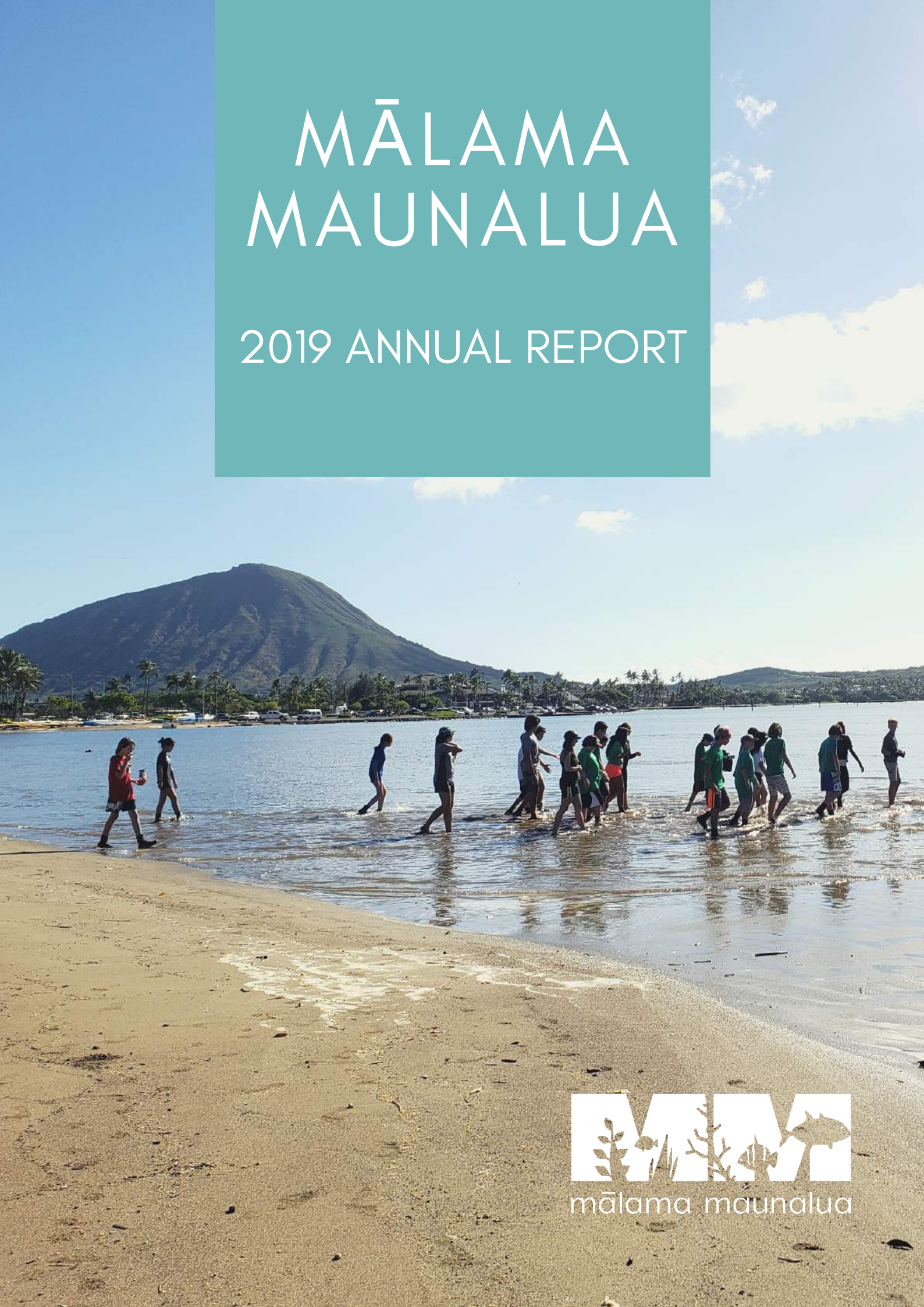
MĀLAMA MAUNALUA

2019 ANNUAL REPORT



mālama maunalua

A LETTER FROM THE EXECUTIVE DIRECTOR

Aloha mai kakou,

Mahalo for taking the time to read about what we, our partners and community achieved in 2019. As Executive Director, my hope is to have an organization that constantly improves upon the previous year, taking increasingly bigger steps as we progress towards a healthy and resilient Maunalua Bay. In 2019 we set a mark that was incredibly high, but through hard work and the astonishing support of partner organizations and community members, we surpassed it. Please review the past year with us and I hope you will agree with how far we've come.

An example of how far we surpassed expectations is provided by our flagship Huki program. In 2019, we welcomed the largest number of volunteers in years. It was a 25% increase over our 2017 numbers. In 2019, we exceeded the 2018 totals by a whopping 33%!

But that was just the tip of the iceberg. We also:

- Planted 285 trees in the Maunalua region to reduce runoff, clean our air, and reduce urban heat;
- Undertook one of the largest water quality assessments in state history, collecting samples from 180 locations in the Bay;
- Proved the potential for a motorized vacuum to remove algae in Maunalua Bay, and successfully deployed it to clear areas too deep for Huki events;
- Educated 64 school and youth groups about the ecological health and history of Maunalua Bay; and
- Hosted 21 interns through the course of the year; 11 in the summer alone.

By quantitative measures, we greatly exceeded our expectations and the incredible success of previous years. Qualitatively we were also successful. We connected aspiring environmental researchers with experts in the field, inspired hundreds of youth at events and school visits to value and care for their environment, and created symbiotic working groups where youth, government, community, businesses, and non-profits all work together more cohesively and effectively.

Can you tell that I'm excited about last year? I am even more enthusiastic about the partnerships and projects we launched that will continue into 2020 and beyond. From planting climate resilient coral, to addressing runoff, I know you share our enthusiasm. Mālama Maunalua is a community led organization, and as you read the following report please take personal pride in the success you see.

As always, I am awed and grateful that so many people commit their time and resources to restoring Maunalua Bay, and given the direction we are headed, You, our supporters, are what makes me optimistic about the future. I look forward to seeing you in 2020!

Mahalo nui loa,

Doug Harper
Executive Director

YEAR AT A GLANCE

COMMUNITY

2,934
VOLUNTEERS

8,800+
VOLUNTEER HOURS

2,230
STUDENTS

71 ORGANIZATIONS PARTNERED FOR HUKI

64 SCHOOL & YOUTH GROUPS EDUCATED

57
HUKI EVENTS

47 EDUCATIONAL HUKI EVENTS

21
INTERNS HOSTED

>50 YOUTH MENTORED

YEAR AT A GLANCE

ECOLOGICAL

20 ACRES
OF HABITAT MAINTAINED

75,498 POUNDS
OF INVASIVE ALGAE REMOVED

>180 WATER QUALITY LOCATIONS SAMPLED

285 TREES PLANTED IN OUR REGION

414
10X10M PLOTS SCIENTIFICALLY MONITORED

ECOLOGICAL & SCIENTIFIC ACHIEVEMENTS

Mālama Maunalua made significant strides in better understanding the health of Maunalua Bay, and undertaking actions to improve it. Actions range from the social, to the physical, to the chemical, and are providing a clearer picture of how changes are occurring, and what can be done to make those changes positive.

Arguably the **largest water quality measuring initiative in state history** was completed in August in Maunalua Bay. Mālama Maunalua, in partnership with The Nature Conservancy and the University of Hawai'i, took samples from 180 locations across the bay. Nearshore, offshore, surface, and benthic locations were sampled, covering everything from turbidity and pH, to more cutting edge, like DNA and pharmaceuticals. In 2020,we will hold public events to share the results. The data we collect from this initiative will give us a better picture of the current state of the bay, and the potential sources for pollutants.

In addition to the water quality sampling study, we continued our partnership with the Pacific Islands Ocean Observing System (PacIOOS) - the leading marine observation organization in the region. In 2018, we **deployed a water quality sensor** in Maunalua Bay, and in 2019 two more were deployed in key locations in the bay to cover data gaps.

Helping supplement the work is our partnership with Surfrider's Blue Water Task Force. That partnership coordinates volunteers and supporters to take water samples to help **better understand the bacterial content** of the Bay. Mālama Maunalua staff and partners are the primary samplers in Maunalua Bay.

Between the study in August, the new sensors, and the bacterial studies, **our understanding of the Bay's chemistry is increasing significantly**. We are learning more, becoming more targeted and efficient, and taking steps to have a greater impact!

A DEEP DIVE

This year, we officially launched the AlgaeVac!

The State of Hawaii Division of Aquatic Resources (DAR) used to great effect a vacuum system to remove algae in Kaneohe Bay. But, for years, Maunalua Bay was seen as too shallow, and too rocky to utilize the vacuum. The Mālama Maunalua team started working through the issues identified as potential problems. The biggest issue was the depth. The original SuperSucker, as it was called, operated on two large barges. The barges would be far too large for shallow Maunalua Bay. With equipment donations from DAR, and kayak donations from Go Bananas, volunteers, Ralph Dykes and Leighton Taylor completely redesigned the platform to not only be operated on shallow waters, but to be transportable via pickup truck.

With DAR researchers and our staff watching, the moment of truth revealed that not only did the newly designed rig work, but through careful operation we could minimize the risk of rocks to the vacuum motor. Since that date, **a team has been operating the AlgaeVac in areas too deep for the public Huki.** We are therefore able to expand the area of our restoration and reduce the extent of invasive algae.

OUTREACH & THE COMMUNITY

Mālama Maunalua was active in spreading the word about our mission, what people can do, and the state of Maunalua Bay. We participated in **over a dozen outreach events that were attended by thousands of people**. We hosted a month of presentations at Hanauma Bay's weekly seminar, where the talks provided the community an opportunity to hear the latest science and management related to Maunalua Bay, and to interact with the researchers directly.

Our Huki greatly exceeded our expectations. While we removed an incredible 66,918 lbs of algae, a major achievement was the massive increase in volunteers. 2018 saw the largest number of volunteers we had seen in years, and in 2019 we exceeded that total by 33%! We hosted an incredible 2,934 volunteers, which equates to over 8,800 hours of community service!

The increase in volunteers is helping us turn the tide on nearshore restoration. In years' past, we could pick about any location in the Paiko Restoration Area and it would have had more than enough invasive algae for a huki. What we are finding now, however, is that we often have to go to back-up plots because of the increase in native species (we only pull from places with low native populations). This is a great sign that the natives are coming back, and even more exciting is we are finding species of algae people have not seen in the area for years.

NEXT GENERATION

Finding work as a new professional can be challenging. Our Community Huki Leadership positions are a great option for new professionals to work in the field, learn communication and leadership skills, and make money while establishing themselves.

Daniel Kinzer is currently completing a Masters of Science degree in the field of biomimicry where he's concentrated on marine ecology and innovative solutions to climate change and ocean-related challenges. For the past 3 years, Daniel has served as the Director of the Luke Center for Public Service at Punahou School in Honolulu, Hawai'i, and as a Teacher Fellow for National Geographic and Ecology Project International. Dan joined our team as a community huki leader to help promote a sense of place for science, conservation, and education within the community.

Sean Tangco, a Lecturer in Cultural Anthropology at the University of Hawai'i, West O'ahu, joined our team as a community huki leader with the hopes to inspire positive social change by improving education, building community, and leveraging technology.

Madeline Schmidbauer, a Master's student in the Marine Biology program at Hawai'i Pacific University, has been an avid volunteer at community huki events for over a year. Having successfully led and coordinated service trips with HPU's Marine Biology Club, Maddie emerged as a natural commuity leader for our huki program. It is her hope that working with Mālama Maunalua will help her play an essential role in guiding the community to aid in the habitat restoration of Maunalua Bay.

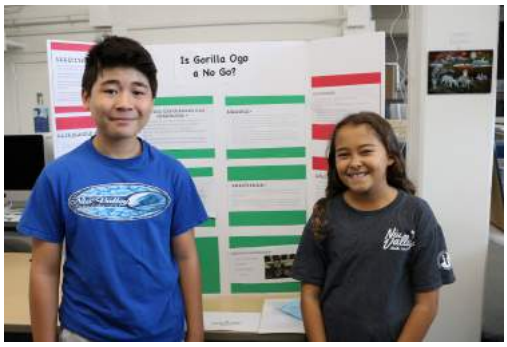
Jason Preble is a Ph.D. Candidate in the Biosphere Informatics Lab, Graduate School of Informatics at Kyoto University in Japan who is currently studying Okinawa's endangered forest bats. Originally from Waihe'e, O'ahu he has recently returned home and is happy to be working in environmental conservation again at the O'ahu Army Natural Resources Program and Mālama Maunalua.

NEXT GENERATION

Our tree planting project is a great demonstration of the mutually beneficial relationship between Mālama Maunalua and the next generation of environmental stewards. Two years ago, we mentored students from the University of Hawai'i on identifying the most significant terrestrial contributors to poor water quality in Maunalua Bay. After identifying the areas, the students proposed the best solution for mitigation: planting trees. The data they provided guided our next steps. We secured funding, and this past summer **planted 285 trees**, targeting those locations identified by the students. The students benefited by working on a real-world problem, we benefited by receiving valuable data to help with restoration, and the community received free trees which not only helps with runoff, but lower temperatures, absorb carbon dioxide, and provide bird habitat. A win for everyone!

We continued working in classrooms to share the science, culture, and history of Maunalua Bay. In 2019 we successfully tested a new format where **Community Huki Leaders, staff, and research partners presented to students at Niu Valley Middle School** about their research, and career opportunities in the sciences. The presenters were all young professionals or graduate students who talked about what they are studying and the details of their job. It helped illustrate to the middle school students options for pursuing work in the sciences - a critical need for the world and Hawai'i.

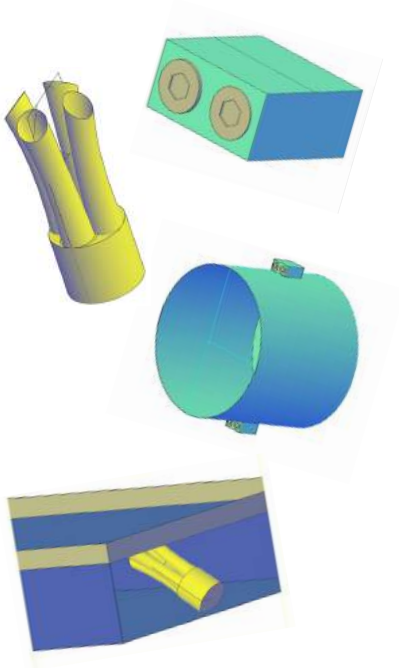
From our event at Niu Valley Middle School, multiple students were inspired by our work and reached out to us to help shape their science experiments for the state science fair. Two in particular, Faith and Brennen, conducted a study on different methods to utilize gorilla ogo as compost. We helped answer basic questions, and they ran with it. Their project, Is Gorilla Ogo a No Go, placed an impressive third, and they are now preparing for the state competition!



> "It was great! OH MY STARS! Your team of researchers are AMAZING...I am so honored that your team chose our school to come and it was WOW."
>
> NIU VALLEY MIDDLE SCHOOL TEACHER

We have continued to be a leader in mentoring the region's youth. In addition to **hosting 21 interns this year** - 11 in the summer alone - we helped 4 K-12 students with their science projects, and we **mentored over 50 University of Hawai'i, Hawai'i Pacific University, and Kapiolani Community College students** in conducting research in the Maunalua Bay region. It is a service that helped the community in 2019 by enhancing their educational experiences, but has the additional benefit to the community of creating students and young stewards that will be better informed and better committed to helping improve the health of the bay.

A DEEP DIVE



Mālama Maunalua had an extremely unique and exciting project in 2019, demonstrating our service as a hub among the public, government, researchers and schools. We **hosted a hackathon at the Hawaii STEM Conference**, a conference focused on science, technology, and environmental issues. A hackathon is a 24-hour challenge where students are presented with a problem to solve. We partnered with the State of Hawai'i Division of Aquatic Resources (DAR) to present to the students the challenge: **designing a platform on which to grow branching coral**. DAR grows non-branching coral on concrete pyramids in their labs to then transplant to the ocean, thus helping restore the reef. They have not figured out a way to do that with branching corals. The 6 student teams were presented with this problem. They were taught about coral biology and needs, but had to figure out basic engineering and fluid dynamics for such a platform and then design a mold using 3-D software that could support the coral. And they had to do it all in 24 hours!

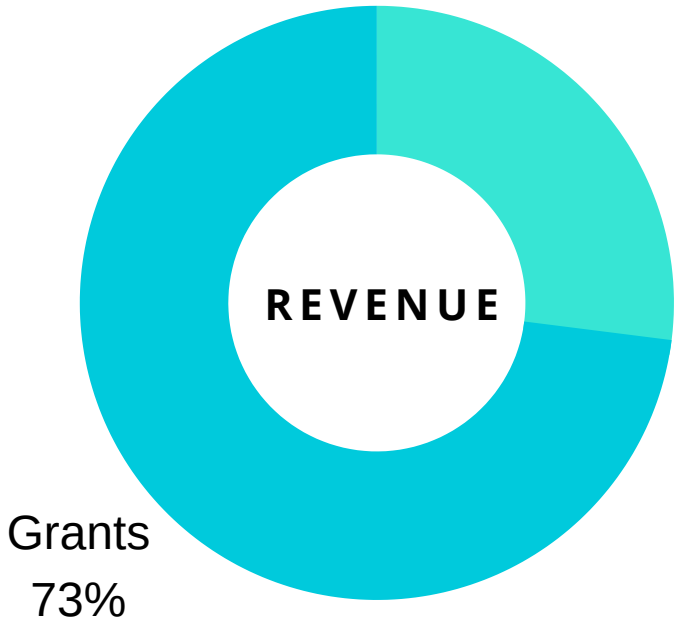
The results were amazing, and the exciting part is that the winning team, a group of seniors at HP Baldwin High School, are now seeing their design through to completion. They are 3-D printing their design, pouring the concrete mold, and handing off the completed mold to DAR to test in their tanks. The lessons the students are learning from this project are tremendous, DAR is getting additional brainpower to solve a problem they have struggled with, and we all benefit because some day we may be snorkeling over reefs with branching coral saved, in part, by these students' innovative design!


PC: Dr. Dave Gulko


PC: Smithsonian Museum

FINANCIAL REPORT

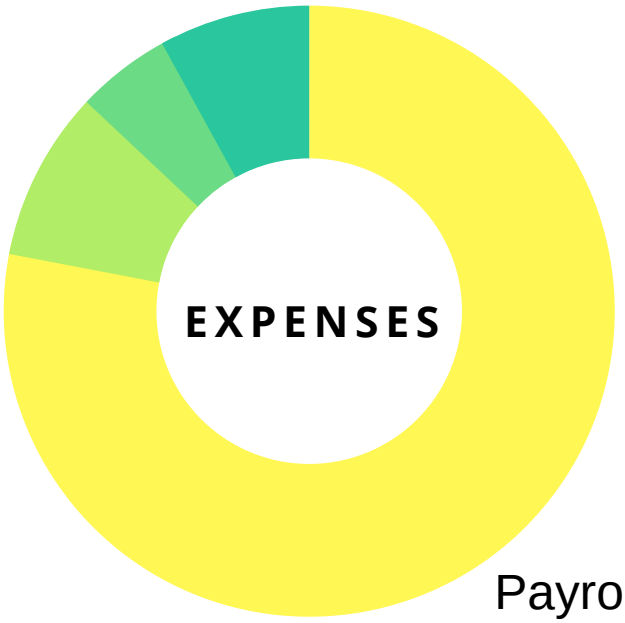
TOTAL REVENUE
$601,000



Donations
27%

Grants
73%

TOTAL EXPENSES
$425,000



Other
8%

Equipment/Supplies
5%

Contractor
9%

Payroll
78%

MAHALO NUI LOA

TO OUR SUPPORTERS, CONTRIBUTORS, AND SPONSORS

We are thankful for every supporter, and would like to single out the following donors who have helped make our success possible.

Mano - Shark ($25,000 or more)

Atherton Family Foundation
City and County of Honolulu Grant-In-Aid
Growney Family Fund
D'Olier Family Foundation
State of Hawai'i Grant in Aid
Jennifer Taylor and Paul White

He'e - Octopus ($2,000 - $4,999)

Graham Burns Charitable Fund
Amy and David Monk
Mike and Judy Pietsch Jr.

Kohala - Whale ($5,000 - $24,999)

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Honu - Turtle ($500 - $1,999)

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Nai'a - Dolphins (Up to $499)

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Ed Schatz
Chelsea Tanaka
Laura Thompson
Ronald Todd
Truist
Katherine Ward
YMCA

Our Vision

A Maunalua Bay where marine life is abundant, the water is clean and clear, and people take kuleana in caring for the Bay.

mālama maunalua

Mālama Maunalua
7192 Kalanianaole Hwy. Suite A143A
Honolulu, HI 96825

Mahalo!

As always, Mālama Maunalua would not be what it is without the tireless efforts of Ralph Dykes. No member of the community volunteers more time and energy to helping us study and understand the Bay's ecology, especially as it relates to invasive alien algae. Mahalo for all that you do, Ralph, you are a model for us all!

Special thanks to Alex Awo, who provided most of the photos for this report.