

Ka Pili Kai

University of Hawai'i Sea Grant College Program • Vol. 37, No. 2 • Summer 2015

Hanauma Bay Education Program



Since
1990
UH Sea Grant

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In this issue of *Ka Pili Kai*...

The year 2015 is very special for the University of Hawai'i Sea Grant Hanauma Bay Education Program as it marks the 25th anniversary of providing public education to all visitors at Hanauma Bay Nature Preserve. In this issue of *Ka Pili Kai* we celebrate this milestone and highlight the people with vision who embraced the concept that public education was needed to ensure this unique and special place was preserved for future generations. The education program's successful strategies include engaging the community through stewardship, promoting volunteerism and creating a culture of marine conservation. UH Sea Grant is proud to have been part of an unprecedented collaboration among community groups, state and local government, and non-governmental organizations in this effort.

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The Hanauma Bay Education Program continues to enhance appreciation and promote understanding and stewardship of Hanauma Bay and Hawai'i's marine environment through public education.

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Hawaiian Green Sea Turtle by Gavin Iwai.

Photos courtesy of Gavin Iwai, Anne Rosa, and the Hanauma Bay Education Program.

UH Sea Grant Hanauma Bay Education Program



The Hanauma Bay Nature Preserve is world-renowned for its tiny but spectacular crater-formed marine park. It is one of Hawai'i's most popular beaches, drawing an annual visitor total of close to 800,000. The primary attraction is the bay's easily accessible coral reef with its abundant marine life situated in clear, warm waters. However, for those who are intimately familiar with its history, Hanauma Bay symbolizes more than just its beautiful natural environment. It has come to represent a long and difficult struggle between the expanding visitor industry and the need to conserve the natural resources of the Hawaiian Islands, which is replicated in many coastal areas throughout the world to this day. The model partnership between the administrative leadership of local government and services of state government, community groups, and non-governmental organizations seen today serves as a prime example of promoting marine conservation through education.

1990

UH Sea Grant established an education program at Hanauma Bay.

2.5 Million

The number of visitors to Hanauma Bay in 1990.

Sea Grant Gets Involved

Educating Our Future



The involvement of the University of Hawai'i Sea Grant College Program (UH Sea Grant) at Hanauma Bay can be tracked as far back as the 1970s, when reef investigations by undergraduate students enrolled in the University of Hawai'i's Marine Option Program (MOP) helped to expand our scientific knowledge. At that time, MOP was administered by UH Sea Grant. By the late 1980s, visitor counts at Hanauma Bay began to reach up to 10,000 **per day** and higher, raising the annual visitor count to over three million. Litter on the beach and underwater became an eyesore, and runoff of sewage effluent from an overused septic system only a few meters from the beach reached intolerable levels. An oily sheen from sunscreen and skin lotion was often visible on the surface of the calm shallow water inside the reef. Such mounting degradation of what formerly had been a vibrant coral reef ecosystem triggered reactions among concerned city and state agencies, O'ahu-based conservation organizations, and private citizens. UH Sea Grant and MOP sponsored a symposium to address these issues. Speakers from concerned agencies and the community shared their expertise about Hanauma Bay from historical, research, and management perspectives. This helped to bring the diverse issues pertaining to the overall health of

the bay to the foreground of public attention, and highlighted the need for public education about the natural resources. Due to this concern, a major outcome was the inauguration in 1990 of a formal environmental education program at Hanauma Bay under the leadership of UH Sea Grant.

The Hanauma Bay Education Program (HBEP) is an important component in changing visitors' attitudes toward the nature preserve and their role as ocean users. The program began as a modest grassroots effort with a desk on the beach, and staff and community volunteers informing visitors about the reef ecosystem. It began with one full-time and one part-time staff member along with about 35 community volunteers. The bulk of HBEP's funding and administrative support from 1990 to 1997 came from UH Sea Grant with grants from both the City and County of Honolulu Department of Parks and Recreation (DPR) and the state of Hawai'i Department of Land and Natural Resources. When funds from the park's admission fee started to come in, the DPR in 1997 was able to underwrite HBEP through a contract with the University of Hawai'i. With the additional staffing and program support, HBEP was able to strengthen and train its volunteer



corps. The community responded to the needs of Hanauma and grew to over 130 volunteers in 2015. Recognition for the efforts of the education program included the nationally recognized Chevron Conservation Award that honors outstanding contributions to conservation of our nation's natural resources, and the U.S. Department of Interior's Volunteer Service Award.

The momentum to improve the visitor experience at Hanauma Bay culminated in 2002 when DPR opened the doors of its new education center to visitors at the Hanauma Bay Nature Preserve. UH Sea Grant staff were part of the advisory and design team during the development of educational features including three dimensional displays, interactive touch screen learning tools, and historical displays that engage and captivate visitors to this unique nature preserve. As HBEP reaches out to everyone who comes to the park with a message of conservation and stewardship, an important



technology learning. The Hanauma Bay Education Program has enhanced its educational outreach to users through an interactive program website, and expanded its social networking to more effectively communicate and share current information about Hanauma Bay to users of all ages. Many visitors to the bay use technology to connect, communicate, and update their information even while at the bay, and technology has helped to increase community involvement.

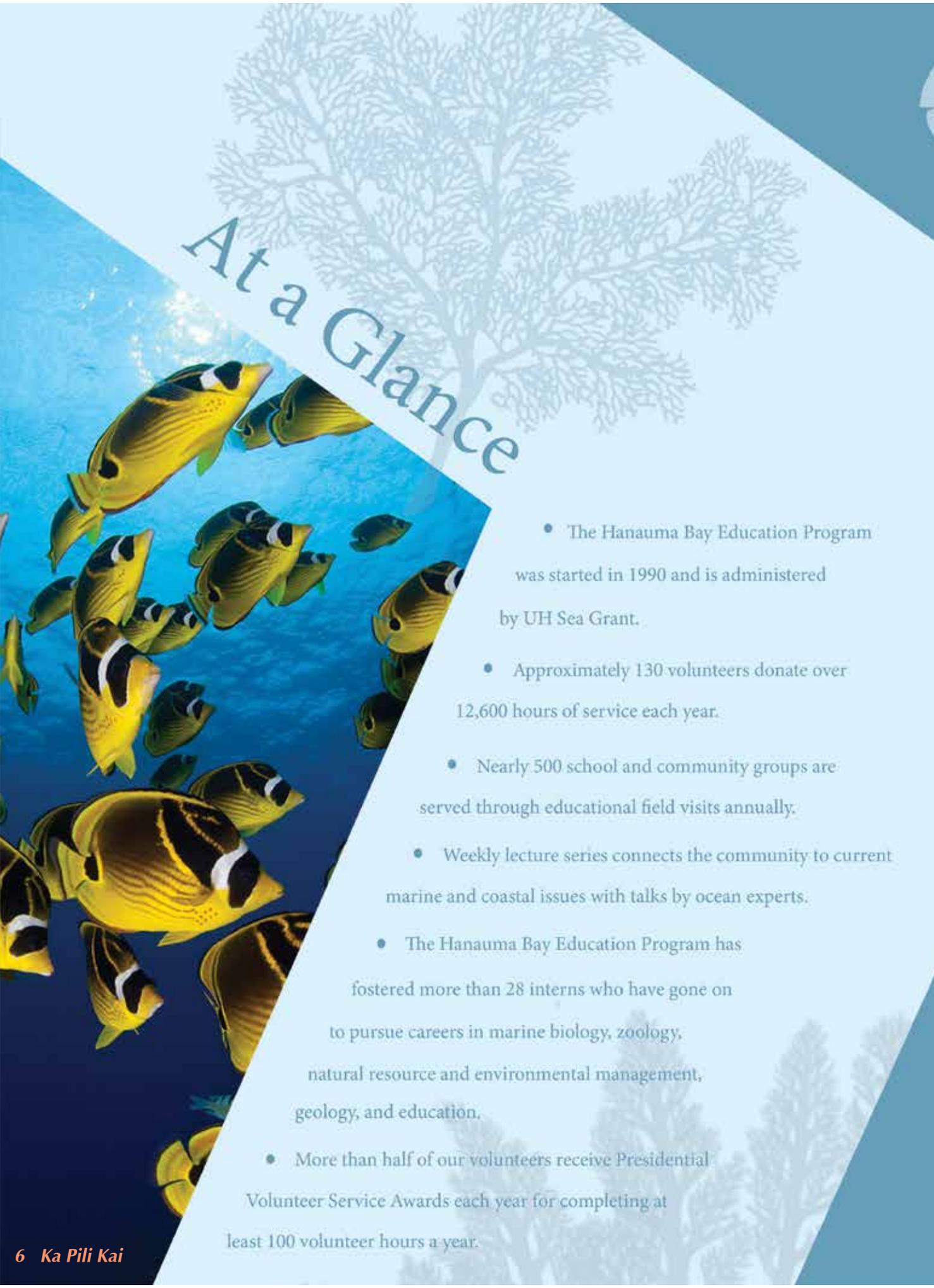


The education programs at Hanauma Bay continue to shine as unique opportunities to communicate and educate thousands of Hawai'i's visitors and residents about their impact on the coastal resources of Hawai'i as ocean users. While it is clear that this expanded knowledge has had a profound impact on the health of Hanauma Bay's ecosystem, this knowledge is also carried with our visitors once they leave our shores, and ultimately, translates into more conservation-minded individuals.

feature is the short mandatory orientation video that provides the entry to the beach and marine life conservation area. Through viewing the video, all visitors are informed of the uniqueness of Hanauma Bay, the enjoyment of the protected habitats, and how they each may reduce their own impact on the reef ecosystems as they enter the waters of Hanauma Bay, lessening their environmental "footprint" for future generations of visitors.

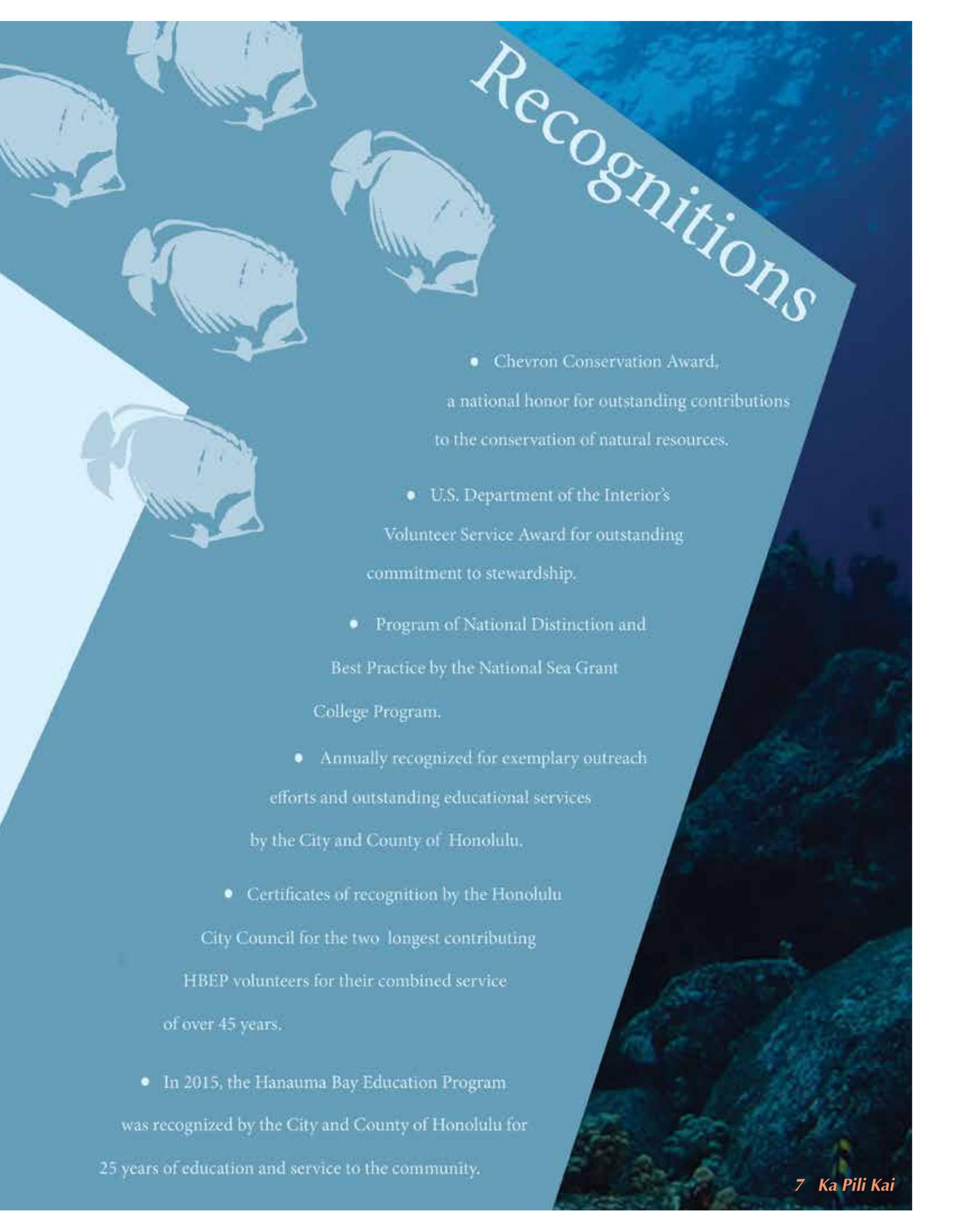
Now, with changes in communication and social media technology becoming commonplace, HBEP is reaching out beyond its park boundaries to share the resources and conservation values of Hanauma Bay through electronic media and





At a Glance

- The Hanauma Bay Education Program was started in 1990 and is administered by UH Sea Grant.
- Approximately 130 volunteers donate over 12,600 hours of service each year.
- Nearly 500 school and community groups are served through educational field visits annually.
- Weekly lecture series connects the community to current marine and coastal issues with talks by ocean experts.
- The Hanauma Bay Education Program has fostered more than 28 interns who have gone on to pursue careers in marine biology, zoology, natural resource and environmental management, geology, and education.
- More than half of our volunteers receive Presidential Volunteer Service Awards each year for completing at least 100 volunteer hours a year.



Recognitions

- Chevron Conservation Award, a national honor for outstanding contributions to the conservation of natural resources.
- U.S. Department of the Interior's Volunteer Service Award for outstanding commitment to stewardship.
- Program of National Distinction and Best Practice by the National Sea Grant College Program.
- Annually recognized for exemplary outreach efforts and outstanding educational services by the City and County of Honolulu.
- Certificates of recognition by the Honolulu City Council for the two longest contributing HBEP volunteers for their combined service of over 45 years.
- In 2015, the Hanauma Bay Education Program was recognized by the City and County of Honolulu for 25 years of education and service to the community.

Volunteering with a Purpose

Ocean Conservation through Education

Service

When you do something you enjoy, it never feels like work.

11,500

Average number of volunteer hours contributed annually.

5.53

HBEP volunteers contribute enough hours annually to equal more than FIVE paid staff employees



Volunteers interact with many visitors throughout the day and answer questions they may have about Hanauma. The HBEP volunteers are ready to help visitors at the beach information kiosk.



Training

Preparing you for service

The volunteer program hosts a training program for new volunteers four times a year. New volunteers learn about the history of the bay, Hawaiian green sea turtles, humpback whales, Hawaiian monk seals, fish, and invertebrates. Upon completion of our training program, the majority of our volunteers serve as Interpretive Guides who promote the appreciation and understanding of Hanauma Bay and Hawai'i's marine life. These docents spend their time answering questions, running the educational video, and staffing the beach information kiosk.



Enrichment

Benefits for our volunteers

The success of the education program is, in large part, due to the commitment and dedication of the program's volunteers. In order to show our appreciation for all of their hard work, the education program plans quarterly activities and field trips such as a behind the scenes tour of the Waikiki Aquarium, a tour of the National Oceanographic and Atmospheric Administration facility, a tour of the Hawai'i Institute of Marine Biology, or a tour of the state of Hawai'i Division of Aquatic Resources' sea urchin hatchery. These activities are meant to benefit our volunteers, who are lifelong learners, by providing a broader range of marine education or other fun activities that may not otherwise be offered to them.

Team Building

Making connections & lasting friendships

The Hanauma Bay Volunteer Program has a dedicated corps of over 130 active volunteers. Most volunteers are O'ahu residents who commute from all over the island and assist the education staff in educating and enhancing the experiences of nearly 800,000 visitors annually. Our volunteers come from a broad range of backgrounds and careers like engineering, art, chemistry, teaching, and law. Their experiences make for a unique group of people who are like-minded in conserving our ocean resources. Volunteers who serve regularly have the opportunity to build valuable friendships with other volunteers, which often grows into strong friendships outside the volunteer program.



Service Learning

Stewardship at the bay

The education program provides service learning opportunities to individuals and organizations that are looking for a more fulfilling experience during their time at the bay. Our program provides in-depth education involving topics such as plant biology, coastal habitats, marine debris, geology, Hawaiian culture, as well as marine conservation. Individuals who express an interest in service learning will be offered classroom learning sessions in addition to hands-on experience in their subject interests. Most service learning individuals are critical thinkers and hard workers with purpose driven goals who come together to conduct stewardship activities at Hanauma Bay.



Serving the Community

Stewardship through Learning

What ocean creatures can I see in Hanauma Bay?

What are Hanauma's conservation rules?

How can I help to protect the living reef?

How was Hanauma Bay formed?

Park Education

School and community groups

An educational orientation with the Hanauma Bay Education Program provides learners with answers to questions about Hanauma Bay's marine life and stewardship, as well as additional information about the Hanauma Bay Nature Preserve. The education program is dedicated to serving Hawai'i's school and community groups, as well as visiting groups from many parts of the world.

Upon their arrival to the Hanauma Bay Nature Preserve, scheduled groups receive an educational orientation from a member of the education team who is eager to share information about Hanauma's coral reef ecology, preservation, and more. Groups may request to customize their orientation sessions to include specific information according to their learning interests.

Various local schools participate in scheduled group visits hosted by the education program, many of which return every year for a memorable trip to the bay. Lessons that address learning standards for local public schools are designed to use Hanauma Bay as a compelling setting for achieving learning goals. Students have the opportunity to learn important concepts in a fun, hands-on learning environment. Lessons can include marine ecology, fish and invertebrate identification, geology of the Hawaiian Islands, Hawaiian traditions of marine conservation, and environmental stewardship.



2,500

The number of educational orientations that were conducted to school and community groups, as well as visiting groups from many parts of the world over the past 15 years. Orientations cover different topics such as coastal plants, oceanography, geology, and endangered species.



"Thank you for showing us around Hanauma Bay and teaching us the amazing history. Some things I learned were: you shouldn't walk on the reef or feed the fish...from now on I'll follow the rules and motivate others to follow them too! This day was awesome!" - Niu Valley Middle School student

Perpetuating Hawaiian Knowledge

Learning from our ancestors

Knowledge that has been passed on through the generations can help us to be better stewards of the ocean today. The Hanauma Bay Education Program strives to build partnerships with local schools, community groups, and educators. Teaching about Hawaiian practices and traditions having to do with Hanauma and the ocean provides a connection to its history and perpetuates Hanauma's identity as a storied Hawaiian place. By teaching the history of Hanauma Bay through its place names, we keep alive valuable knowledge about this famous landscape.



Hawaiian Place Names map is available as an online learning resource:
<http://hbep.seagrant.soest.hawaii.edu/hawaiian-culture-0>

Technology and Learning

Bringing the place to the people

The education program has created learning resources available online that enhance learning about aspects of the bay including geology, Hawaiian place names, and marine life conservation.

Learners can find out more about the formation of Hanauma Bay and the geology of the Hawaiian Islands by watching videos on the Hanauma Bay Education Program website that were created by the Leeward Community College Educational Media Center Video Production Unit as a virtual field trip.

Students can learn about Hawaiian traditions and marine life conservation before their visit to the bay via our online lesson. This lesson includes information about fish life cycles and the Hawaiian practice of kapu and fish conservation. This lesson is designed to address learning standards for Grades 3-5, and contains valuable information for all ages.

The use of educational technologies for the Hanauma Bay Education Program continues to expand and address a diversity of learning needs and styles.



Geology Virtual Fieldtrip

<http://hbep.seagrant.soest.hawaii.edu/hanauma-geology>



Hawaiian Conservation Pre-Visit Lesson

<http://hbep.seagrant.soest.hawaii.edu/school-programs>

Outreach Program

Resources for the Community

Educational Lecture Series

Connecting science and society

In addition to the Hanauma Bay Education Program providing unique educational experiences to millions of visitors to the Hanauma Bay Nature Preserve, the outreach program provides quality learning opportunities for the local community that are free of charge through a weekly educational lecture series and public events. Each week, members of the community convene to listen and learn about the latest research in Hawai'i from university researchers, graduate students, resource conservation managers, and world-renowned scientists. These presentations began in 2000 as a once-a-month evening program at the Hawai'i Kai Public Library. Since then, the educational lecture series has flourished into a weekly series held within the state-of-the-art visitor center at the Hanauma Bay Nature Preserve that opened in 2002.

Our weekly series gives researchers an opportunity to communicate their science to the general public, conservation managers a venue to build support for their research campaigns, and the community direct access to some of Hawai'i's leading researchers and community organizations. The ultimate goals of the lecture series are to promote stewardship, ownership, and a thorough understanding of Hawai'i's fragile marine resources.



540+
The number of speakers who have shared their science at HBEP's weekly community outreach lecture series since 2000.

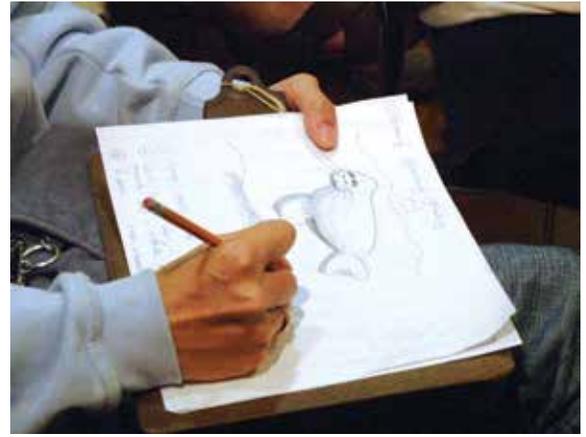
Community Outreach Events

Different ways science works

Additionally, the outreach program coordinates community events with educational activities and crafts for all ages. Over the course of 2008-2010, the UH Sea Grant Hanauma Bay Education Program hosted summer evening events called Lei Ko'a. The HBEP invited government agencies and community organizations to provide both residents and visitors alike the opportunity to learn about Hawai'i's long-standing connection to the sea, and ensure a healthy productive future for marine protected species and resources. A few of the themes that were covered included Hawai'i's Rich Ocean Culture: Lessons from the Natural World, Exploring Ocean through Art, Managing Marine Resources: Key to a Healthy Productive Future, and Marine Protective Species of Hawai'i.

The Hanauma Bay Education Program continues to design new ways to promote interactive learning through educational activities and community events. Some of the topics include Fish Form & Function which shows the hydrodynamics of fish, and PuriTee which is a low-cost, innovative way to remove micro-plastics from sand. These community events are a great way to introduce people to Hanauma Bay and the marine environment. It is also a large part of the outreach program's initiative to connect science and society. As technology has continued to expand our capabilities to educate, HBEP has created new ways to communicate science and conservation messages to people around the world.

Hanauma's fish app is available to download from iTunes, we publish an educational podcast, and share fun facts about marine life on all of HBEP's social media platforms. Follow us and stay connected with HBEP!



Find us on Facebook and Twitter!

 *HanaumaBayEducation*

 *HanaumaOutreach*

Get the *Hanauma Fish* iPhone app! 

www.hanaumabayeducation.org



Research at the Bay

The Next Generation of Conservation Leaders

Building Capacity

Student internships & academic success

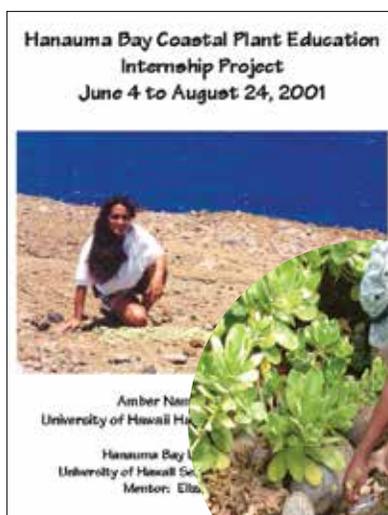
The creation of HBEP's educational materials that have facilitated learning, stewardship, and established a sense-of-place stems from many years of student internships hosted by HBEP and through partnerships with many organizations within the University of Hawai'i system. Student research internships and projects have helped HBEP provide knowledge of the bay's geological history and its cultural history to visitors around the world.

Sense of Place

Stories passed down through generations, Hawaiian legends, and the history of Hanauma Bay from a Hawaiian point of view were examined in order to preserve the bay's history, increase appreciation, and promote sustainability of the bay for years to come. Since Hawaiian culture is deeply embedded in oral traditions, understanding this ancestral insight has given the bay a sense of place that is unlike anywhere else in the world.

HBEP Partnerships

- University of Hawai'i (UH) at Mānoa
- UH Marine Option Program
- UH Hawaiian Internship Program
- Kapi'olani Community College
- UH Center for Microbial Oceanography: Research and Education
- The Nature Conservancy
- Global Challenge Exchange Program

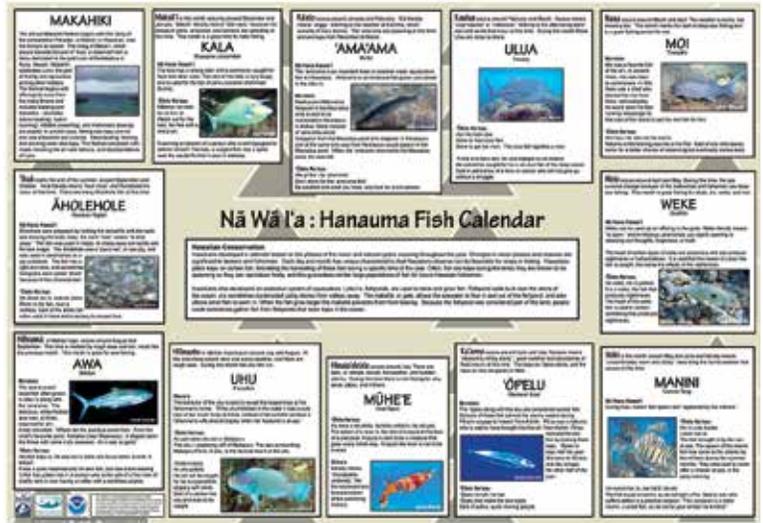


In addition to exploring the bay's cultural significance, student research internships and projects have also investigated the bay's geology, flora, and fauna. Approximately 40,000 years ago, volcanic eruptions from beneath the ocean formed a crater, which is known today as Hanauma Bay. Over time, coastal plants started to colonize the volcanic rock, and a vast array of research has focused on the ethnobotanical, cultural significance, ecology, adaptations, legends, scientific uses, cultivation techniques, and the status of the endangered species of Hanauma Bay's coastal plants. A highly endangered and endemic species of coastal plant at Hanauma Bay is *Marsilea villosa*, which is also known as 'ihi'ihilauākea, is in danger of extirpation due to a number of threats. Through a summer internship, HBEP proposed a stewardship plan to address these threats to 'Ihi'ihilauākea.

Cultural Significance of Marine Life

I'a (Fish) investigations

There are over 100 species of fish in Hanauma Bay, of which about 20 percent are endemic to Hawai'i. Similar to the cultural significance of coastal plants, fish were very important to Hawaiians. Certain fish species had legends and specific cultural uses. To sustain fish populations, Hawaiians created a calendar that linked moon cycles to various fish spawning seasons. This assured that fish populations were managed sustainably.



Invertebrate animals also have Hawaiian cultural purposes and uses. Students investigated the commonly sighted invertebrate species, the day octopus or he'e maui. Hawaiians believed that the octopus was a physical representation of Kanaloa, one of the four main Hawaiian gods. Other invertebrate species that were investigated include various coral species, sea urchins, sea cucumbers, and crustaceans.



Na Pua Hanauma

Our graduates

Engaging university student participation in research and outreach activities has been a way to open up opportunities for careers in marine and coastal science and natural resource management. Through their participation in the education program, students are able to apply their academic studies and gain knowledge and experience as they assist in providing quality education to Hanauma Bay's visitors. They are an important component of HBEP. As of this year, 41 students that were hosted by HBEP have earned university degrees in the fields of coastal resources management, marine biology, geological engineering, geography, animal science, health care, education, and literature.



The Next Generation

As of 2015, 41 students hosted by HBEP have earned university degrees!

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[http://seagrantsoest.hawaii.edu/publications/Ka Pili Kai](http://seagrantsoest.hawaii.edu/publications/KaPiliKai)

or call 808-956-7410 for more information.

<http://seagrantsoest.hawaii.edu>



Hanauma Fish app on iTunes! Coming soon to Google Play.

Explore Hanauma Bay with UH Sea Grant's digital fish guide! Featuring full color images, names (English, Hawaiian, and scientific), and descriptions of the fishes most commonly viewed by snorkelers and swimmers at Hanauma Bay. Based on UH Sea Grant's top selling waterproof fish book "Snorkeler's Guide to the Fishes of Hanauma Bay" by Dr. John E. Randall.



Get the iPhone app today! Android app coming soon.