



MAUI  NUI

MARINE RESOURCE COUNCIL

ANNUAL REPORT 2023

www.mauireefs.org



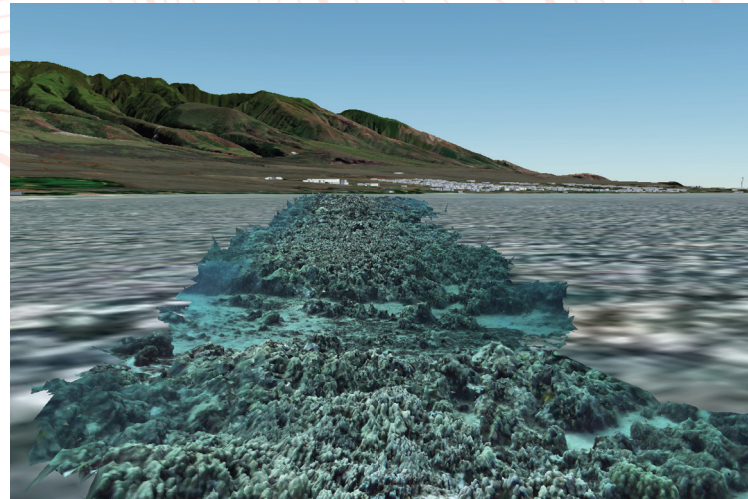
800,000+
REEF IMAGES CAPTURED

to help assess reef health in Lahaina after the wildfire

41
TOTAL TESTING SITES

for water-quality monitoring in Maui County, including 7 sites in the Lāhainā wildfire burn zone

Together, we made a difference for Maui's reefs from mauka to makai in 2023!



8
NEW SURVEY SITES

established by our dive team to monitor reef health and fish populations

63
SCHOOL BUSES WORTH

of sediment prevented from washing into the ocean

18
NEW PROPERTIES

piloted the use of natural landscaping products





The team from Flying Fish Technologies travels along West Maui to deploy the Vertigo3 glider. (Photo Credit: Flying Fish Technologies)

Using technology (and 800,000+ images) to protect Lāhainā's coral reefs

Since September 2023, Maui Nui Marine Resource Council (MNMRC) has been working to understand the impacts of the Lāhainā wildfire on nearby coral reefs.

Through the support of grants, and other generous donations, MNMRC is using cutting-edge drone and AI technology to understand the health of Lāhainā's reefs before and after toxic runoff entered the ocean.

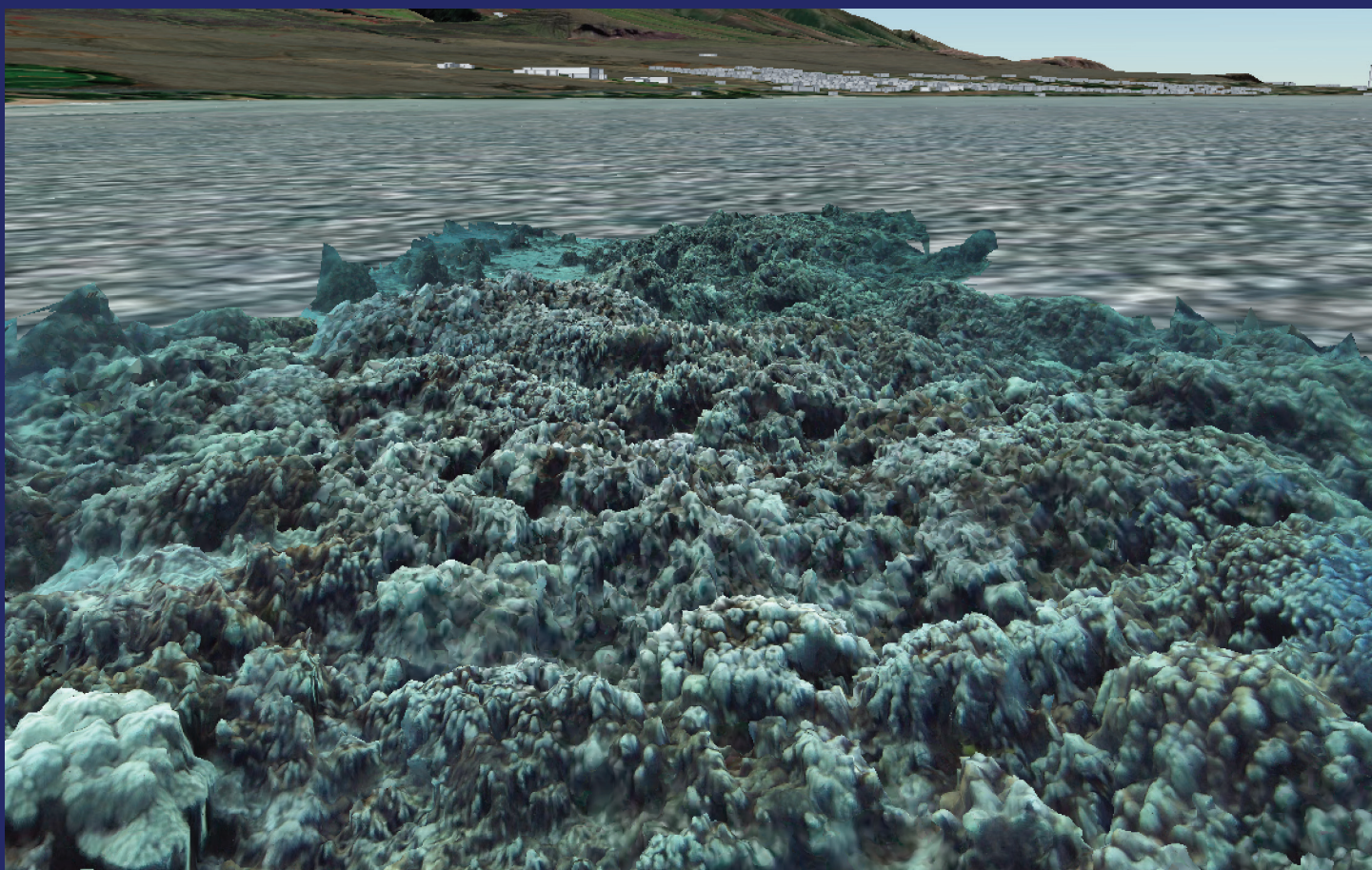
Phase One: Using 3D reef maps and AI to establish a baseline of reef health

In September 2023, MNMRC's partner, Flying Fish Technologies (FFT) used their underwater drone, the

Vertigo3 glider, to capture over 800,000 images of the reef before heavy rains washed debris, toxins, and other fire pollutants into the ocean.

These images were used to create 3D maps of the reefs, which serve as a snapshot of the area "before" any fire impacts could occur. By comparing these maps to images collected after the toxic runoff washed into nearby waters, MNMRC can better understand how the reef has changed due to the fire and by extension, figure out how to protect it from further damage.

(Continued on next page)



Images from the September 2023 survey were used to create 3D maps of reefs in Lāhainā. (Photo Credit: Flying Fish Technologies)

In addition to creating 3D maps, FFT trained and applied a machine-learning algorithm to identify coral and fish species at several sites in Lāhainā. When a diverse mix of corals and fish are found in enough numbers, it almost always means the reef is healthy. When the number of species and diversity is low, the opposite is expected, signaling scientists to take a closer look at what problems could be occurring in the area.

Phase Two: Revisiting Lāhainā’s reefs

Now that heavy rains have washed runoff from the fire into the ocean, our next step is to revisit these sites to capture an “after” snapshot of the reef. It is critical to revisit these sites as soon as possible to record any changes in the reef before the data is lost.

MNMRC is now in the process of fundraising to bring FFT back to resurvey priority sites. The FFT team is once again generously donating \$30,000 worth of work and equipment and MNMRC is planning to cover fees associated with logistical support for the resurvey.

Once Phase Two is complete, we will finally be able to compare a “before” and “after” snapshot of the reef and identify the problems that have developed from the wildfire. This information will not only help us to make evidence-based decisions about how to protect the reef and support its recovery, but will also provide guidance on how Lāhainā can be rebuilt so that our actions on land lead to better outcomes for nearby reefs and marine life.



Liz Yannell, HOKWO Program Manager and Christiane Keyhani, HOKWO Program Coordinator collect and test water samples at Papalaua Street in January 2024, (Photo Credit: Tova Callender)



Hui O Ka Wai Ola launches 4 new water quality testing sites in the Lāhainā wildfire burn zone

Our community-based water-quality monitoring program Hui O Ka Wai Ola (HOKWO) was one of the first groups to test water conditions in the burn zone a few weeks after the wildfire. Prior to this, the Hui monitored water quality at 3 locations in Lāhainā Town. With financial support from our community, we were able to quickly add 4 additional testing locations (Mala Tavern, Mala Ramp, Papalaua Street, and Lāhainā Harbor) in the burn zone, post-fire.

Every 3 weeks, our team samples and tests water from these priority sites, and at 18 other locations near and around the area in order to understand what is happening to the environment in West Maui as a whole.

The Hui also added 2 locations in Lānaʻi at Hulopoʻe Beach Park and Mānele Boat Harbor, bringing the total number of testing sites to 41 in 2023.

HOKWO is the only organization that operates under a Quality Assurance Project Plan (QAPP) which makes its data eligible for use by the State of Hawaiʻi Department of Health Clean Water Branch.



Established 8 new sites for reef health monitoring

MNMRC established 8 permanent coral reef and fish monitoring stations along the South Maui coast. These SCUBA surveys allow us to assess the reef's current state and identify possible causes of reef degradation. Annual surveys at these stations will enable us to monitor changes over time and evaluate the impact of our efforts to improve conditions.

Removed 63 school buses worth of harmful sediment in North Kīhei

MNMRC removed the equivalent of 63 school buses of silt-laden sediment (2250 cubic yards) from Kūlanihāko'i Gulch to alleviate reef-smothering brown water conditions in North Kīhei. Upstream we coordinated with local landowners to increase axis deer fencing to prevent further erosion and runoff, helping to protect human and environmental health.



Helped **18 properties** begin using natural, landscaping methods and developed Hawai'i's first reef-friendly landscaping certification course

Thanks to our Reef-Friendly Landscaping (RFL) program, 18 new properties across Maui began converting to natural and reef-friendly methods, reducing the amount of excess nutrient and chemical waste in nearby coastal waters. We also created the first-ever Hawai'i-focused RFL certification course taught by local experts.



Top: Landscaping at Hale Royale's test plot showed patchy areas caused by grubs. After RFL, the test plot shows healthy growth and disappearance of grubs.

SILVER & GOLD CERTIFIED SITES

★ Gold Certified: Four Seasons Resort Lānaʻi

- Signed pledge to halt use of harmful chemicals or switch to 100% natural landscaping practices
- At least 1 landscaping employee has completed our RFL Certification course
- Create stormwater management plans
- Yearly recertification
- Required to use battery-powered equipment

★ Silver Certified: Honokeana Cove

- Signed pledge to halt use of harmful chemicals or switch to 100% natural landscaping practices
- Required transition to battery-powered and electric landscaping equipment

● RFL Site in 2023

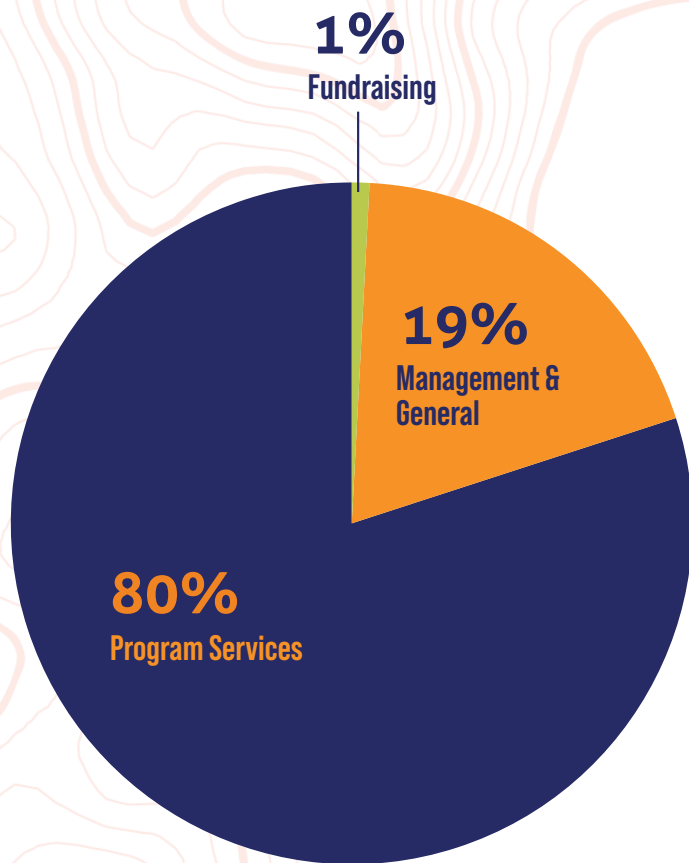
- RFL practices tested on site



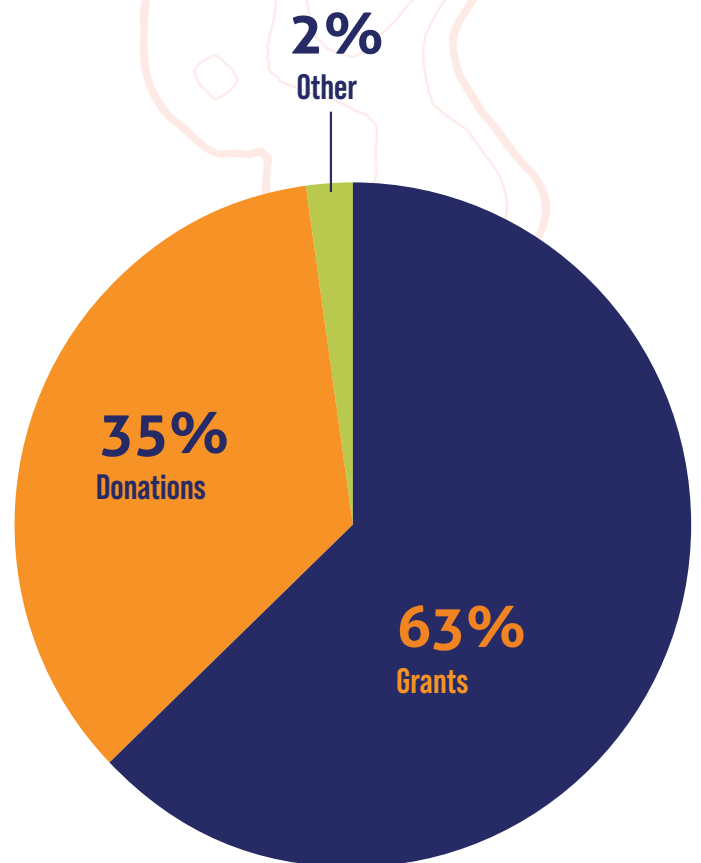
Financial Statement

Combined statement of activities for the fiscal year ending December 31, 2023.

In 2023, our income exceeded expenses, and we raised \$1,115,325 for operations, enabling MNMRC to quickly respond in the aftermath of the Lāhainā wildfire as well as continue routine work to protect and enhance coral reefs in Maui Nui. The financial information shared here are from MNMRC's audited May 09, 2024, consolidated financial statements.



Expenses



Support

He ali'i ka 'āina; he kauwā ke kanaka.

The land is a chief; man is its servant.

We send our aloha and mahalo to each of you who believe as we do, that Maui truly is **nō ka 'oi** (the best). This last year has proven to be a challenging time, testing our strength, unity, and ability to believe for a brighter future. While our island has suffered unimaginable loss, we are encouraged to see our community both near and far join together like never before.

We renew our passion for work that serves our island home and gives back to the place that sustains us and fills our lives with beauty. To live in or visit Maui is a privilege and a joy. We are committed to preserving our reefs so that joy can continue to live on for you and for our friends, families, and community.

Mahalo for your support and aloha,



Amy

Amy Hodges,
Executive Director



Mike

Mike Fogarty,
Finance Director



John

John Starmer,
Science Director



Jill

Jill Wirt,
Program Director



Sara

Sara Sugidono,
Communications &
Development Director

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Hanalei Ho'opai-Sylva



Maui Nui Marine Resource Council works for **clean ocean water, healthy coral reefs, and abundant native fish** for Maui Nui.

@mauireefs

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Facebook

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www.mauireefs.org

info@mauireefs.org

P.O. Box 331204
Kahului, HI 96733

(808) 707-5056



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