manage during this challenging time of reduced State revenues and staffing shortfalls. TNC has local and global expertise in nature-based solutions and innovative financing mechanisms, including reef insurance, and we stand ready to assist DLNR in any way we can to explore opportunities to establish reef insurance and expand the use of nature-based solutions to our climate crisis in Hawai'i.

Life in Hawai'i is concentrated along our spectacular coasts, where islanders and visitors take full advantage of tropical waters and vibrant coral reefs teeming with life. The reefs that line our coasts are environmental, economic, recreational, and cultural treasures that support our island lifestyle and livelihoods. Each year, they also provide flood protection to people, property, and jobs valued at more than \$836 million, support nearshore fisheries worth \$13.4 million, and contribute more than \$1.2 billion through reef-related tourism to the state's economy.

Local pressures from overfishing and land-based pollutants have contributed to a 60% decline in Hawai'i's living coral reefs in some areas over the past 40 years. The impacts of global climate change, such as warming and rising seas and more powerful and frequent storms, hasten the loss of coral reefs.

**BOARD OF TRUSTEES**

Duke E. Ah Moo Paul D. Alston (Chair) Kris Billeter Dr. C. Tana Burkert Anne S. Carter Richard A. Cooke III Ka'iulani de Silva  
Dave Eadie Matt Emerson Hon. Judith Epstein Dr. Alan M. Friedlander Benjy Garfinkle James J.C. Haynes III Sean A. Hehir  
Brett MacNaughton Kathy M. Matsui Janet Montag Alicia Moy Dustin E. Sellers Peter K. Tomozawa Richard N. Zwern

Research shows that severe hurricanes can cause a 50% or more loss of live coral cover, and the loss of just one meter of reef could result in a doubling of the cost of damage. In 2018, Hawai'i was threatened by two Category 3+ hurricanes and last July, Category 1 Hurricane Douglas came within 30 miles of the state.

As the risks to our reefs and coastal resources increase, so too does our need to develop new funding sources to protect and restore them. Reef insurance is a proven source of funding to repair reefs after a natural disaster.

Reef insurance is set up as a parametric policy, which provides a pre-agreed amount of payout based on the occurrence and intensity of a certain parameter (e.g., a payout of \$1 million if hurricane windspeeds exceed 120 mph within the insured area), rather than the more traditional approach of indemnifying against actual loss. This is important because payouts can be made within days, expediting essential reef repair activities such as debris removal and coral re-attachment following a natural disaster.

Between 2018-2020, TNC conducted a feasibility assessment to determine whether reef insurance was viable in Hawai'i and Florida. Our study determined that:

- Parametric insurance can cover reefs against the risk of hurricanes in each state.
- Public and private entities (e.g., resorts, tourism operators) that benefit from the existence of reefs can purchase reef insurance.
- There are insurance companies interested in offering reef insurance for hurricanes and bleaching in Hawai'i.
- There is general support for the concept of reef insurance in the islands.
- The cost of hurricane insurance in Hawai'i is significantly less (premium costs ~2% of the maximum insurance cover) than in Mexico or Florida (premium costs >10% of the maximum insurance cover) because of the low risk of hurricanes, making it financially attractive.

To help identify where to focus management efforts over the coming years, we have mapped areas around the state where existing reefs are protecting important coastal infrastructure and local communities (Figure 1). We have also identified those reefs that are most vulnerable to severe bleaching. These are the regions where we should be investing in building reef resilience – increasing the reef's ability to resist or recover from natural disasters.

When we invest in managing local stressors and restoring coral reefs, we can now insure that investment. Our study suggests that an investment of just \$20,000/year could lead to a payout of up to \$1 million to repair a reef impacted by the storms we know are coming. It is a small price to pay for the peace of mind that comes from knowing we can repair the reefs that provide our food and livelihoods while protecting homes and businesses across the state.

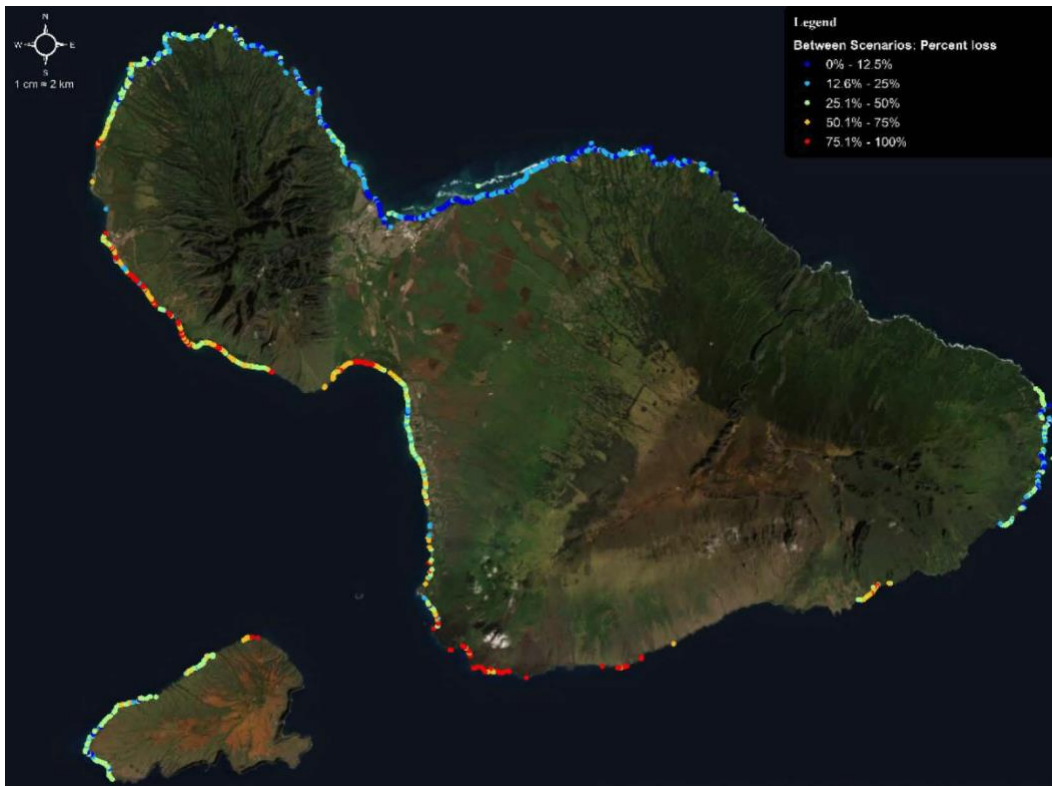


Figure 1. Coral reefs reduce the amount of wave energy hitting our coastlines. If we lose coral reef structure, that protection is reduced. This map shows the percent reduction in wave energy attenuation resulting from a loss of 1 meter of reef height, e.g. if we lose 1 meter of reef structure in the areas shown in red, the coastline there will receive 50% more wave energy than it would with the reef in place. Warmer colors (orange-red) indicate a greater than 50% decrease in the reef's ability to reduce wave energy.

Mahalo for the opportunity to support SCR 159 and innovative ways to protect Hawai'i's coral reefs.

---

*The Nature Conservancy of Hawai'i is a non-profit organization dedicated to the preservation of the lands and waters upon which all life depends. The Conservancy has helped protect more than 200,000 acres of natural lands in Hawai'i and Palmyra Atoll. We manage 40,000 acres in 13 nature preserves and work in over 50 coastal communities to help protect and restore the nearshore reefs and fisheries of the main Hawaiian Islands. We forge partnerships with government, private parties, and communities to protect forests and coral reefs for their ecological values and for the many benefits they provide to people.*

---

**SCR-159**

Submitted on: 3/28/2021 12:13:43 PM

Testimony for WTL on 3/29/2021 1:00:00 PM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Victoria Anderson	Individual	Support	No

Comments:

Please pass this important resolution.