



Annual Impact Report 2025

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Photo: Rajiv Perera

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From Mauka to Makai: Connecting Land and Sea for Maui's Reefs

Maui's coral reefs do not exist in isolation. What happens on the mountain eventually reaches the ocean. Fertilizer applied to a lawn, wastewater injected into the ground, sediment loosened by rain; All of it finds its way to the coast, and all of it leaves a mark on the reefs below. This is the reality that shapes everything MNMRC does.

In 2025, that mauka to makai thread ran through every program we led. We helped a Lāhainā community restore a gathering place with reef-friendly plants. We completed coast-wide limu surveys, tracking nutrient pollution from South to West to North Maui. We continued building three years of reef monitoring data in South Maui. And we established the island's first Community-Based Coral Restoration Area, giving damaged corals a second chance.

The connections are real, between land and sea, between communities and conservation, between the work we do today and the reefs we hope to see tomorrow. Mahalo to our community of volunteers, sponsors and partners, we couldn't do this without you.



Photo: Derek Baumgartner

Kahoma Village: Reef-Friendly Landscaping for Lāhainā's Recovery



Kahoma Village: Reef-Friendly Landscaping for Lāhainā's Recovery

In 2025, MNMRC co-led one of its most meaningful Reef-Friendly Landscaping efforts to date. After losing four buildings in the Lāhainā wildfire, the residents of Kahoma Village turned to MNMRC to help restore a beloved community park space that had long served as a gathering place for the neighborhood.

Our team worked alongside residents for over a year, developing a restoration plan centered around native plants, fruit trees, shrubs, and ground cover, combined with natural soil amendments including locally-made compost tea and biochar. These practices are at the heart of our RFL program and work to reduce erosion and minimize chemical runoff onto local reefs.

MNMRC coordinated with partners like Native Nursery in Kula to grow plants for the site, including loulu lelo, 'ulu, and wiliwili.



A Community Comes Together

~200

COMMUNITY
VOLUNTEERS

100

NATIVE & RESILIENT
SPECIES PLANTED

19

PLANT
VARIETIES

The project came to life at a community planting day in late April, where nearly 200 Kahoma Village homeowners, community members, and local organizations gathered to restore the landscape by planting 100 native and resilient species across 19 different varieties, including 'ulu, puakenikeni, mango, and various citrus trees.

The event drew volunteers from a wide range of partners including Rotary Hawai'i, Marriott's Maui Ocean Club, the Maui Fire Department, and Treecorey, reflecting the deep spirit of community that has defined Lāhainā's recovery.



Looking Ahead

What's Next

Looking ahead there is a larger vision for the space as a place where residents pick fruit, host community events, and attend RFL workshops, with a renewed sense of kuleana for the land and the reefs beyond.

This project was made possible through the support of the Kaulunani Urban and Community Forestry Program of DLNR's Division of Forestry and Wildlife. Photos courtesy of Derek Sander.



Tracking Nutrient Pollution with Limu



Limu Monitoring 2025

2019

PROGRAM
BEGAN

3

REGIONS SAMPLED
IN 2025

72

TOTAL SITES
SAMPLED

Why Limu?

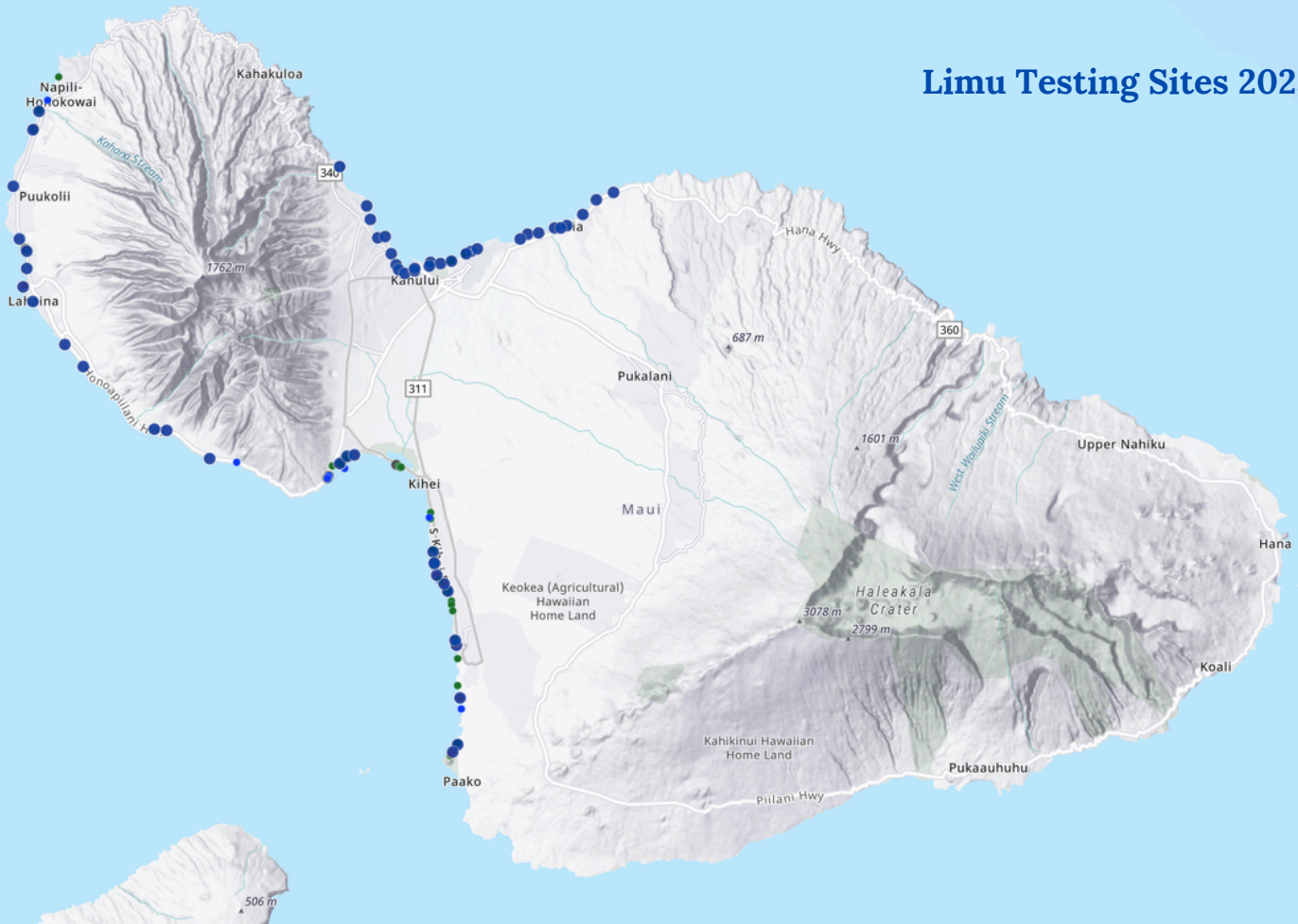
Limu, the Hawaiian word for marine algae, is one of nature's most sensitive indicators of water quality. When excess nitrogen enters coastal waters from fertilizer runoff, wastewater, or other sources, limu absorbs and stores it, giving our team a window into what is happening beneath the surface.

Inspired by isotope research conducted by Dailer *et al.* in 2010, MNMRC's limu program began with a single site in Mā'alaea in 2019 and has grown to include a full coastlines across South, West, and North Maui.



Tracking Nutrient Pollution with Limu

Limu Testing Sites 2025



Confirmed Wastewater Sources

Injection wells near the Lāhainā, Kahului, and Kīhei Wastewater Reclamation Facilities were confirmed as active sources of coastal nutrient pollution across all three regions.

Fertilizer Runoff

Sites at Māʻālaea, Keawakapu, Kanahā Beach Beach, Sprecklesville, and Pāʻia showed nitrogen isotope signatures consistent with commercial fertilizer.

Wastewater Injection Wells: A Coastal Pattern

A recurring finding across all regions is the influence of wastewater injection wells on coastal water quality. Wastewater injected into the ground eventually reaches the ocean, creating nutrient-rich plumes that are detectable in limu. This was confirmed near the Lāhainā, Kahului and Kīhei wastewater reclamation facilities.

South Maui

In South Maui, limu testing revealed elevated nitrogen levels across multiple sites, pointing to both fertilizer runoff and wastewater as contributing sources.

- At **Mā‘alaea** and **Keawakapu**, high nitrogen levels suggest commercial fertilizer as a likely cause.
- Near **Kalama Park**, isotope data confirmed that injection wells from the Kīhei Wastewater Reclamation Facility continue to affect the surrounding area through groundwater flow.
- Wastewater signals were also detected at **Welakahao** and **Lā‘ie** in central Kīhei, though the sources at those locations have not yet been identified.

Confirmed Wastewater Source

Kalama Park: Waste Water Reclamation Facility injection wells confirmed via isotope data.

Possible Fertilizer Source

Mā‘alaea and Keawakapu: high nitrogen levels consistent with commercial fertilizer.

Unknown Sources

Welakahao and Lā‘ie show wastewater signals but the specific source has not yet been identified. MNMRC is working with local partners to better understand these locations.



West Maui

In West Maui, limu testing found elevated nitrogen levels at several sites, with results pointing to both fertilizer runoff and wastewater as sources.

- At **Pōhaku Park (S-Turns)** and **Olowalu River**, very high nitrogen levels suggest commercial fertilizer as a likely cause.
- Nitrogen signatures at **Kahekili** confirmed that injection wells from the Lāhainā Wastewater Reclamation Facility continue to affect the area.
- A separate signal near **Kahana Village** also indicates the presence of wastewater, though the source there is not yet confirmed.

Confirmed Wastewater Source

Kahekili : Lāhainā WWRF injection wells confirmed

Possible Fertilizer Source

Pōhaku Park (S-Turns) and 'Oluwalu River show very high nitrogen.

Unknown Sources

Several sites including Pōhaku, Kahana, and 'Oluwalu remain without a clearly identified nitrogen source, and MNMRC is working with local partners and community members to better understand conditions at these locations.



North Maui

On North Shore Maui, limu testing revealed elevated nitrogen levels at multiple sites, with findings pointing to both fertilizer runoff and wastewater as contributing sources.

- At **Kanahā Beach, Sprecklesville, and Pā‘ia**, high nitrogen levels suggest commercial fertilizer as a likely cause
- Near the **Kahului Wastewater Reclamation Facility**, nitrogen signatures alongside isotope data confirmed that injection wells continue to affect the surrounding area.
- A separate wastewater signal was detected within **Kahului Harbor**, though the source there has not yet been identified.

Confirmed Wastewater Source

Near Kahului WWRF, injection wells confirmed via isotope data.

Possible Fertilizer Source

Kanahā Beach, Sprecklesville, and Pā‘ia show high nitrogen levels.

Unknown Sources

Several sites remain without a definitively identified nitrogen source, and MNMRC is continuing to work with local partners to better understand conditions across the region.



Looking Ahead

What's Next?

Maui County is actively working toward solutions, including recent UV sterilization upgrades and efforts to expand reuse of reclaimed R1 water. MNMRC will continue monitoring these areas to track whether treatment improvements translate into measurable changes along our coastline

Across all three regions, many sites remain without a definitively identified nitrogen source. MNMRC will retest these sites in 2026 to build on this baseline data, detect emerging trends, and identify locations in need of mitigation.

As this coastwide dataset continues to grow, we will be better positioned to connect the dots between land-based pollution sources and reef health, and to measure whether mitigation efforts are making a difference in the water.



Reef Restoration: Establishing South Maui's First Community-Based Coral Restoration Area

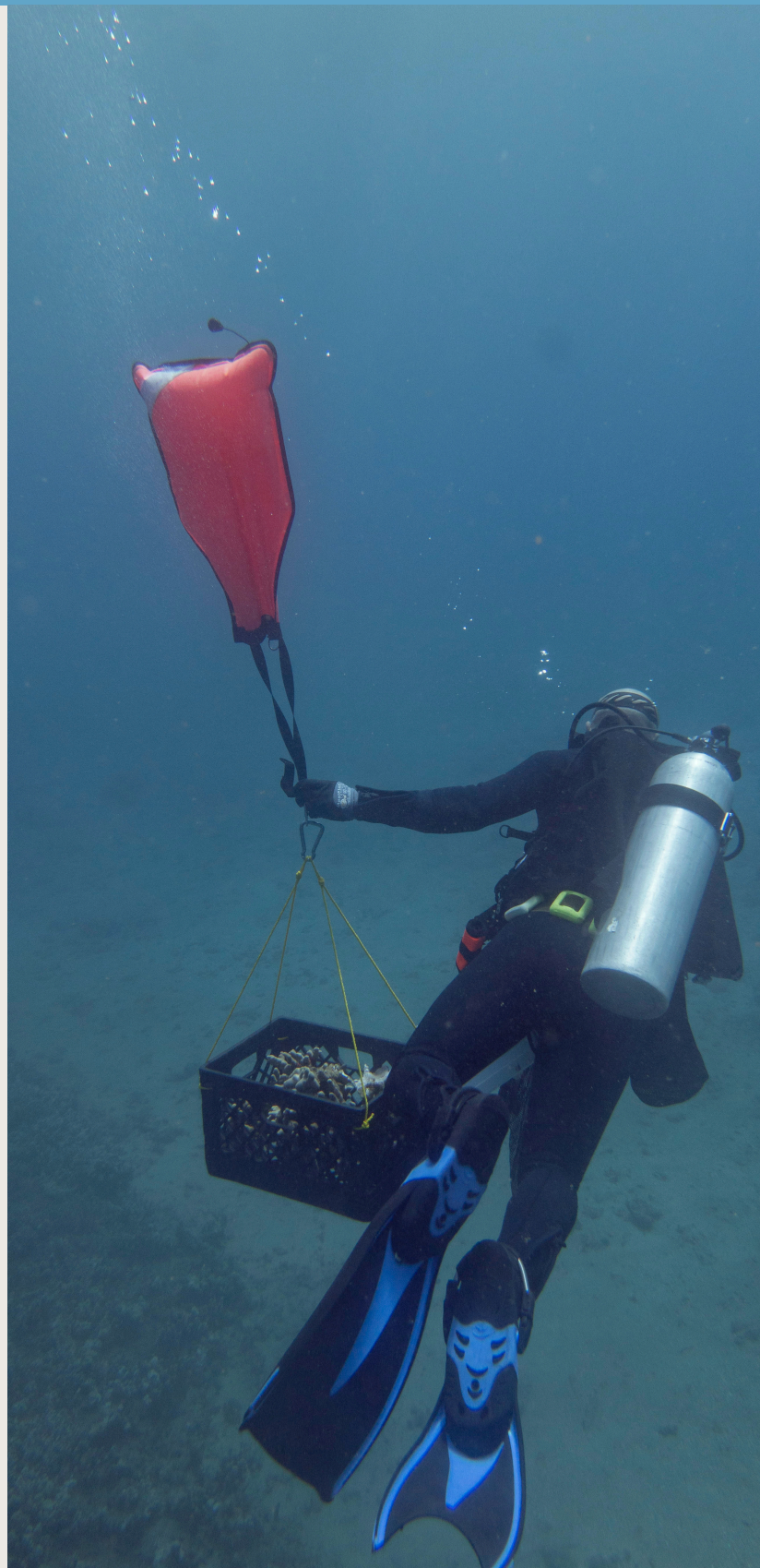


Restoring South Maui's Reefs

In 2025, MNMRC took a significant step forward in reef restoration by establishing South Maui's first Community-Based Coral Restoration Area (CBCRA), located off of Waipu'ilani Beach Park in North Kīhei.

Through the CBCRA process, corals that have already been detached from the sea floor are collected and replanted on bare patches, giving them a second chance at survival and increasing coral cover in areas with low coral cover.

The work was carried out over three days in February in partnership with Kuleana Coral Restoration and the State of Hawai'i Division of Aquatic Resources, resulting in two restoration sites off of Kīhei that MNMRC continues to actively monitor.



Reef Restoration 2025 at a Glance

1st

CBCRA IN
SOUTH MAUI

60

REATTACHED
CORALS OF OPPORTUNITY

2

YEARS IN
THE MAKING

Method

Teams collected only corals already broken off the reef with larger colonies secured with metal pins, and smaller fragments with adhesive alone

Community Foundation

MNMRC worked alongside Kanaka 'Ōiwi and local residents to identify restoration sites and build shared investment in Kula Kai's reef health.

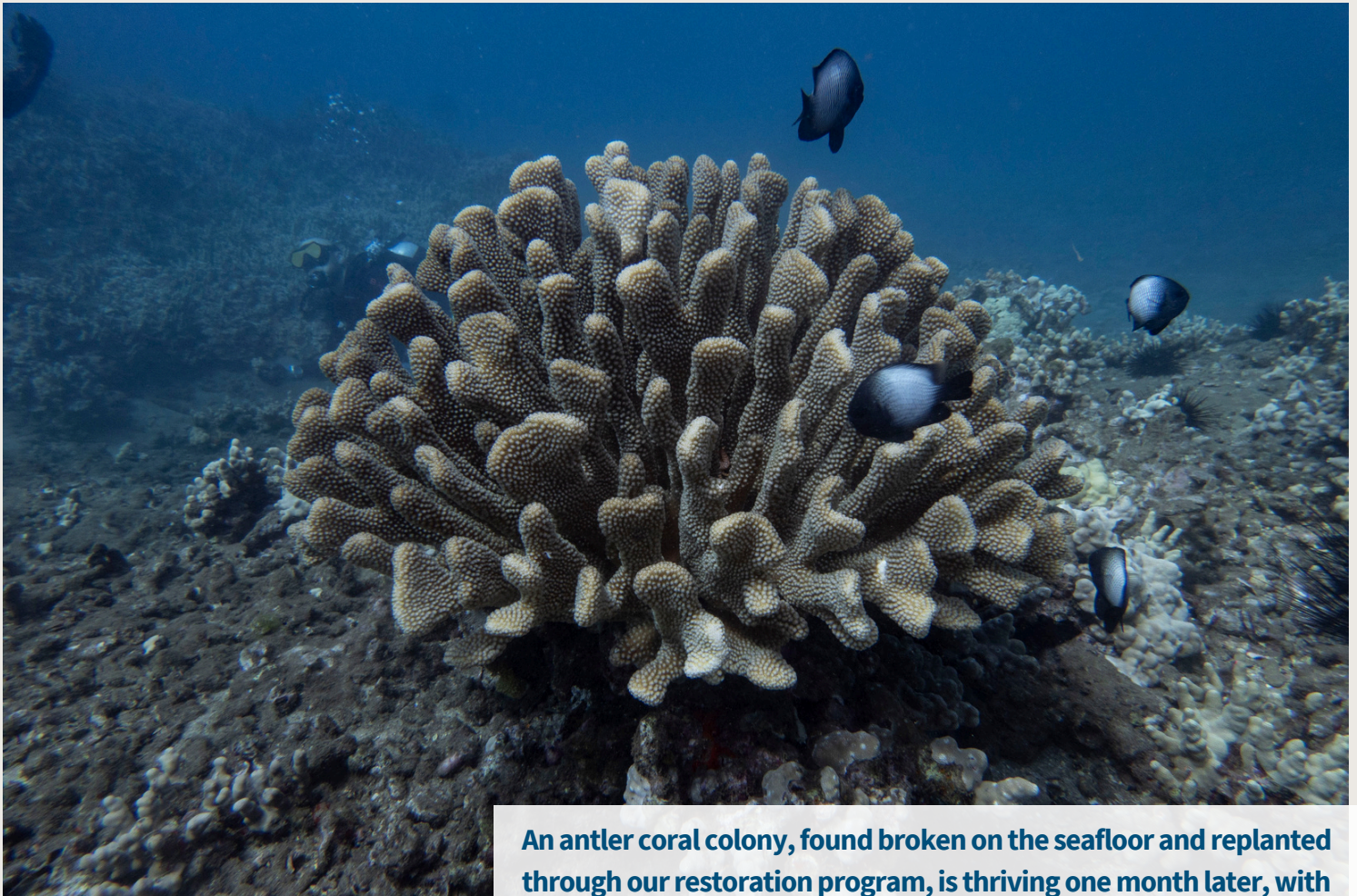


Looking Ahead

What's Next

The CBCRA work is part of a broader vision to connect land and ocean conservation efforts across Maui. MNMRC's goal is to accelerate conservation by helping communities create their own CBCRAs and providing the training needed to sustain long-term reef health.

This project was made possible through support from the County of Maui's Department of Environmental Protection and Sustainability. Photos courtesy of Kuleana Coral Restoration.



An antler coral colony, found broken on the seafloor and replanted through our restoration program, is thriving one month later, with 'alo'ilo'i damselfish returning to call it home once again.

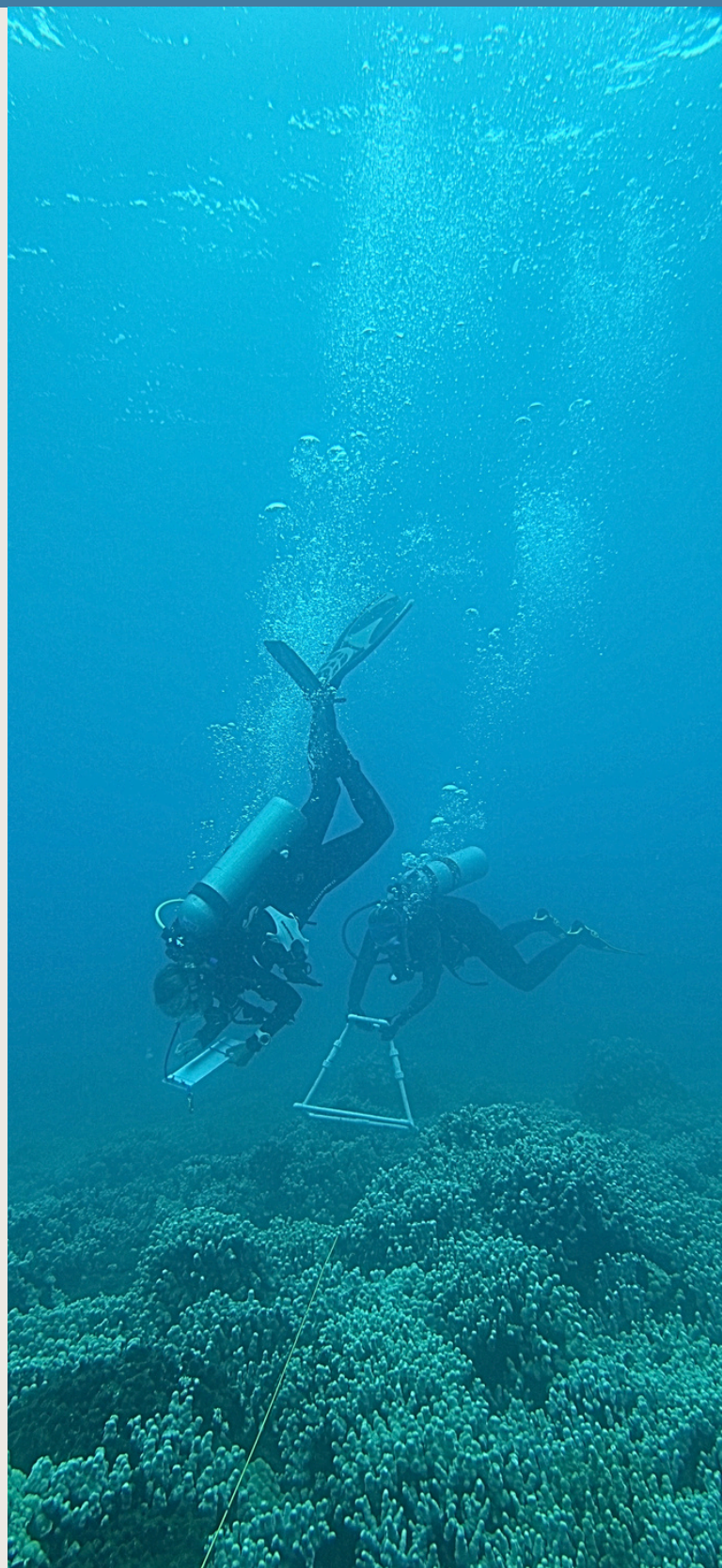
Three Years of Reef Monitoring in South Maui



Three Years of Reef Monitoring in South Maui

Understanding how South Maui's reefs are changing over time is at the heart of MNMRC's long-term monitoring work. Using a combination of randomized reef surveys and repeated monitoring sites, our team has collected and analyzed more than **189,350 benthic data points** across South Maui reefs over the past three years.

Together, these surveys provide both a broad snapshot of reef conditions across the region and a long-term view of how specific reef areas are changing over time. The resulting data are shared with DLNR's Division of Aquatic Resources and HIMARC to support science-based coastal management across Hawai'i.



Reef Monitoring 2025 at a Glance

8

SURVEY
SITES

3

YEARS OF
DATA

~30%

AVG, CORAL
COVER

~50%

AVG, TURF
COVER

Not all sites are equally stressed. Three years of data is revealing meaningful differences across South Maui's reefs.



Best Condition: Offshore Patch Reefs, North Kīhei

Higher coral cover and lower turf, likely benefiting from distance from shore and land-based runoff. This reasonably good-quality habitat may be doing well precisely because it sits further offshore.



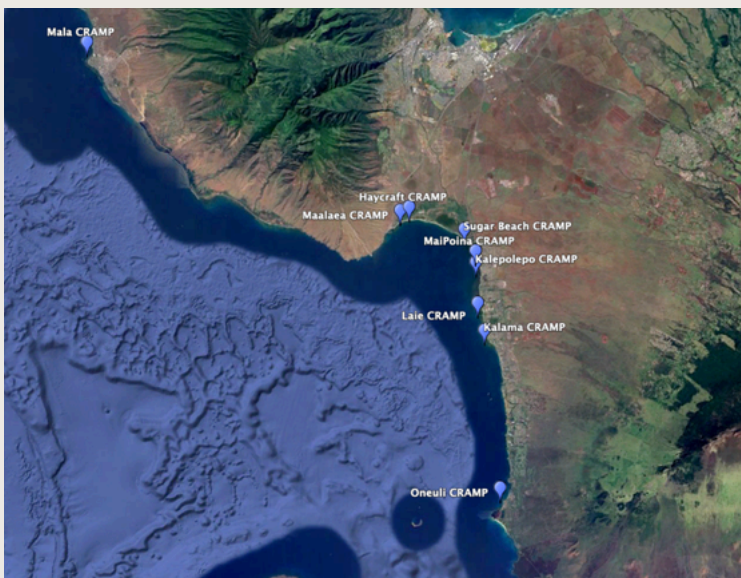
Consistent: Sugar Beach

Held relatively consistent coral cover despite murky conditions year-round. Benthic cover has remained stable across categories from 2023–2025.



Most Degraded: Mai Poina

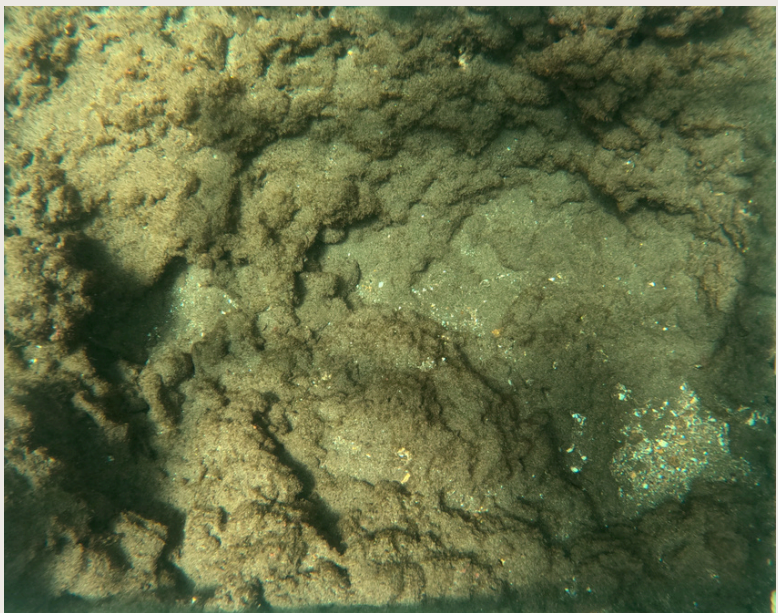
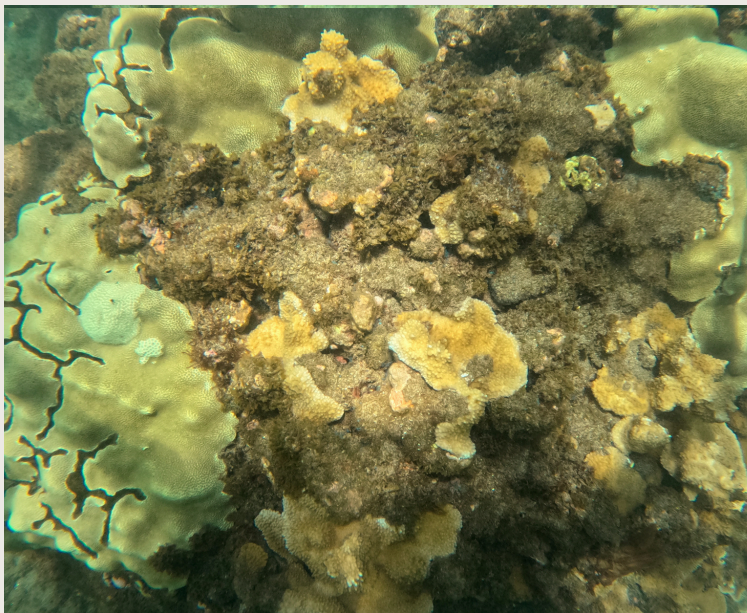
Turf near 60–70% across all three survey years — among the most degraded reefs surveyed. Sediment from Kūlanihākoʻi Gulch and shallow bathymetry may prevent natural flushing.



The Turf Problem

A consistent picture has emerged across three years of data. Turf algae, a dense, fuzzy growth that competes with coral for space on the reef, makes up nearly half of the bottom cover at most South Maui sites. Coral cover averages around 30%, but ideally, those numbers would be flipped.

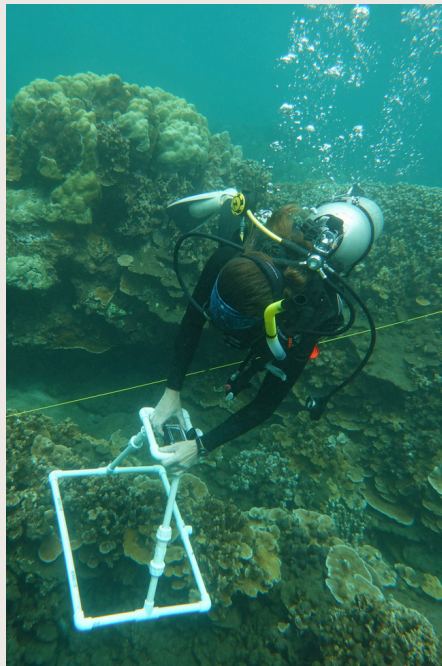
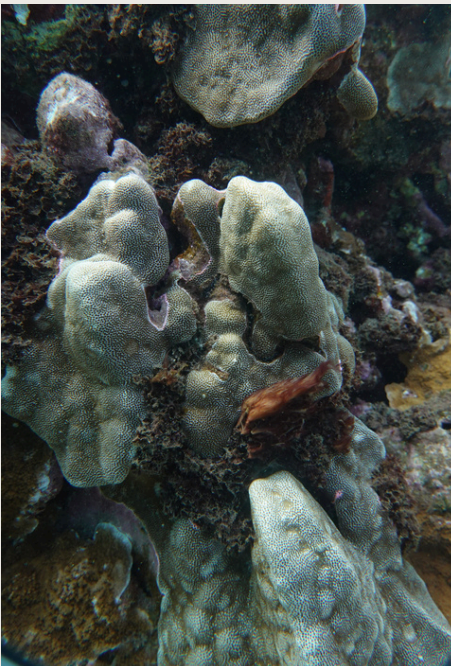
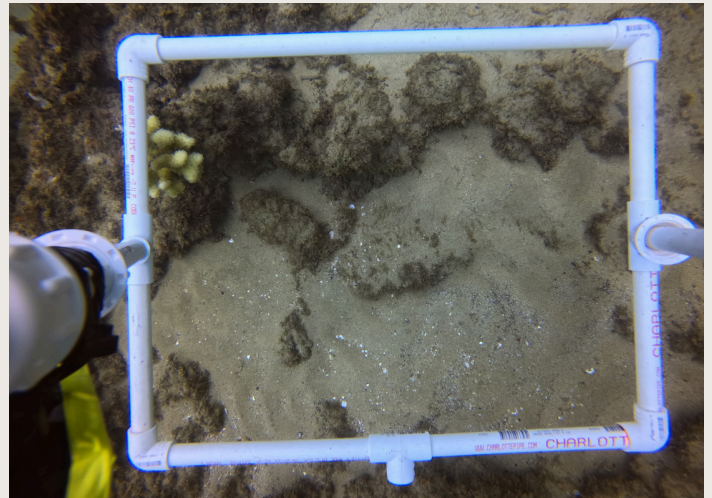
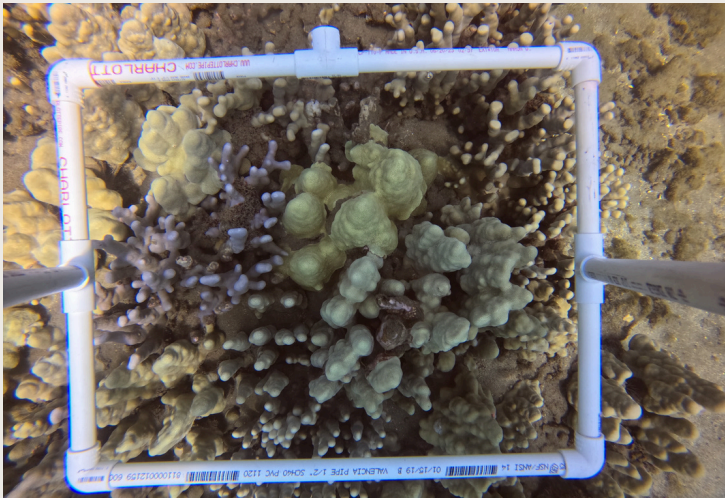
Turf thrives on excess nutrients from runoff or wastewater. Grazing fish like parrotfish and surgeonfish (which keep it in check) remain persistently low across all South Maui sites.



Looking Ahead

What's Next

Turbidity prevented surveys in North Kīhei's shallow backreef area in 2025; the team plans to return in 2026. The Mā'alaea and Haycraft sites are being tracked as a baseline ahead of planned wastewater treatment upgrades. As this dataset grows, MNMRC will identify trends, prioritize sites for intervention, and measure whether land-based mitigation efforts are making a difference underwater.





Hui O Ka Wai Ola: 10 Years of Coastal Water Quality Monitoring



Photo: Kelly James

Hui O Ka Wai Ola: 10 Years of Coastal Water Quality Monitoring

5,500+

SAMPLES COLLECTED
SINCE 2016

41

MONITORING
SITES IN 2025

0

SITES MEET DOH
TURBIDITY STANDARD

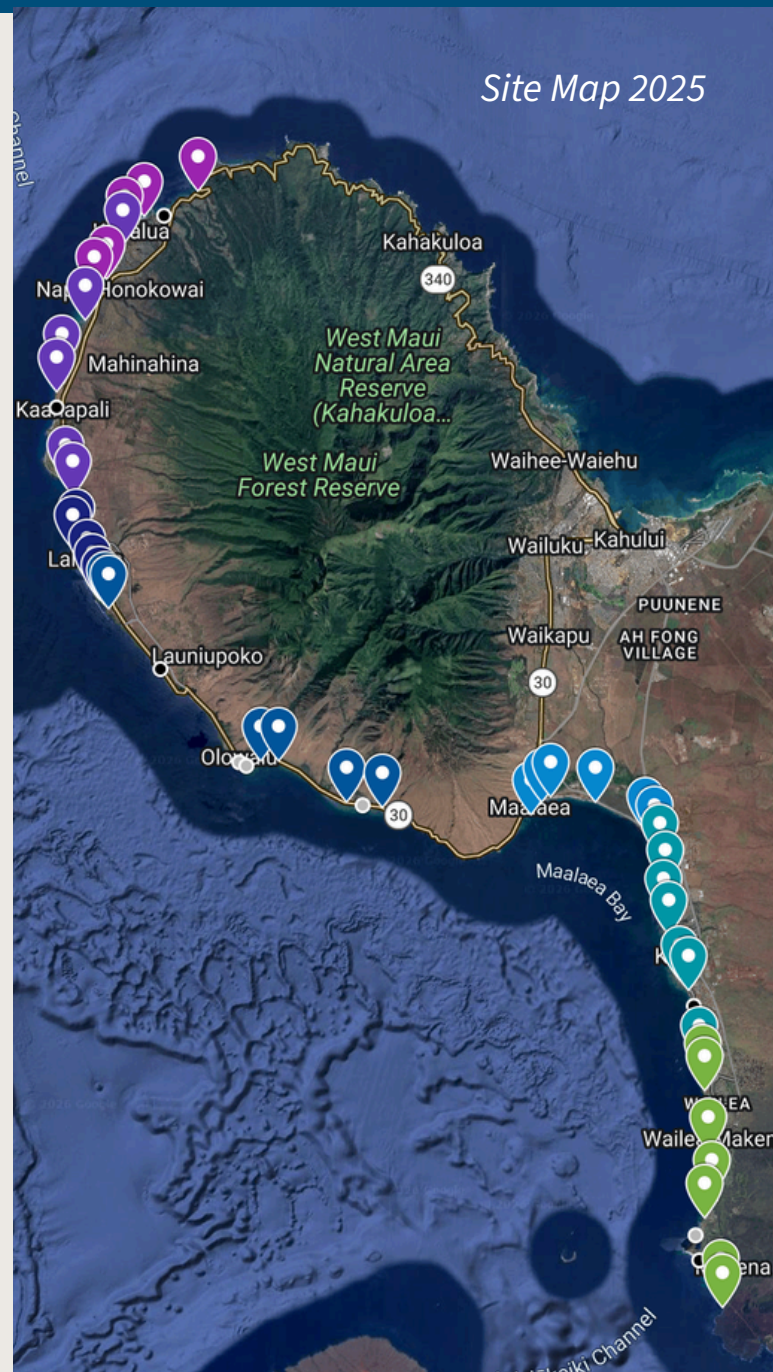
100x

DOH NITRATE
STANDARD AT COVE PARK

Understanding how land-based pollution affects Maui's nearshore waters is essential to protecting the reefs and communities that depend on them.

Hui O Ka Wai Ola, a partnership of scientists and community volunteers coordinated by MNMRC, The Nature Conservancy, and the West Maui Ridge to Reef Initiative, monitors water quality along 40 miles of leeward Maui coastline from Honolua Bay to 'Āhihi-Kīna'u Natural Area Reserve.

2026 marks the **program's 10th anniversary**, and the resulting dataset is one of the most comprehensive records of nearshore water quality in the state.

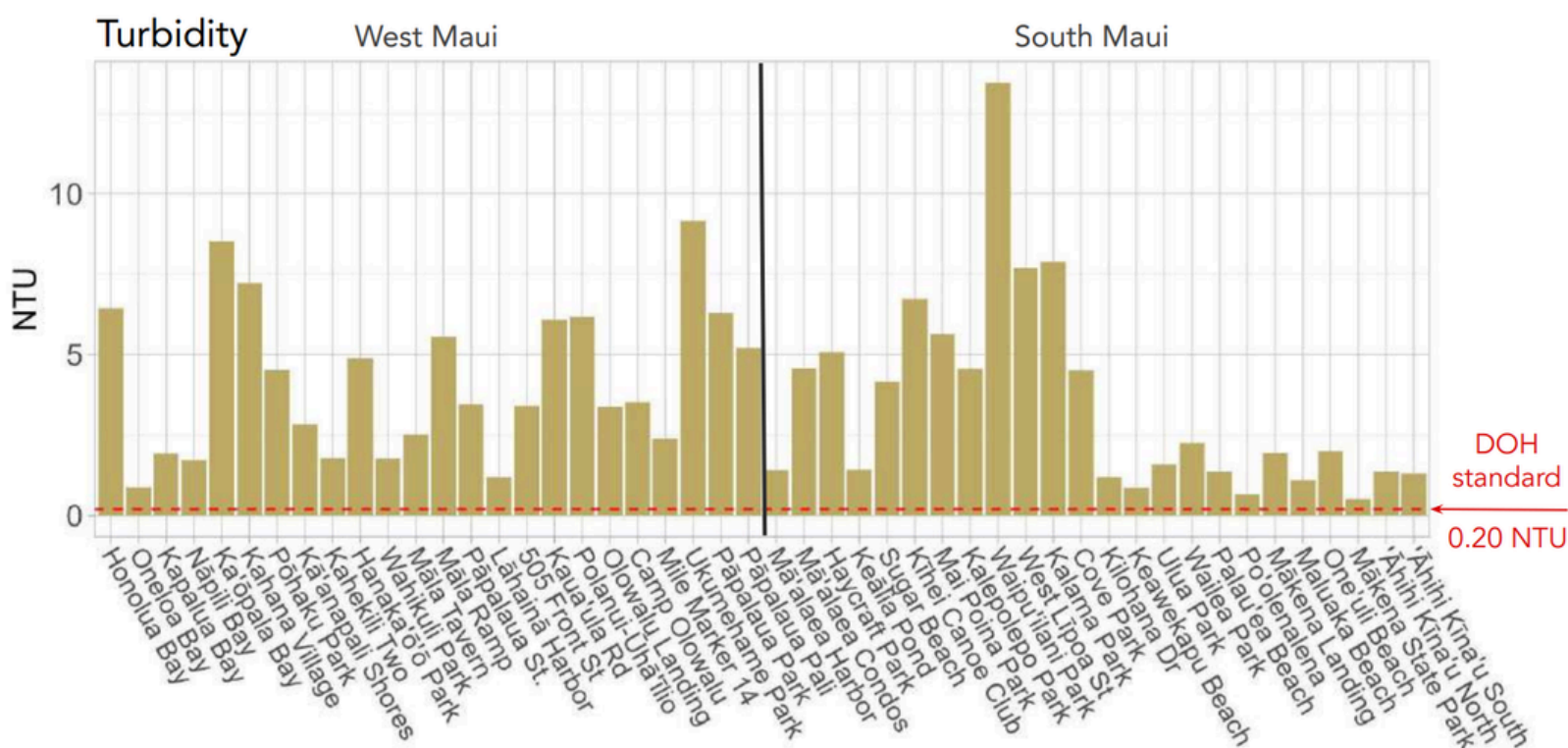


Read the full report [here](#)

Turbidity Findings

Turbidity exceeds Hawai'i DOH standards at every monitored site.

Notably, North Kihei's turbidity averages have surpassed the threshold where coral reefs can thrive and nearshore areas that once cleared after storms are now persistently murky.



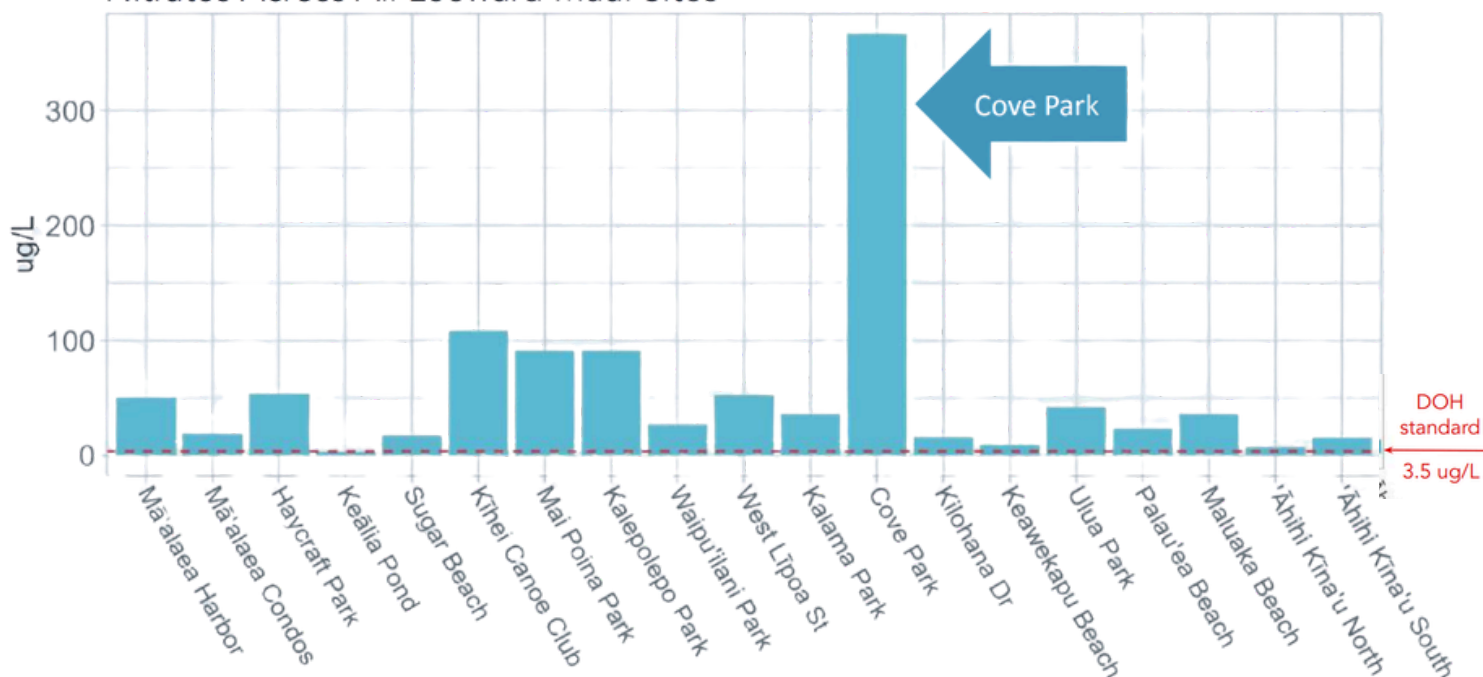
Nitrates Findings

Nitrate levels often exceed DOH standards, with Cove park at 100x the standard.

Elevated nitrate levels in leeward Maui are associated with fertilizers and wastewater that seep into groundwater systems and emerge through springs on the ocean floor.



Nitrates Across All Leeward Maui Sites



New Finding: Salinity Levels

Salinity is rising coast-wide.

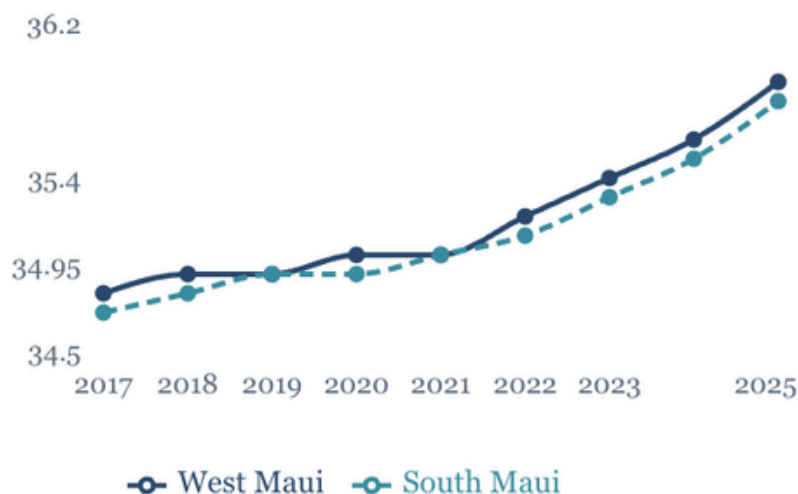
Salinity has increased at nearly all monitored sites, a new finding linked to 2025 being the driest year on record for Maui since 1920.

Notably, water temperatures show no corresponding increase, suggesting drought rather than warming seas is driving the change.

SALINITY · 2017–2025

A New Signal: Rising Salinity Coast-Wide

Average salinity (ppt) across West and South Maui monitoring sites. The shift accelerates from 2022 onward.



Looking Ahead

What's Next

The Mā'alaea and Haycraft sites are being tracked as a baseline ahead of planned wastewater treatment upgrades, creating a direct opportunity to measure whether infrastructure investment translates to cleaner water.

Hui O Ka Wai Ola is also expanding to 8 miles of southern Moloka'i coastline for the first time, extending community-driven monitoring across Maui Nui.

As the dataset grows, MNMRC and partners will use it to prioritize intervention and measure whether mitigation efforts are making a difference underwater.



Financial Summary



Financial Stewardship 2025

\$925,690

TOTAL SUPPORT & REVENUE

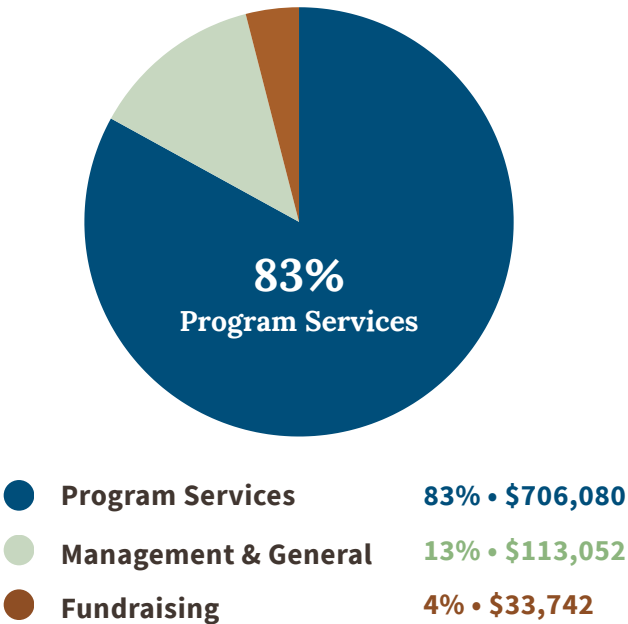
\$852,874

TOTAL EXPENSES

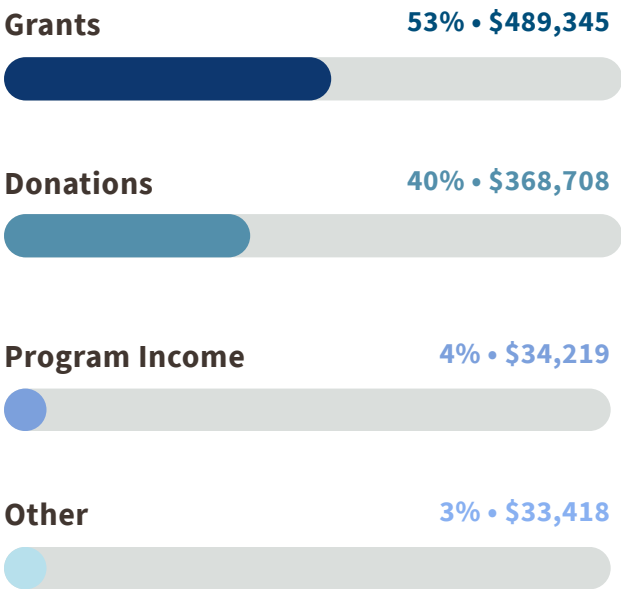
83%

INVESTED DIRECTLY INTO
PROGRAM SERVICES

How Funds Were Invested



Where Support Came From

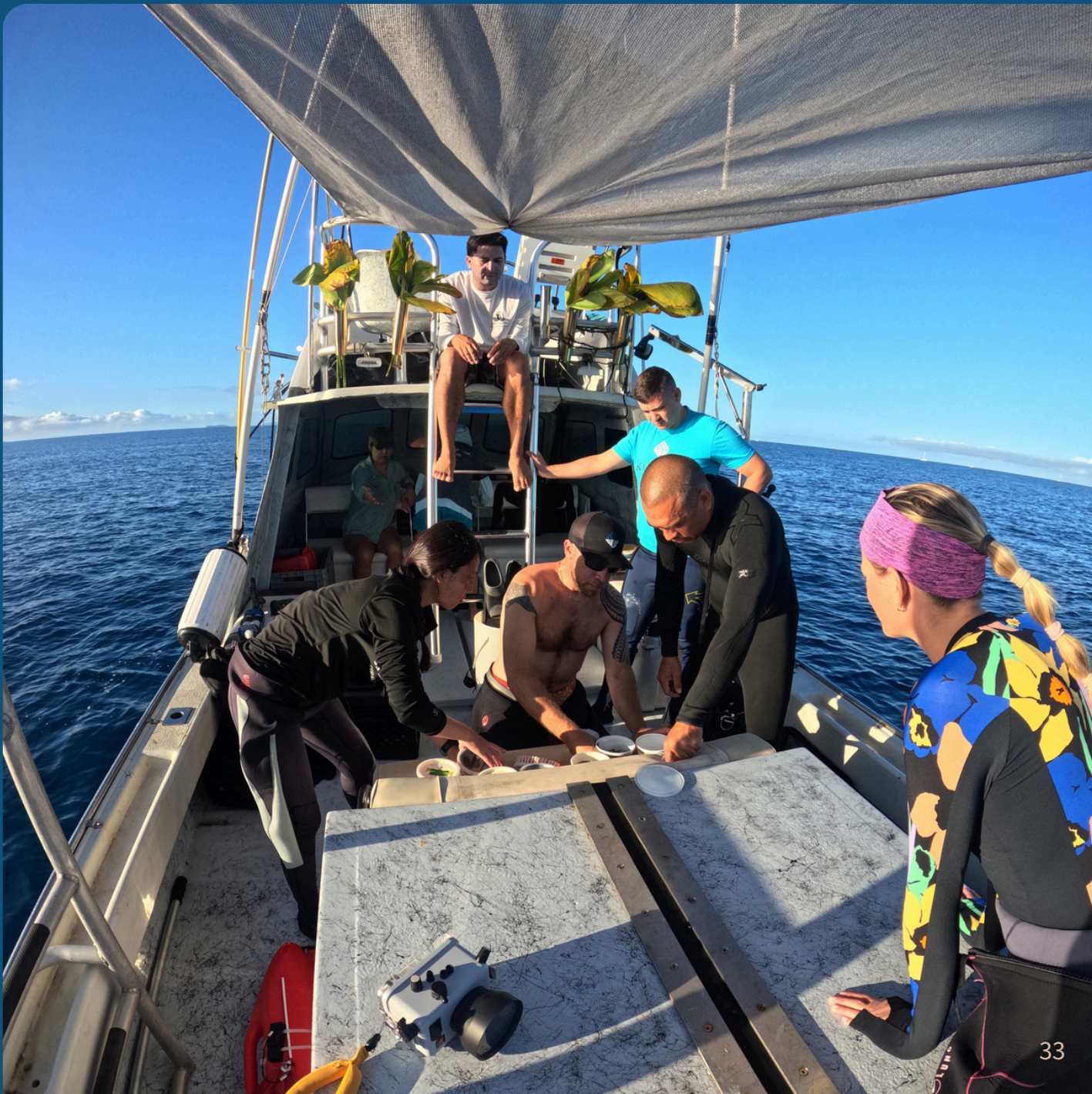


Three-Year Financial Snapshot

	2023	2024	2025
Total Support & Revenue	\$1,115,325	\$1,116,265	\$925,690
Total Expenses	\$1,103,015	\$1,041,627	\$852,874
Year-End Net Assets	\$663,940	\$728,578	\$811,394

Financial information is drawn from MNMRC’s audited 2025 financial statements.
Percentages may vary slightly do to rounding.

Acknowledgements



To Our Sponsors and Partners: Mahalo Nui Loa!

Reef Friendly Landscaping

Kaulunani / DLNR · Native Nursery ·
Rotary Hawai'i · Marriott's Maui Ocean
Club · Maui Fire Dept · Treecovery

Limu Monitoring

County of Maui Environmental
Protection & Sustainability Division

Reef Restoration

Kuleana Coral Restoration · DLNR
Division of Aquatic Resources · County
of Maui EP&S · Kosasa Foundation

Reef Monitoring

National Fish & Wildlife Foundation ·
County of Maui EP&S · DLNR DAR ·
HIMARC

Sponsors

County of Maui Environmental Protection & Sustainability Division · National Fish
& Wildlife Foundation · Napili Bay & Beach Foundation · Hawai'i Community
Foundation · Wailea Community Association · Kosasa Foundation · Rotary District
5000 · Ka'anapali Ocean Resort Foundation · Maui Ocean Center · Kai Aloha Supply
· Duke's Maui · Maui Skydiving

Partners

The Nature Conservancy · State of Hawai'i DLNR DAR · West Maui Ridge to Reef
Initiative · Hawai'i State Department of Health · Hawaii Tourism · Maui Tourism ·
Trilogy Sailing · Pacific Whale Foundation · County of Maui · Lahainaluna · Hawai'i
Monitoring and Reporting Collaborative · Hawaiian Islands Humpback Whale
National Marine Sanctuary



'A'ohe hana nui ke alu 'ia

No task is too great when we work together.

Protecting Maui Nui's reefs is a shared effort. Every gift, partnership, volunteer hour, and act of care strengthens our ability to turn science into action and create lasting change from mauka to makai.

Together, we can help ensure healthier reefs and coastal waters for generations to come.

PROTECT MAUI NUI'S REEFS



SCAN TO GIVE

mauireefs.org/donate

Mahalo for sharing in this kuleana

