

# **Hawaiian Islands Humpback Whale National Marine Sanctuary**

## **2019-2020 Accomplishment Report**



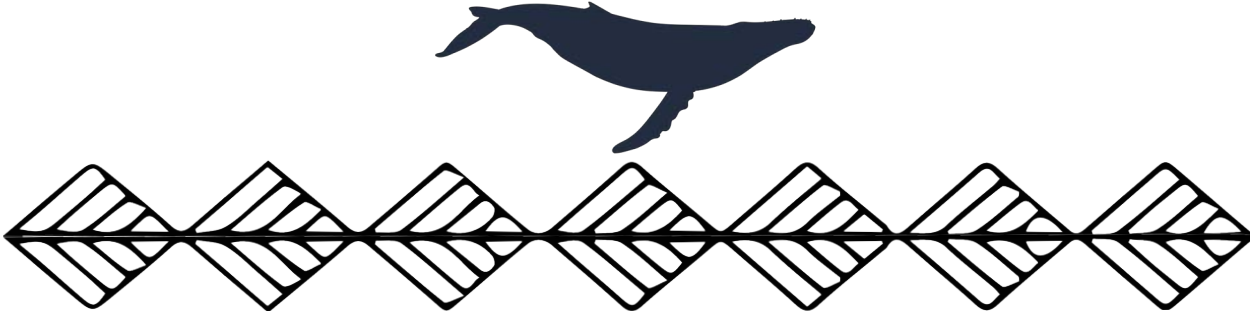
HIHWNMS volunteers and staff pose for a group photo on the front porch of the Kīhei visitor center. (Photo: Ed Lyman/NOAA)



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# INTRODUCTION

Aloha,

Happy World Ocean Month!

This past year has indeed been memorable. The global pandemic has changed our lives. We have all faced challenges and obstacles; I hope that there have also been opportunities. I want to take this time to thank all the staff and volunteers for their hard work and dedication. In these uncertain times, everyone has truly stepped up to carry out the mission and mandate of Hawaiian Islands Humpback Whale National Marine Sanctuary. Volunteers have continued to work for us from their homes, and staff have found innovative ways for us to continue our education and outreach programs virtually.

I do not know how long we will be in this current situation, but I do know that the staff and volunteers at Hawaiian Islands Humpback Whale National Marine Sanctuary will continue to protect and research humpback whales and their calving, nursing, and mating winter habitat here in Hawai'i. We will continue to provide educational resources for teachers and parents. We will continue to mentor young marine scientists. We will continue to partner with community organizations across our islands. And we will continue to share what we learn.

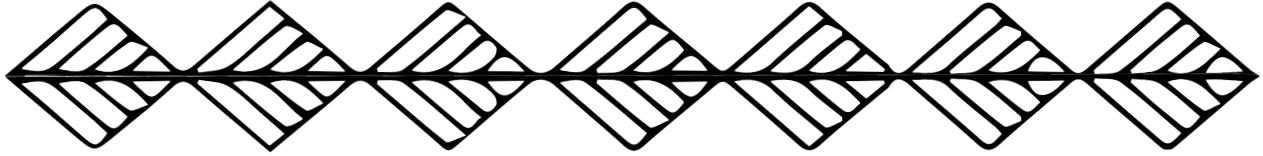
I am pleased to present the Hawaiian Islands Humpback Whale National Marine Sanctuary 2019-2020 Accomplishment Report. This is by no means an exhaustive list of all the projects we worked on this year, but it includes highlights from each of our focus areas: humpback whale research, resource protection, education, and public outreach. To learn more about Hawaiian Islands Humpback Whale National Marine Sanctuary, please visit our website at <https://hawaiihumpbackwhale.noaa.gov/explore/> – or better yet, when we reopen, come visit and volunteer with us at one of our visitor centers on Maui or Kaua'i.

Mahalo for your interest in what we do, and if you are a staff member, volunteer, or partner thank you for your continued support!

Allen Tom  
Superintendent  
Hawaiian Islands Humpback Whale  
National Marine Sanctuary



A humpback whale breaches in Hawaiian waters. (Photo: NOAA, under NOAA permit #14097).



## Staff

### **Maui**

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Amy Eldredge – Maui Program Associate

May Foster – Sr. Fiscal Administrator

Marc Lammers, PhD – Sanctuary Research Coordinator

Ed Lyman – Natural Resource Management Specialist and Regional Large Whale Entanglement Response Coordinator

Patty Miller – Program Specialist

Darrell Peck – Maintenance

LTJG Sara Wood – NOAA Corps Officer

Eden Zang – Research Specialist

### **Kaua'i**

Jean Souza – Program Specialist

### **O'ahu**

Cindy Among-Serrao – Ocean Count and Sanctuary Advisory Council Coordinator

### **State of Hawai'i**

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### **Kaua'i Ocean Discovery**

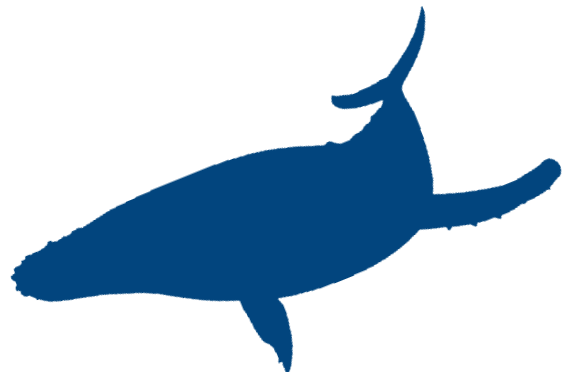
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# NEW KAUA‘I LEARNING FACILITY

Prepared by: Jean Souza – Program Specialist

## **Kaua‘i Ocean Discovery opened to public**

A new partnership for learning was celebrated in a big way on January 11, 2020, with the opening of Kaua‘i Ocean Discovery at Kukui Grove Center in Līhu‘e. The Office of National Marine Sanctuaries, the National Marine Sanctuary Foundation, and Kaua‘i Ocean Discovery Community Advisory Committee, a community-based advisory group, worked collaboratively to plan, design, and operate the new facility.

Kaua‘i Ocean Discovery shares the traditions and knowledge of our ocean connections and inspires stewardship. HIHWNMS and Papahānaumokuākea Marine National Monument are strongly featured, along with the resources and places of Kaua‘i. Kaua‘i Ocean Discovery represents a number of “firsts”—it is the first ONMS learning center located in a shopping mall, and it is the first to be planned and designed in-house. Community and landowner appreciation and support for the new facility and its role as a catalyst for connections and collaboration have been extraordinary.

Since its opening, Kaua‘i Ocean Discovery and its partners – notably the Hawai‘i Division of Aquatic Resources – continue to create new and innovative educational initiatives, including grab-and-go ocean learning kits for families and students during the recent quarantine. The monthly speaker program has migrated to the ONMS education webinar platform with the live-streamed lecture on the whales and dolphins of the Hawaiian Archipelago in April 2020 attracting over 600 attendees.



Hula performance by students and instructors at Kanuikapono Public Charter School & Learning Center at the grand opening ceremony of Kaua‘i Ocean Discovery. (Photo: James Yamamoto)

# COLLABORATIONS

Prepared by: Allen Tom – Superintendent

## **Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS) signs Memoranda of Agreement (MOAs) with two different entities on two islands:**

- a. Maui Nui Marine Resource Council:  
This partnership allows HIHWNMS to work with county of Maui volunteers to initiate water quality monitoring and data collection on Maui, utilizing HIHWNMS' Kihei wet lab facility. The MOA allows for the training of HIHWNMS volunteers and staff as well as other public citizens to collect water quality data at certain key locations around Maui (all within HIHWNMS boundary) to develop a baseline water quality dataset.
- b. 'Ao'ao Nā O Loko I'a (Fishpond Association of Maui):  
This MOA allows for the continued partnership with the local fishpond association to work in tandem with HIHWNMS at the Kihei site to develop educational programs that focus on the traditional Hawaiian fishpond in front of the Kihei facility. The MOA discusses joint projects such as teacher workshops, student visits, and cultural interpretation and training.

## **HIHWNMS produces virtual lecture series**

This April, in collaboration with the Waikiki Aquarium and the Bishop Museum, HIHWNMS developed a virtual lecture series for the public. HIHWNMS expert staff created videos for Waikiki Aquarium's website on topics including research, disentanglement, volunteerism, the Ocean Count, and various home activities for parents and keiki (e.g., how to make a ocean-themed facemask). The series can be found online at <http://www.waikikiaquarium.org/experience/virtual/>.

## **HIHWNMS expanding programs on Big Island**

HIHWNMS will be moving a contractor to Kona this fall, and the sanctuary will expand education and outreach programs throughout the West Hawai'i Island community. The acting sanctuary co-manager (contracted sanctuary planner) secured an office space for the contractor at the Kona office of the Department of Aquatic Resources – a great example of our ongoing federal-state cooperation.



The historic, traditional Hawaiian fishpond, named Kō'ie'ie, fronts the visitor center on Maui and provides a natural classroom for educational efforts. (Photo: Jason Moore)



# SUPPORT

Prepared by: Allen Tom – Superintendent

## **Generous in-kind support and donations**

This past year, HIHWNMS received numerous donations and in-kind support. From the use of an interactive kiosk at the Kaua‘i Ocean Discovery, to the donations of a large, bronze, juvenile humpback whale and a carved wooden whale bench at the Kīhei site, we are forever grateful for this generosity.



Copper whale installation in front of the Maui visitor center. (Photo: Ed Lyman/NOAA)

Additionally, volunteers contributed more than 16,000 volunteer hours from across the state. For example, Rachel Finn volunteered her services as a research assistant for the eighth year, assisting resource protection efforts. In addition to her important role as a highly trained member of the whale disentanglement team, Rachel maintained the entanglement response website, managed HIHWNMS' fluke and monitoring catalogs, and created an app to engage the on-water community in citizen science transect studies.

HIHWNMS is deeply grateful for the monetary donations that came into our donation boxes at our visitor centers. These funds are sent to HIHWNMS' accounts at the National Marine Sanctuary Foundation. Our research, resource protection, and educational outreach programs all benefited this year from the kindness of the interested public.

It is safe to say that we could not do half the things we do at HIHWNMS without the great many hands who have helped us out this past year.



Wooden whale sculpture bench on the Maui visitor center porch. (Photo: Patty Miller/NOAA)

# STATE PARTNERSHIP

Prepared by: Jeannine Rossa – Acting Sanctuary Co-Manager (contracted Sanctuary Planner)

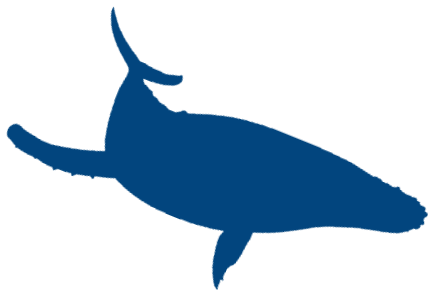
HIHWNMS is co-managed by the Hawai'i Department of Land and Natural Resources (DLNR), which works with HIHWNMS on all aspects of sanctuary operations: protecting, monitoring, and researching humpback whales and their habitat; community education and outreach; and planning and administration. The sanctuary co-manager position has been vacant, and is currently filled by a contractor hired by DLNR's Division of Aquatic Resources (DAR), with the title of sanctuary planner. DLNR civil servants fulfill essential functions that can only be done by the state.

## Highlights

This spring, DAR and HIHWNMS worked together to complete a new Sanctuary Management Plan, which is anticipated to be released in August, 2020. As part of the HIHWNMS Resource Protection program, both are collaborating on a project promoting the use of propeller guards to reduce whale injuries from boat strikes. DAR works closely with science staff on program and project development, and supports the whale entanglement response team. In February of this year, DAR, HIHWNMS, and teams from two non-profit partners, organized "Whale Day," an all-day marine education community event in Kīhei where over 6,000 people attended.

## In-kind support

The state of Hawai'i supported HIHWNMS in other ways. The Division of Boating and Ocean Recreation donated a boat slip for the sanctuary's research vessel, the R/V *Koholā*. The Kaho'olawe Island Reserve Commission donated boat winter storage. DAR purchased the new engines for the boat, reprinted educational Hawai'i marine mammal posters, and purchased all-weather outdoor educational signs, with funds from its HIHWNMS account. DAR biologists and education specialists also donated their time and expertise to HIHWNMS' education mission. One DAR education specialist collaborated with Kaua'i HIHWNMS staff to develop and distribute "grab-&-go" ocean learning kits for home-bound students and parents.



NOAA Corps Officer, LTJG Sara Wood (left), and Acting Sanctuary Co-Manager (contracted Sanctuary Planner), Jeannine Rossa, (right), take a quick break from whale population counts in February of this year. (Photo: Rachel Finn/NOAA)



# SCIENCE

Prepared by: Marc Lammers, Ph.D. – Sanctuary Research Coordinator

HIHWNMS leads collaborative research efforts to study the segment of the north Pacific humpback whale population that breeds in the Hawaiian archipelago each winter and spring. Research efforts on humpback whales and their habitat include documenting trends in the whales' distribution and abundance, studying their behavior while in HIHWNMS waters, and monitoring potential human impacts.

## **HIHWNMS forms new partnerships to expand tagging studies**

Animal-borne sensor tags have the ability to dramatically expand our understanding of animal behavior. When placed on humpback whales, these tags provide insights into the lives of whales that are otherwise impossible to obtain through observations from the surface. Over the past two years, HIHWNMS has increased its involvement in this type of research through partnerships, the acquisition of tools, and expanded analytical capabilities.

During the 2020 field season, two important new collaborative relationships were established. One of these is with the Marine Mammal Research Program of the University of Hawai'i, in which suction-cup CATS video tags were deployed on humpback whale calves to study nursing behavior. A short video describing this effort can be viewed here: <https://www.youtube.com/watch?v=EUcMuUBMYJc>. The other new collaboration is with Syracuse University, where the focus is on examining the development of singing behavior in juvenile male humpback whales by using Acousonde and DTAG suction-cup acoustic tags. As part of this effort, Ph.D. student Julia Zeh spent approximately three weeks in Maui while housed at HIHWNMS' Kihei campus.

In total, 23 successful tag deployments on humpback whales were made during the 2020 field season between these collaborative efforts. These new partnerships add to existing tagging collaborations with the University of Hawai'i at Hilo and Moss Landing Marine Laboratory and are helping establish HIHWNMS as a center for humpback whale tagging research.



Tag successfully attached to adult humpback whale. (Photo: Eden Zang/NOAA permit #20043)

# RESOURCE PROTECTION

Prepared by: Ed Lyman – Natural Resource Management Specialist and Regional Large Whale Entanglement Response Coordinator

Resource protection efforts include monitoring the health of and risks to humpback whales through sanctuary-based and collaborative efforts partnering with researchers, agencies, and the community in general, within HIHWNMS waters and beyond. Examples include extensive community-based monitoring and reporting, first responder assessment, fluke ID, freeing whales from life-threatening entanglements, and entanglement and shipstrike analysis.

## **HIHWNMS coordinates an increasing regional response network to address large whale entanglement threat**

HIHWNMS takes a lead role coordinating a community-based large whale entanglement response network around the main Hawaiian Islands to free whales from life threatening entanglements and garner information to reduce the threat. HIHWNMS partners with a multitude of state and federal agencies, including NOAA Fisheries Office of Protected Resources (Marine Mammal Health and Stranding Response Program), NOAA Fisheries Protected Resources - Pacific Islands and Alaska Regions, NOAA Fisheries Office of Law Enforcement, and the state of Hawai'i. HIHWNMS also relies on and actively engages members of the on-water community, having established a 1000-member strong citizen science effort to report, assess, and better understand threats and their impacts.

Freeing a 40-ton animal can be a high-risk endeavor. Human safety is paramount, which highlights HIHWNMS' role of sharing their expertise and performing training as to maintain safety not just within HIHWNMS waters, but beyond as well. This past year, HIHWNMS conducted more than 125 hours of large whale entanglement response training. Trainees included candidates from Hawai'i, Alaska, the U.S. West Coast, and Russia. HIHWNMS worked with NOAA Fisheries and The Nature Conservancy to create a first-of-its-kind online course for large whale entanglement first response.



Authorized response team with gear removed from entangled humpback whale. (Photo: NOAA)

# EDUCATION OUTREACH

Prepared by: Patty Miller – Program Specialist

HIHWNMS provides local educators with environmental education resources, class visits, workshops, and information about marine-related activities.

## **Maui outreach increases**

In the last year, school field trip visits to the Kīhei site increased by 300%. A core group of 14 dedicated volunteers have been trained to lead hands-on science activities and assist HIHWNMS Education and Outreach Program staff with class visits, reaching over 1,500 participants. HIHWNMS also co-organized a new, day-long, community whale education event on Maui, “Whale Day,” with three of its partners: Division of Aquatic Resources, Whale Trust, and Pacific Whale Foundation.



Education volunteers pose in the classroom after leading a field trip for local primary school children (top; photo: Patty Miller/NOAA). A child explores inside HIHWNMS’ life-size, inflatable humpback whale (bottom left; photo: Melissa Warrack). Community work day, January 2020, Kīhei site (bottom right; photo: Amy Eldredge/NOAA).



# OCEAN GUARDIAN PROGRAM

Prepared by: Allen Tom – Superintendent

Ocean Guardian programs encourage children to explore their natural surroundings to form a sense of personal connection to the ocean and/or watersheds in which they live.

## **Kapa‘a High School on Kaua‘i receives NOAA Ocean Guardian award**

Allen Tom, superintendent of HIHWNMS, presented Kapa‘a High School with \$4000 as part of the NOAA Ocean Guardian School program. The presentation took place on August 22, 2019 at the school. The Kapa‘a High School students have committed to protecting the ocean by reducing, reusing, and recycling their trash, restoring watershed areas in their school and community, and reducing their carbon footprints. A NOAA Ocean Guardian School provides opportunities for students, teachers, parents, and friends to participate in a range of environmental and sustainable activities that enable all students to be environmentally active and committed “ocean guardians.” The NOAA Ocean Guardian School program is managed by NOAA’s Office of National Marine Sanctuaries with funding coordinated by the National Marine Sanctuary Foundation.



HIHWNMS' NOAA Corps Officer, LTJG Sara Wood, Ocean Count and Sanctuary Advisory Council Coordinator, Cindy Among-Serrao, and Superintendent Allen Tom with students and teachers at Kapa‘a High School, Kaua‘i, receiving the \$4000 NOAA Ocean Guardian award. (Photo: Kapa‘a High school)





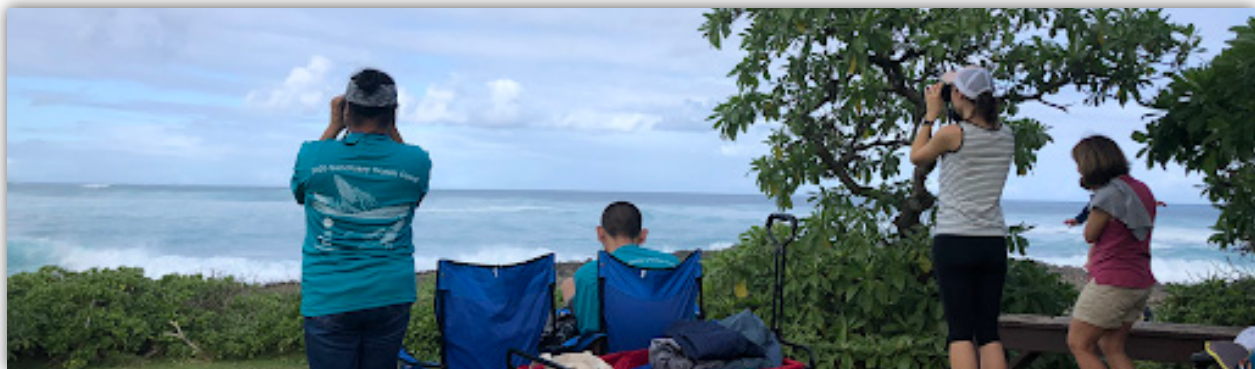
# OCEAN COUNT

Prepared by: Cindy Among-Serrao – Ocean Count and Sanctuary Advisory Council Coordinator

The Sanctuary Ocean Count is a signature outreach and citizen science project that offers the community – locals and visitors alike – a chance to monitor humpback whales from the shores of O‘ahu, Hawai‘i, and Kaua‘i. The count is conducted three times per year during peak whale season and provides a snapshot of humpback whale sightings from the shoreline. The count is held the last Saturday of January, February, and March of each year from 8:00 a.m. to 12:15 p.m. The Ocean Count promotes public awareness about humpback whales, HIHWNMS, and shore-based whale watching opportunities in the Hawaiian Islands. One of HIHWNMS’ partners, the Pacific Whale Foundation, coordinates the count on Maui.

## **2020 Sanctuary Ocean Count completed**

This year, HIHWNMS held successful Ocean Counts in January and February. Over 1,000 volunteers participated and over 1,300 members of the public stopped by our counting stations to learn about humpback whales and their habitat. We were unable to host the March 28, 2020 Ocean Count; however, our Ocean Count volunteers are looking forward to next year. The 2021 Sanctuary Ocean Count events are scheduled for the following Saturdays: January 30, February 27, and March 27.



Ocean Count participants scanning HIHWNMS waters for humpback whales. (top photo: Bev Parker; bottom photo: Cindy Among-Serrao/NOAA).

# VOLUNTEER PROGRAMS

Prepared by: Amy Eldredge – Maui Program Associate

Dedicated volunteers are one of HIHWNMS' greatest assets. Current volunteers are members of the community including residents and recurring visitors, students, and senior citizens. They come from many different backgrounds and bring a variety of skills and talents to HIHWNMS.

## **Increased volunteer participation on Maui**

Over the course of the last year, 33 new volunteers are enrolled in, or have completed, training. Sixty-three percent of the volunteer group participated in at least one new program (this excludes new volunteers). Volunteer hours increased 49%, bringing the total Maui volunteer hours to 7,841 for the 2019 - 2020 season. Team Ocean Hawai'i, the kayak naturalist program, increased from five members to 15 members, a 200% increase. The Maui Ocean Center outreach team increased participation from 10 to 20 volunteers a week during the height of the whale season, a 100% increase.

## **Expanded outreach opportunities on Maui**

HIHWNMS expanded volunteer presence from two to three volunteers per shift in the Kihei visitor center to better serve and engage visitors with the exhibits. We also added a new weekly lecture on sea turtles to the Kihei site programs. Team Ocean Hawai'i increased outreach days from one day a week to two days a week during whale season. Offsite, HIHWNMS piloted a partnership with neighboring Kihei Sands Condominiums: volunteers staffed a weekly beach outreach station in front of the condos during whale season. Regular seasonal outreach at Maui Ocean Center increased from two days a week at two different stations to three days a week at three different stations.

## **Volunteer corps expanded on Kaua'i**

The volunteer program on Kaua'i has undergone a significant transformation since December. The corps of volunteers has been expanded, re-trained, and re-focused to support the new Kaua'i Ocean Discovery. Their daily volunteer service contributes to the new facility's successes.



(Left) Children gather to make whale puppets and test their humpback whale knowledge with a trivia wheel at local keiki festival (photo: Patty Miller/NOAA). (Right) Volunteers gather for group photo before participating in annual Ridge to Reef Rendezvous outreach event (photo: West Maui Ridge to Reef).

# ADVISORY COUNCIL

Prepared by: Cindy Among-Serrao – Ocean Count and Sanctuary Advisory Council Coordinator

Serving in a volunteer capacity, HIIHWNMS Advisory Council represents a variety of local user groups, as well as the general public. Voting members represent the islands of Moloka‘i, Lāna‘i, Kaua‘i, Hawai‘i, Maui, and O‘ahu. Members also include Native Hawaiian, fishing, business, conservation, science, education, and community representatives. The role of the council is to provide advice to HIIHWNMS superintendent on HIIHWNMS’ operations, and to liaise with constituents in the community.

## **HIIHWNMS Advisory Council Report**

On November 12, 2019, HIIHWNMS successfully hosted the 79th SAC meeting, in Hilo, at the Mokupāpapa Discovery Center. At that meeting, HIIHWNMS welcomed five new members to the council: Malia Akutagawa - Moloka‘i Island Representative primary, Roxane Keli‘ikipikāneokolohaka - Native Hawaiian primary, James Kelleher - Commercial Shipping primary, Greg Nielson - Tourism primary, and Shoko Takamura - Ocean Recreation alternate. Since that meeting, HIIHWNMS has completed another recruitment process and is currently awaiting approval to welcome multiple new members to the council.

The SAC members are dedicated and hardworking community members who support HIIHWNMS whenever they can. For instance, this February, the SAC Chair, Sol Kaho‘ohalahala, kicked off the start of the Kaua‘i Ocean Discovery First Friday Speaker series, with a presentation on the Kumulipo, the Hawaiian creation chant.

This year has been especially challenging for the SAC, with the pandemic and budget constraints; however, the SAC remains positive, and looks forward to the next virtual and/or in-person council meeting.



HIIHWNMS Advisory Council meeting in Hilo, Hawai‘i. (Photo: Allen Tom/NOAA)



# INTERNS & FELLOWS

Prepared by: Allen Tom – Superintendent

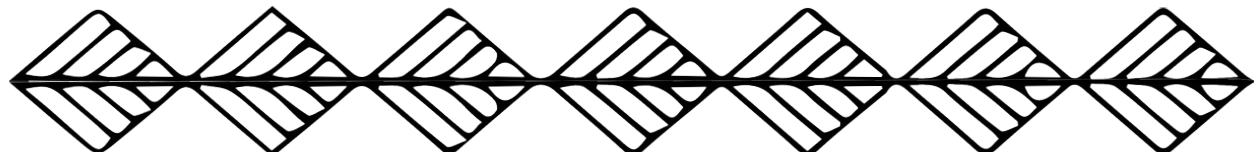
HIHWNMS encourages undergraduate and graduate students to get involved and gain valuable experience through internships. Over the years, many students have completed internship projects for HIHWNMS and continued on to work in the field of marine conservation. HIHWNMS hosts interns throughout the year, although on-the water research is done from November through April. Internships are located in one of our two office locations, Kīhei (Maui) or Līhu‘e (Kaua‘i).

## **HIHWNMS hosts interns and fellows from around the world**

Over the past year, HIHWNMS was proud to host seven university students as interns and fellows. All of the interns worked out of the Maui office, assisting with humpback whale research and monitoring efforts. Interns came from as far away as Brazil and Australia. A Hollings Program fellow was scheduled to arrive in the summer of 2020, and would have been housed at the Maui HIHWNMS office. However, due to the shutdown of all federal facilities, the fellow could not travel to Hawai‘i. HIHWNMS education program staff worked with the fellow to develop projects that could be completed remotely. The fellow is creating two new place-based citizen science programs for HIHWNMS: sand dune and microplastic monitoring.



Intern Isabella Canepa using telemetry instruments to track tagged whale. (Photo: Dr. Marc Lammers/NOAA)



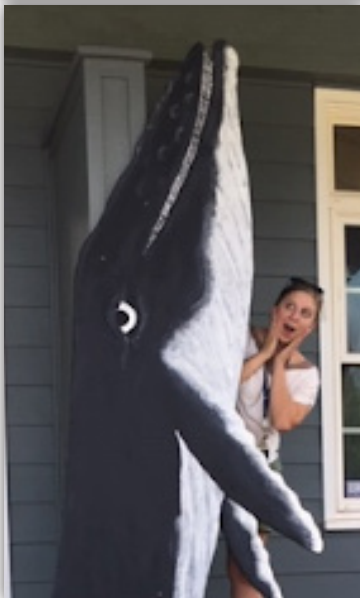


# FACILITIES

Prepared by: Patty Miller – Program Specialist

## Kīhei site enhancement

HIHWNMS staff have been working with headquarters staff to develop new exhibits in the visitor center, to be completed this summer. In the past year, HIHWNMS has acquired an augmented reality sandbox, virtual reality goggles, and supplies for a Magic Planet (still a work in progress) for use in the visitor center. An artist was recruited to design and paint a large sea life mural on one of the Kīhei buildings. A new “Welcome Whale Selfie Station” was created from a large wooden whale cut out found buried behind the building. A local hotel donated a large copper whale sculpture that has been installed on the Kīhei site. This, with the addition of a donated carved wooden whale bench for outside the visitor center, has made the front porch more inviting to guests.



Mural outside administration building on Kīhei campus completed by artist Jessica Soriano with Land Sea Studios (top; photo: Jess Soriano). HIHWNMS staff pose with whale selfie station on front porch of visitor center (bottom left; photo: Patty Miller/NOAA). Kīhei visitor center (bottom right; photo: NOAA).

# OPERATIONS

Prepared by: LTJG Sara Wood – NOAA Corps Officer

## **New engines for R/V *Koholā***

After nearly nine years and 2800 hours, our Evinrude engines for R/V *Koholā* were finally replaced. While these older engines were adequate, they provided issues from the first day they were installed on the vessel; the shaft was too short for the hull causing cavitation and a slew of other issues that required costly repairs. In February 2020, the R/V *Koholā* received beautiful new Mercury 225 HP 4-stroke engines. These new engines, paid for with the help of our co-managing partner, the state of Hawai‘i, are much quieter, more fuel efficient, and easier to maintain than the previous engines. The new engines will allow us to transit farther than before for research and entanglement response; should an entangled whale head toward Penguin Bank or outside of the ‘Au‘Au channel, we now have the ability to persist in response effort with a lot more trust in our engines and fuel capacity to go greater distances.

## **R/V *Koholā* operational performance**

In spite of losing six weeks of planned research days during this past whale season due to the COVID-19 shutdown, the R/V *Koholā* accomplished a total of 62 operational days and logged an impressive 2125 nautical miles on the water. Of these operational days, 10 were affiliated with NOAA partners, two were educational trips with a class from the University of Hawai‘i, and 44 were devoted to in-house humpback whale research.

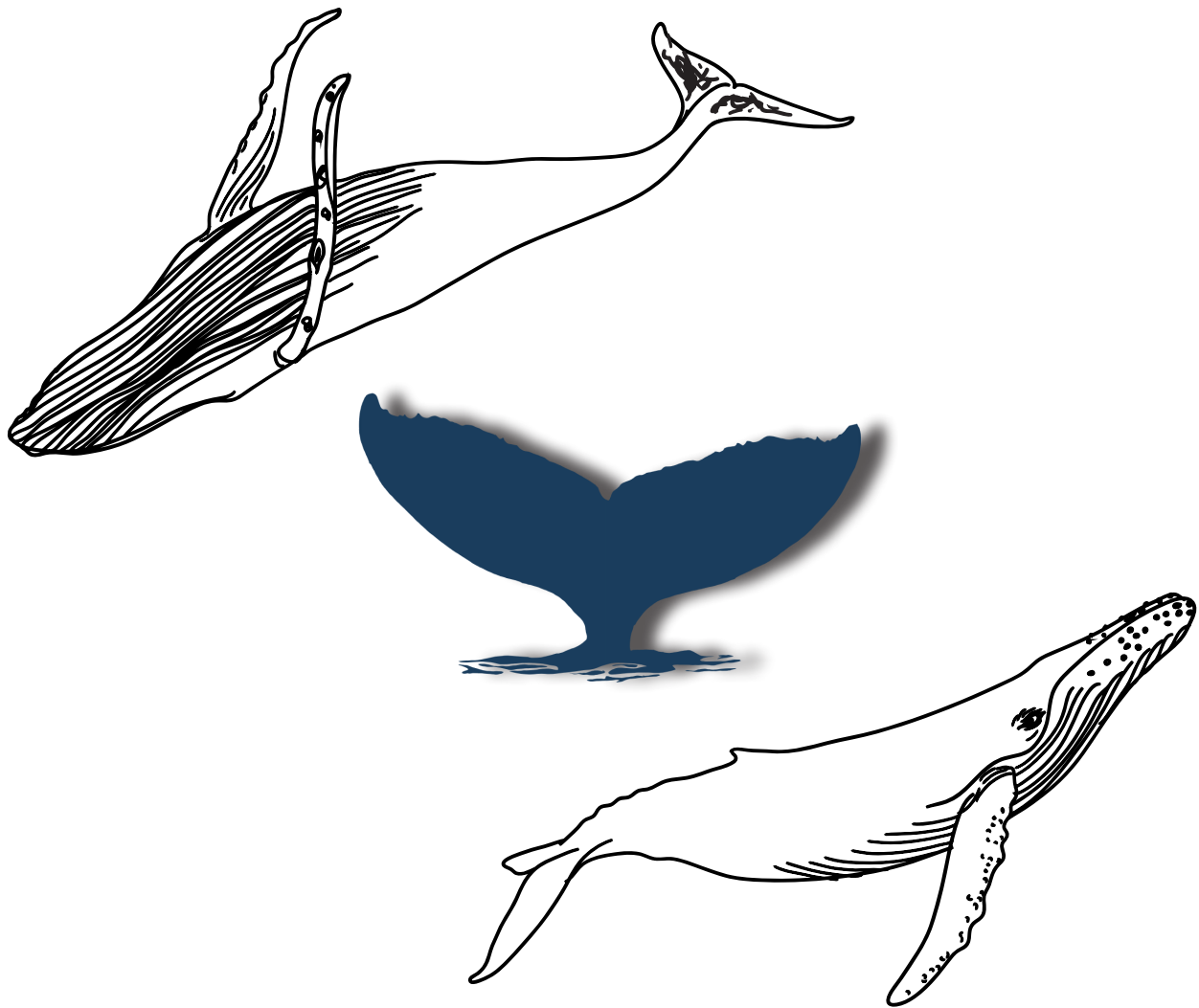
R/V *Koholā* returning to harbor with new Mercury engines. (Photo: Sara Wood, LTJG/NOAA)



# WEBSITE

Prepared by: Jeannine Rossa – Acting Sanctuary Co-Manager (contracted Sanctuary Planner)

HIHWNMS has redesigned and expanded its website. The new website contains more photos, updated whale research information, links to video content, and more. It is also arranged in a more eye-catching and user-friendly format. This updated website is scheduled to launch mid-June, 2020. A big mahalo to the ONMS headquarters staff for making this happen! The website address is: <https://hawaiihumpbackwhale.noaa.gov>.



Graphic Designs provided by:  
HIHWNMS volunteer and artist Jessica Soriano with Land Sea Studios.

