

Insuring Natural Infrastructure Against Climate Impacts

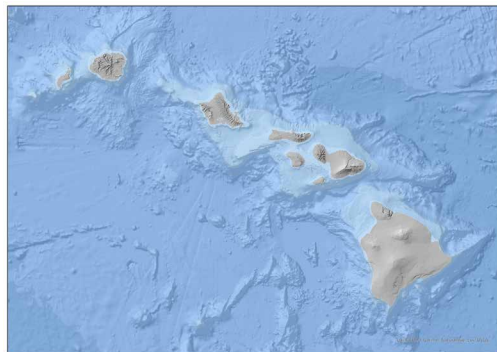
2024 Hawai'i Reef Insurance Policy Benefits from Upgrades

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Why Buy Insurance?

The reefs that line Hawai'i's coasts are vital to our security, economy and culture. Each year, they provide flood protection to people, property, and jobs valued at more than \$836 million and contribute more than \$1.2 billion through reef-related tourism to the state's economy. Reefs also protect beaches from erosion and support nearshore fisheries—an important local food source—valued at \$13.4 million a year.

Maintaining reefs and the valuable benefits they provide is essential to our well-being. Wave action generated by hurricanes can quickly devastate coral reefs. Research shows that severe hurricanes can cause up to a 50% loss of live coral cover, and the loss of just one meter of reef height could double expected annual flood damages. Hawai'i experiences an average of 4-5 large storms a year, and scientists predict these storms will become more intense in the coming decades.



Reefs surround the eight Main Hawaiian Islands

Repairing reefs is costly and reef insurance can provide vital funding when it is urgently needed. The cost of reef repair varies significantly, depending on the extent of damage and action required. Immediate damage assessment, collection and replanting of broken corals starts at approximately \$25,000 per acre, while more intensive sustained reef restoration would be much higher.

The cost to the local economy of not repairing damage to reefs would be even higher, with increased coastal erosion and flooding impacting people, property and livelihoods.

Reducing Climate Risks

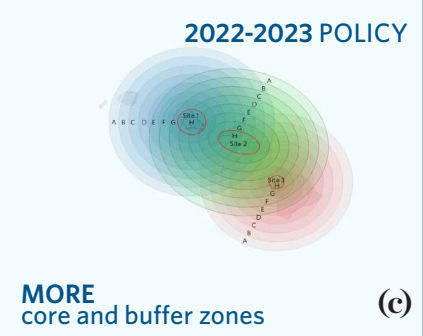
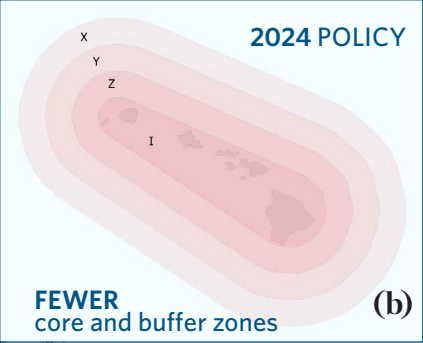
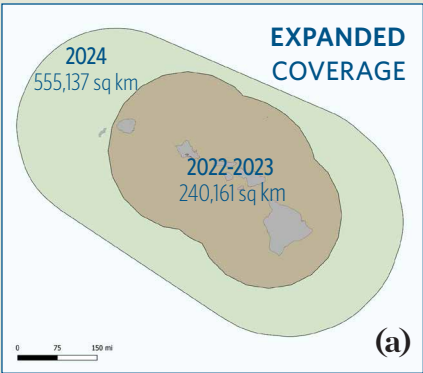
Parametric insurance is uniquely suited to address the increasing frequency and severity of weather-related events driven by climate change. By establishing triggers and payout rates before a storm occurs, parametric insurance enables payouts within days of a qualifying storm, expediting essential reef repair activities such as debris removal and coral re-attachment. These repairs support the resilience of the reef and the maintenance of flood protection, fisheries, tourism and community benefits.

Recent experiences and advances in the application of reef insurance and expansion of the model to new geographies and ecosystems (e.g., mangroves) has built momentum and greater interest among global re/insurance industry partners, natural resource managers and global leaders to explore how insurance and nature can be combined to address the impacts of climate change. The sector seems poised for rapid growth in the coming years. Learn more about insuring natural infrastructure at nature.org/insuringnature or contact Eric Roberts, Senior Manager Climate Risk and Resilience, eric.roberts@tnc.org.

Policy Upgrades

After purchasing the first parametric policy in the U.S. in 2022, The Nature Conservancy (TNC) purchased a redesigned and simplified policy in 2024. The reconfigured policy provides expanded and equal coverage across the eight Main Hawaiian Islands (MHI) for reefs that provide Hawai‘i with valuable ecosystem services such as sustenance, livelihoods and flood protection. Key upgrades include:

- Expanded coverage (a) by adding 314,976 sq km to the covered area to capture more storms that would trigger the insurance, based on historic data and stochastic modelling.
- Reduced number of core zones from 3 to 1, and buffer zones from 7 to 3 (b and c).
- Revised the payout schedule to increase the minimum payout to \$200,000, based on improved estimates of post-storm response funding needs.



Payout Triggers, Rates and Limits

Payout rates are triggered and calculated based on officially reported windspeeds of active and former hurricanes in the insured area (b) and on proximity to the core zone. The policy covers active hurricanes, as well as those downgraded to tropical storms with windspeeds of at least 50 knots and occurring in the core zone (I). This inclusion is important because hurricanes are likely to have already been long-lived by the time they pass Hawai‘i and, therefore, accompanied by heavy seas that can impact the reefs even if not still at hurricane strength. Payouts are limited to \$1 million per trigger event and \$2 million total over the term of the policy (through December 31, 2024).

Trigger (knots)	Zone X	Zone Y	Zone Z	Zone I
50 (TS)	\$0	\$0	\$0	\$200,000
64 (CAT 1)	\$0	\$0	\$200,000	\$300,000
83 (CAT 2)	\$0	\$200,000	\$300,000	\$450,000
96 (CAT 3)	\$200,000	\$300,000	\$450,000	\$600,000
113 (CAT 4)	\$300,000	\$450,000	\$600,000	\$750,000
137 (CAT 5)	\$450,000	\$600,000	\$750,000	\$1,000,000

The policies were inspired by and adapted from policies developed for Quintana Roo, Mexico and the Mesoamerican Reef Fund. Funding from the Howden Foundation and anonymous private donors covered policy premiums.

“Parametric insurance is increasingly demonstrating value in addressing disaster risk for natural assets, in this case providing Hawai‘i with a tangible solution to quickly finance post-storm restoration activities that help reefs better recover and maintain resilience in the face of increasing climate impacts.

Increasing recognition of this value by conservation organisations, government bodies and other stakeholders on the demand side and by insurers on the supply side is mainstreaming parametric protections, driving accessibility and sustainability.”

Simon Young
Senior Director, WTW
Disaster Risk Finance and Parametrics

Reef Repair

In 2023, TNC convened a post-storm reef response coalition that developed an initial statewide early warning and rapid response plan. The plan guides first responders in reef repair and restoration so the work can commence quickly in the event of an insurance payout. The coalition is comprised of scientists and reef managers from the Hawai‘i Department of Land and Natural Resources Division of Aquatic Resources, universities and local organizations. The committee also worked with local teams to develop specific response plans within Hawai‘i’s four counties. As policy holder, TNC will disburse funds to partners for reef damage assessments and rapid restoration after qualifying storms trigger payouts.