

Department of Land & Natural Resources  
DIVISION OF AQUATIC RESOURCES  
1151 Punchbowl Street, Room 330  
Honolulu, Hawaii 96813

Date Issued: November 10, 2022

Valid not longer than: November 9, 2023

SPECIAL ACTIVITY PERMIT

The Department of Land and Natural Resources hereby grants permission for certain activities involving aquatic organisms belonging to the people of Hawaii, under Section 187A-6, Hawaii Revised Statutes, and other applicable laws.

The Permittee is

Name:	Mr. Tapani Vuori	Address:	Maui Ocean Center
Title:	General Manager		192 Maalaea Rd
Affiliation:	Maui Ocean Center (“MOC”)		Wailuku, HI 96793
Email:	tvuori@mauiocenter.com		

This permit is issued with attached conditions to authorize collection, transport and/or possession of regulated and non-regulated marine organisms (corals, live rock, fish, invertebrates and turtles) and aquatic resources, in non-regulated areas on Maui and Oahu, using regulated gear (various small meshed nets; < 2 inches stretched mesh) and non-regulated gear, for purposes of establishing, maintaining and operating educational displays, for scientific study, and for approved propagation at the Maui Ocean Center (MOC) or affiliated institutions. Turtles are “pre-act” animals and thus exempt from the United States Endangered Species Act (ESA) and are not required to be authorized federally in Hawaii by a National Marine Fisheries Service (NMFS) permit. Maui Ocean Center participates in Sea Life Park's long-term propagation program for sea turtles in Hawai'i, where turtles are cared for and released into the wild.

This permit, signed by an authorized representative of the Department of Land and Natural Resources (the Department), authorizes the permittee, and assistants designated on the final page(s) of, or attachments to, this permit, to engage in activities otherwise prohibited by law, subject to the conditions, which **TAKE, CATCH, POSSESS OR TRANSPORT** certain aquatic life from waters of the State, as follows:

Spc. Code	Spc. Description	Spc. Amt.	Morphology	Spc. Size	Island	Location	Comments
<i>Regulated organisms</i>							
25500	Stony Corals (various spp.)  Collected for educational display, propagation or placement in an ark for rare and endemic corals  <i>See Monthly Collection Plans/Reports &amp; Appendix 1</i>	≈ 90 individuals	Fragments/ Colonies	Fragments/ Colonies  Various sizes; sizes will be specified in final report	Maui	Various non-regulated locations including the following:  <u>Maui</u> 302-Maliko Bay-603 302-Hookipa Park-603 302-Kuau Beach-603 302-Baldwin Beach-603 302-Sprecklesville Beach-603 302-Kanaha Beach Park-603 302-Paukukalo Beach-602 302-Waiehu Beach Park-602 302-Waiehu Coastal Dunes-602 302-Kahakuloa Bay-602 301-Kapalua Beach-601  <b>Continued on next page</b>	Collected for educational display, propagation or placement in an ark for rare and endemic corals;  Subject to additional limits per collecting plans and any limits in the

						<p>301-Kahana-601 301-Hanakao Beach Park-601 301-Wahikuli Wayside Park-601 301-Puunoa Beach-601 301-Kamehameha Iki Park (Lahaina)-601 300-Puamana Beach Park-601 300-Launiupoko Beach Park-601 300-Awalua Beach-601 300-Olowalu-601 300-Ukumehame Park-601 300-Papalua Wayside Park-601 300-McGregor Point-601 300-Maalaea Beach-606 300-Kalepolepo Park-606 300-Waipuilani Park-606 300-Kalama Beach Park-606 300-Cove Park-606 300-Kamaole Beach Park I-606 300-Kamaole Beach Park II-606 300-Keawakapu Beach Park II-606 300-Mokapu Beach Park-606 300-Ulua Beach Park-606 300-Wailea Beach Park-606 300-Polo Beach Park-606 300-Palauea Beach Park-606 300-Poolenalena Beach Park-606 300-Changs Beach-606 300-Makena Landing Beach Park-606 300-Maluaka Beach Park-606 300-Oneuli Beach-606 305-Oneloa Beach (Ahihi Bay McKena State Park)-606 305-La Perouse Bay-605 305-Kanaio Beach-605</p> <p>Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR</p>	Special Conditions
25600	Precious corals (various spp. including black coral)  <i>See Monthly Collection Plans/Reports &amp; Appendix 1</i>	4	Fragments/Colonies	Fragments/Colonies  Various sizes; sizes will be specified in final report	Maui	<p>Various non-regulated locations:  <b>Note:</b> See location list for Maui above</p> <p>Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR</p>	<p>Collected for educational display;</p> <p>Subject to additional limits per collecting plans and any limits in the Special Conditions</p>
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25770	Regulated Fish  Various spp. including tangs, unicorn fish, goatfish, rays and sharks  See Monthly Collection Plans/Reports and Appendix 2	Various amounts and sizes  Amounts and sizes will be specified in final report	Fish (Adult/Juvenile)	Adult/Juvenile Fish (Any Size)  Various amounts, species and sizes; to be specified in final report	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	
25700	Regulated Marine Invertebrates  Various spp. including octopus, lobsters, sea cucumbers  See Monthly Collection Plans/Reports & Appendix 1	Various amounts and sizes  Amounts and sizes will be specified in final report	Individuals	Individuals  Various amounts and sizes  Amounts and sizes will be specified in final report	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	
25775	Regulated Fish Eggs  (Various spp.)  See Monthly Collection Plans/Reports	Various amounts  Amounts will be specified in final report	Individuals	Individuals  Various amounts and species  Amounts and sizes will be specified in final report	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	Eggs will be collected from spawning events that occur in the aquarium displays and provided to researchers or institutions that are working to propagate certain species of fish or coral
25525	Coral Eggs (Various spp.)  See Monthly Collection Plans/Reports	Various amounts & sizes  (Amounts and sizes will be specified in final report)	Individuals	Individuals (various amounts and sizes)  (Amounts and sizes will be specified in final report)	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	Eggs will be collected from spawning events that occur in the aquarium displays and provided to researchers or institutions that are working to propagate certain species of fish or coral

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25550	Live rock (dead coral, rubble, loose rock, with attached aquatic life)  See Monthly Collection Plans/Reports	Various amounts & sizes  (Amounts and sizes will be specified in final report)	Fragments	Fragments  100 ft. <sup>3</sup>  (subject to additional limits per collecting plans and any limits in the Special Conditions)	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	
616	Chelonia mydas   Pacific Green sea turtle   honu   Chelonia mydas agassizi	18	Individuals	Individuals  (hatchlings/ juveniles )	Oahu	Turtles are transported from Oahu (Sea Life Park) to Maui Ocean Center for release into Maui (State waters) (except as prohibited by Special Conditions)	For care, rehabilitation and release after approximately two years or approximately 60 lbs. in weight  Approval for new-acquisitions or release into State waters requires written approval from both DAR and NMFS  (No collection from wild; subject to any limits in the Special Conditions)
25780	Non-Regulated Marine Fish (Various spp.)  See Monthly Collection Plans/Reports & Appendix 2	Various amounts & sizes  (Amounts and sizes will be specified in final report)	Fish (Adult/Juvenile)	Adult/Juvenile Fish (Any Size)  Various amounts, species and sizes (to be specified in final report)	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	
<i>Continued on next page</i>							

<i>Non-Regulated Organisms</i>							
25710	Non-Regulated Marine Invertebrates (Various spp.)  See Monthly Collection Plans/Reports & Appendix 1	Various amounts & sizes  (Amounts and sizes will be specified in final report)	Individuals	Individuals (various amounts and sizes)  (Amounts and sizes will be specified in final report)	Maui, Oahu	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  <b>Oahu:</b> 400-Ala Wai Boat Harbor-303  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	Moon jelly fish ( <i>Aurelia aurita</i> ) are collected on Oahu
25780	Non-Regulated Fish Eggs (Various spp.)  See Monthly Collection Plans/Reports and Appendix	Various amounts  (Amounts will be specified in final report)	Individuals	Individuals (various amounts and species)  (Amounts and sizes will be specified in final report)	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	Eggs will be collected from spawning events that occur in the aquarium displays and provided to researchers or institutions that are working to propagate certain species of fish or coral
25730	Live sand/ Marine sediment	Various amounts	Gallons	250 gallons	Maui	Various non-regulated locations:  <b>Note:</b> See location list for Maui above  Locations to be specified in final report; see section A. Locations for more info; Non-Maui acquisitions require prior approval by DAR	To be returned to location of collection  (sand is returned to collection location after use in exhibits and exchanged for new sand)

## I. SPECIAL CONDITIONS

### A. Location

All activity will occur non-regulated areas in the waters of Maui or Oahu, as listed in Table 1 on Page 1. Researcher may collect, possess, transport, propagate and/or outplant various species of regulated and non-regulated coral, live rock, fish, invertebrates, and sand (as listed in Table 1 on pages 1 - 5 and Appendix 1 & 2: pages 28 - 47) from various non-regulated locations on Maui and Oahu (Oahu collections require pre-consultation/approval from DAR), using regulated gear. Locations may include the following on Maui – new locations may be added throughout the year when the collection plan is submitted each month (after review and approval by the DAR biologists): Maui -Maliko Bay, Hookipa Park, Kuau Beach, Baldwin Beach, Sprecklesville Beach, Kanaha Beach Park, Paukukalo Beach, Waiehu Beach Park, Waiehu Coastal Dunes, Kahakuloa Bay, Kapalua Beach, Kahana, Hanakao Beach Park, Wahikuli Wayside Park, Puunoa Beach, Kamehameha Iki Park (Lahaina), Puamana Beach Park, Launiupoko Beach Park, Awalua Beach, Olowalu, Ukumehame Park, Papalua Wayside Park, McGregor Point, Maalaea Beach, Kalepolepo Park, Waipuilani Park, Kalama Beach Park, Cove Park, Kamaole Beach Park I, Kamaole Beach Park II, Keawakapu Beach Park II, Mokapu Beach Park, Uluu Beach Park, Wailea Beach Park, Polo Beach Park-Palaua Beach Park, Poolenalena Beach Park, Changs Beach, Makena Landing Beach Park, Maluaka Beach Park, Oneuli Beach, Oneloa Beach (Ahihi Bay McKena State Park), La Perouse Bay, Kanaio Beach and Oahu: Ala Wai Boat Harbor. **Outreach for select locations:** For collection sites that may be popular with recreational divers, DAR requests that MOC make efforts to conduct public outreach about the proposed collections at these location sites, with information on how take is distributed over a greater area to avoid the concentration of take in one area (e.g. dissemination of info to dive shops, community presentations/meetings, media releases or other types of outreach).

Select endemic aquarium fish will be collected for collaborative research with the University of Hawaii at Hilo, Pacific Aquaculture and Coastal Resources Center (UH – Hilo PACRC) and the Hawaii Pacific University - Oceanic Institute (HPU - OI), and sent respectively to PACRC for their Coral Reef Fish Breeding Program or OI for propagation research. Select corals may be collected and transported to and from the Department of Land and Natural (DLNR) Resources-Division of Aquatic Resources (DAR) Coral Nursery at Sand Island, Oahu. Select invertebrates (e.g. moon jellyfish) may be collected on Oahu and sent to Maui Ocean Center. Additionally, live green sea turtles, will be transported between the Sea Life Park facilities on Oahu and the Maui Ocean Center on Maui, for release into the wild. Activities under this permit is limited to waters of the State of Hawaii and is expressly prohibited at the following locations unless listed in **bold** font:

<u>Island of MAUI</u> Kahului Harbor FMA <sup>1</sup> Honolua-Mokuleia MLCD <sup>2</sup> Ahihi-Kinau NAR <sup>3</sup> Molokini Shoal MLCD Kahekili Herbivore FMA	<u>Island of KAUA'I</u> Ahukini Pier FMA Hanamaulu Bay FMA Kapaa Canal FMA Nāwiliwili Harbor FMA Port Allen FMA Waikaena Canal FMA Waimea Pier & Bay FMA Hā'ena CBSFA <sup>8</sup>	<u>Island of HAWAI'I</u> <u>Areas within the West Hawaii</u> <u>Regional Fishery Management Area</u> <u>(continued):</u> (1) Ka'ūpūlehu Marine Reserve (2) North Kohala Fish Replenishment Area (FRA <sup>6</sup> ) (3) Puakō-'Anaeho'omalu FRA (4) Kaloko-Honokōhau FRA (5) Kailua-Keauhou FRA (6) Red Hill FRA (7) Nāpo'opo'o-Hōnaunau FRA (8) Ho'okena FRA (9) Ka'ohe Beach FRA (Pebble Beach), (10) Miloli'i FRA (11) Kikaua Point-Mākolē'ā Point Netting Restricted Area (NRA <sup>7</sup> ) (12) Nenuē Point-Kealakekua Bay NRA (13) Hanamalo Point-Kanewa'a Point NRA
<u>Island of LANAI</u> Manele Harbor FMA Manele-Hulopoe MLCD	<u>Island of HAWAI'I</u> <u>Areas within the West Hawaii</u> <u>Regional Fishery Management Area:</u>	
<u>Island of MOLOKA'I</u> Kaunakakai Harbor FMA		
<u>Island of KAHOLAWE</u> Restricted 2 nautical mile boundary Zone A and Zone B surrounding Kaho'olawe	Hilo Bay FMA Kailua Bay FMA Kawiahae Harbor FMA Kealakekua Bay MLCD Keauhou Bay FMA	
<u>Island of O'AHU</u>		

Ala Wai Canal FMA Coconut Island MLR Hanauma Bay MLCD Heiea Kea FMA Honolulu Harbor FMA Kapalama Canal FMA Paiko Lagoon Wildlife Refuge Pōka'i Bay FMA Pupukea MLCD Waialua Bay (Hale'iwa Harbor) Waikīkī-Diamond Head SFMA Waikiki MLCD	Kiholo Bay FMA Kona Coast FMA Old Kona Airport MLCD Lapakahi Bay MLCD Papawai Bay FMA Puako FMA Waiakea PFA <sup>5</sup> Wailea Bay MLCD Wailuku River FMA Wailoa River FMA Waiopae Tidepools MLCD Wawālohi FMA	(14) Kanonone–Kalīpoa NRA
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Table 2 – Regulated Areas – Definitions: FMA<sup>1</sup> = Fisheries Management Area, MLCD<sup>2</sup> = Marine Life Conservation District, NAR<sup>3</sup> = Natural Area Reserve (DOFAW), MLR<sup>4</sup> = Marine Laboratory Refuge, PFA<sup>5</sup> = Public Fishing Area, FRA<sup>6</sup> = Fish Replenishment Area, NRA<sup>7</sup> = Netting Restricted Area, CBSFA<sup>8</sup> = Community-Based Subsistence Fishing Area

**B. Activities.** Permittee is authorized for the collection, transport and possession of regulated and non-regulated marine organisms (corals, live rock, fish, invertebrates and turtles) and aquatic resources, in non-regulated areas on Maui and Oahu, as listed in Table 1, Pages 1-5 (Appendices 1 & 2; pages 28 - 47), using regulated gear (various small meshed nets; < 2 inches stretched mesh) and non-regulated gear. The objective of these collections is to stock an existing public aquarium for educational display at the Maui Ocean Center, in Wailuku, Maui, and to facilitate the conservation of rare/endemic coral species and the development of successful propagation techniques for select endemic or indigenous aquarium fish or coral species and the caring for and release of green sea turtles. Appendices 1 and 2 for fish and invertebrates will serve as general outlines for proposed collection activities for the year (attached at end of permit). In addition, Maui Ocean Center submits monthly collection plans and reports to verify actual numbers and sizes of collected organisms that are reviewed and approved by DAR biologists (Maui) on a monthly basis. Permittee is authorized to collect approximately two hundred and twenty-one (221) individuals of various sizes of regulated fish (including tangs, angelfish, butterflyfish, unicorn fish, goatfish, rays, sharks, surgeonfish), nineteen (19) individuals of various sizes of regulated invertebrates (including octopus, lobsters, crabs and sea cucumbers), four hundred and sixty (460) individuals of various sizes of non-regulated fish (including tangs, unicorn fish, goatfish, wrasse, sand perch, dartfish, razor fish damselfish, butterflyfish, angelfish, chromis, anthias, cardinalfish, snapper, emperorfish, flounder, trunkfish, pufferfish, boxfish, triggerfish, surgeonfish, tangs, knifefish, goatfish, scorpionfish, hawkfish, frogfish, squirrelfish, tilefish, seahorses, pipefish and eels), ninety-seven (97) individuals of stony corals (various spp.), four (4) individuals of precious corals (black corals), twenty (20) individuals of regulated invertebrates, two hundred and two (≈ 202) individuals of various sizes of non-regulated invertebrates (including corallimorphs, zoanths, anemones, jellyfish, squid, sponges, worms, molluscs, crustaceans, echinoderms), various amounts of fish and coral eggs, one hundred (100 ft.<sup>3</sup>) cubic feet of live rock, two hundred and fifty (250) gallons of live sand and eighteen (18) turtles (no live take; possession - care and release only) from non-regulated areas on Maui, as listed in Appendices 1 & 2 (page 27-45). Incidental mortality of organisms may occur during collection or while in captivity; permittee will document all mortalities on the collection reports and the annual report. Authorized is the use of small mesh dip-nets, hand nets, barrier nets (dip-nets/hand nets with a mesh size of less than 2 inches and with dimensions greater than 3 ft., including handle, barrier nets with a mesh size of less than 2 inches stretched mesh – if used in motion and < 2 ¾ inches stretched mesh – if set like a lay net). Methodology for collection of samples may have unintended by-catch. Permittee or authorized assistants will attend nets at all times and release/return all unintended by-catch as quickly as possible to the marine environment. Permittee is additionally authorized to use hand tools to collect samples of coral, live rock and sand as listed in Appendix 1. Live sand will be returned to collection location after use in exhibits and exchanged for new sand. Returned sand is typically placed in a dry environment above the high high-tide line in order to let the sand be sterilized by the sun.

**Fish collections:** Take of *Cirrhilabrus jordani* (Hawaiian Flame Wrasse) and *Pseudanthias hawaiiensis* (Longfin Anthias) shall not exceed 50% of any single group or harem; i.e., if a group has 20 individuals, the take would be limited to 10 (or less) from that group. In addition, for all other organisms, comparable guidelines and ratios of take shall be implemented – the permittee and authorized assistants shall implement collection/sample designs that distribute collection activities across shoreline/reef flat/benthic areas, so as not to concentrate the impacts of collection in specific locations.

**Sourcing Aquacultured Organisms:** DAR requests that MOC make efforts to source any species (on the current request list) which may be available from aquaculture facilities or propagation programs/institutes, or any other institute or program which may have organisms to donate (subject to review and approval by DAR). If aquacultured specimens are available but not the right ages, sizes, or sex or other category of individual, DAR requests MOC to provide justification of why wild collection is necessary (e.g. cultured juveniles are available but adults are needed for display or for propagation research).

**Incidental mortality and Cultural Consultations for Shark Collections.** This educational/research program does not include any intentional lethal sampling, but incidental mortality of target and non-target fish (various spp. and sizes) may occur. Researchers will report any incidental mortalities in final report. Permittee will notify DAR within 24-hrs in the event that an incidental mortality of a shark (or any other protected species) occurs. If a repeated occurrence of mortality occurs, DAR may request to review the method and see if modifications can be made to the method to reduce mortality. DAR recommends changing sampling location if mortality occurs. Notification can be made via email (at end of day) to: catherine.a.gewecke@hawaii.gov Permittee will consult with local cultural practitioners (e.g. Maui Cultural Practitioner: Dane Uluwehiokalani Maxwell) for a potential cultural training for the permittee to integrate culturally appropriate methods of interacting with, handling, and taking of sharks into the project, to the extent practicable. Certain handling of organisms (e.g. tagging, sampling or surgical procedures, etc.) may need to be conducted in accordance with the animal use protocol approved by the relevant Institutional Animal Care and Use Committee (IACUC)(if applicable), as the proposed methodology is designed to minimize handling time and subsequent physiological stress on the animals during capture, external tagging or surgical transmitter implantation, release or other associated activities. These methods are in place to minimize the risk of mortality to these animals and the permittee and authorized assistants may not be able to integrate any methods which may add handling time and/or physiological stress. In other instances where possible, the researcher will make efforts to integrate any other methods of handling or collection practices or other procedures, that are in line with those which may be suggested during the cultural training, and which do not conflict directly with any IACUC procedures. If a shark mortality occurs during handling, the researcher may take a set of samples for archiving and future studies. The material may be able to be contributed to the Bishop Museum (Honolulu). In the event that there are portions of the shark which cannot be processed by the researchers or contributed to museums, the researchers will reduce the waste of portions of the shark that are used in cultural practices and donate these portions (or entire animal) to cultural practitioners on Maui (e.g. Maui Cultural Practitioner: Dane Uluwehiokalani Maxwell). If any mortality occurs, the researcher will evaluate the cause of death; the methodology will be reviewed and researcher will identify changes that can be implemented to sampling operations to avoid such an occurrence in the future. Researcher will provide notification to DOCARE and DAR 24 hrs. before each time sampling occurs (see section O. Other Collection Guidelines).

**Coral collections:**

1. No coral specimen (fragment or colony), except for corals of the taxonomic group Antipatharia ("black" and "wire" corals), may be larger than 30" in maximum linear dimension, and no more than 50 specimens may be larger than 12" in maximum linear dimension, except by explicit, prior approval of a collecting plan;
2. No extractive or impact-causing activities will be done on (or immediately adjacent to) any intact, attached coral colony measuring larger than 1 m longest diameter. Specific efforts will be made to avoid damage to any large (> 0.5 m) colonies of living coral.



3. MOC is working with the State of Hawaii Department of Land and Natural (DLNR) Resources-Division of Aquatic Resources (DAR) Coral Nursery at Sand Island, Oahu to establish aquaria to house and propagate some of the rarer corals found in Hawaii (see Appendix 1) Some of these corals will be propagated from existing corals housed in the collection at Maui Ocean Center. MOC may be given other corals from the DAR nursery (Oahu) to house and propagate as well. MOC may participate in coral mitigation/rehabilitation projects involving coral outplanting or transplanting within Maui County at the request, direction & authorization of DLNR-DAR. MOC must submit a plan detailing outplanting or transplanting methods specific to each project for review and approval by DAR.
4. To provide for both adequate oversight of coral landings, and to allow and encourage limited collecting of coral encountered unpredictably, in fragments or displaced colonies which would not survive naturally, no more than 50 "opportunity" specimens may be collected without prior approval in a collecting plan (i.e. as result of unpredictable opportunity)

**Distribution of Samples/Invasive Species, Disease and Parasites.** The permittee will mitigate for the spread of invasive species, disease and parasites between sampling areas (if sampling in environmentally different areas) by utilizing best management practices, including but not limited to, ensuring that all organisms, hand tools or collection bags/containers are inspected and absent of any non-natives or invasive organisms before transportation to lab aquariums (not applicable where invasive species, disease and parasites are target species for collections) or before collection in a new area, and ensuring that all gear is disinfected or sterilized between collection areas (see **General Conditions O. Other Collection Guidelines: Aquatic Invasive Species**). Efforts will be made by permittee and authorized assistants to ensure that collection of samples is conducted in such a manner as the process does not result in any additional harm to surrounding organisms or environment. **Permittee and authorized assistants will implement collection/sampling design that removes a sustainable proportion from the local population of target organisms and make efforts to distribute collection activities across shoreline/reef flat/benthic areas, so as not to consolidate the impacts of collection in one location.** Discretion should be used to avoid conflicts with fishers and others during authorized activities. Efforts will be made by permittee and authorized assistants to communicate with the public that have inquiries about the collection activities or methodology. Permittee and authorized assistants will clearly state the overall objective of the project, that these activities require permits, and that the methods the researchers are employing are not approved for recreational fishing but research, education, management or propagation purposes ONLY

### **Projects and Additional Methods.**

**Coral Propagation/Rare and Endemic Ark:** In addition to regular collections of coral species to maintain the aquarium displays and utilize for educational coral spawning events, MOC is working with the State of Hawaii Department of Land and Natural (DLNR) Resources-Division of Aquatic Resources (DAR) Coral Restoration Nursery (CRN) at Sand Island, Oahu, to establish aquaria to house and propagate some of the rarer corals found in Hawaii (see Appendix 1). Some of these corals will be propagated from existing corals housed in the collection at Maui Ocean Center. MOC may be given other corals from the DAR nursery (Oahu) to house and propagate as well. At select times, MOC may plan coral mitigation/rehabilitation projects within Maui County at the request, direction and authorization of DLNR-DAR – it's possible that corals would be collected from damage events to be rehabilitated or reattached or that corals from the nursery may be out-planted to sites where damage has occurred (after review and approval by DLNR-DAR). Maui Ocean Center has worked with the state on eight different coral recovery projects to help recover and transplant corals from construction sites at state harbors. These projects utilized MOC curatorial divers to remove, transplant, transport and reattach corals at Lahaina, Manele, Kaunakakai, Maalaea, Kawaihae, Kona and Keauhou small boat harbors, Baby Beach, and Molokini. MOC staff was responsible for tagging, measuring and caring for the corals that were housed at MOC. Eggs/sperm and/or larvae may be collected from spawning events that occur in the aquarium displays and provided to researchers or institutions that are working to propagate certain species coral; recipient researchers or institutions must have a valid Special Activity Permit to conduct activities with coral (e.g. Maui Ocean Center Marine Institute - MOCMI) or be listed on the Maui Ocean Center permit as authorized assistants. **Expansion of Maui Ocean Center Coral Nursery.** MOC is focusing on expanding their efforts with creating and maintaining a nursery tailored to rare and endemic species of Hawaii. Working alongside University of Hawaii at Manoa and the DAR-CRN, MOC will focus on their

Rare Hawaiian Coral Ark Project to house rare Hawaiian corals. This project is designed to maintain living specimens of native and endemic coral species as insurance against catastrophic events such as wide-scale bleaching which could threaten endemic species as a whole or extirpate rare native coral species from affected islands.

**Fish Propagation:** In addition to regular collections of fish species to maintain the aquarium displays, select endemic or indigenous aquarium fish will be collected for use in the programs at University of Hawaii at Hilo, Pacific Aquaculture and Coastal Resources Center (UH - Hilo PACRC) and the Hawaii Pacific University – Oceanic Institute (HPU – OI). Activities include collaborative research with PACRC for their Coral Reef Fish Breeding Program to figure out ways in which aquaculture can be used to promote sustainable practices for aquarium facilities by researching methods to raise reef fish species that are endemic or important to Hawaii through captive propagation. In addition, MOC will collaborate with OI to conduct propagation trials to raise larvae from eggs collected from Public Aquarium exhibits. The objective of these propagation trials is to develop the technique of culturing and propagating certain species of reef fish in order to relieve some of the standard environmental pressure that occurs due wild harvesting of aquarium fish from the reef and is anticipated to result in the captive propagation of these species which will be used for display at the MOC to promote sustainable fish-keeping practices and further Hawaii’s coral reef conservation efforts. Fish intended for both of these purposes are listed in Appendix 2 (highlighted in orange); fish and eggs/sperm and/or larvae will be collected from spawning events in the exhibits. All fish, eggs/sperm and/or larvae will be collected and transported to UH - Hilo PACRC, Hilo, HI and HPU – OI, Waimanalo, HI. The species intended for collection are, *Cirrhilabrus jordani* (Hawaiian Flame Wrasse), *Centropyge potteri* (Potter’s Angelfish), *Pseudanthias hawaiiensis* (Longfin Anthias), *Chaetodon tinkeri* (Tinker’s Butterflyfish), *Dascyllus albisella* (Hawaiian Domino Damsel), *Acanthurus achilles* (Achilles Tang), *Ctenochaetus strigosus* (Kole Tang), *Iniistius pavo* (Peacock Razorfish) and *Oxycirrhites typus* (Longnose Hawkfish), *Labroides phthirophagus* (Cleaner Wrasse) and *Zebrasoma flavescens* (Yellow Tang).

The collected fish will be used in the projects listed below. As per the MOC collection protocols, any fish intended for collection would be included in MOC’s pre-collection documents and listed in their collection reports. The live fish that are collected would be part of several research projects, all education based with the overall goal to provide information for Hawaii reef fish conservation. All of the projects listed below, and other potential studies on additional species, could come from the collaboration of PACRC, OI and MOC. Permitting for PACRC for propagation activities is in process – certain species are additionally listed on the PACRC permit (for collection in other areas than Maui; i.e. East Hawaii, West Hawaii and the North Shore and West Side of Oahu) - the purpose of including the same species on two permits is to distribute take over a larger area and to authorize facilities that may have more collectors on hand (i.e. the MOC has collectors on staff, whereas PACRC may need to contract out collections to authorized assistants for other areas) and to allow for opportunist collection of species where species are abundantly available (i.e. a species may be abundant on Maui while not abundant on Hawaii Island or Oahu). **Note:** If individuals are collected under the MOC permit in Maui for PACRC they will be counted toward the total amount allowed across the two permits for MOC and OI (i.e. if 12 are authorized under the PACRC permit and 12 are authorized under the MOC permit then the total collected from all the islands would not exceed 12). If fish are collected under MOC permit in Maui for OI they will not be counted toward the total amount allowed across the two permits/aquaculture facility licenses (AFL) for MOC and OI. OI has indicated that these numbers are the amount that are necessary to develop the propagation techniques, to account for female individuals turning into males, fish not becoming reproductively successful/viable, fish not pairing up with other individuals, in addition to needing greater numbers to enhance genetic diversity among the broodstock and for the benefit of having individuals from Maui population to propagate for an institution that is based on Maui. All of the fish will be utilized in research projects to develop aquaculture techniques of these species that will be disseminated to commercial operations for production, work to replace the collection of wild fish with captive bred fish and promote sustainable best practices for aquariums facilities throughout Hawaii and globally.

### **Projects:**

#### **Coral Reef Fish Breeding Program**

This is program (currently in its 7th year) is a five-year program, supervised by PACRC Director Dr. Maria Haws, to promote reef fish conservation through aquaculture. The goal of the program is to raise ten reef fish species that are endemic or important to Hawaii through captive propagation. Results will be disseminated to commercial

operations through peer-reviewed journal publications and talks given at conservation or aquaculture conferences. The first ten species the program has identified that they will work with are: *Cirrhilabrus jordani* (Hawaiian Flame Wrasse), *Centropyge potteri* (Potter's Angelfish), *Pseudanthias hawaiiensis* (Longfin Anthias), *Chaetodon tinkeri* (Tinker's Butterflyfish), *Dascyllus albisella* (Hawaiian Domino Damsel), *Acanthurus achilles* (Achilles Tang), *Ctenochaetus strigosus* (Kole Tang), *Iniistius pavo* (Peacock Razorfish) and *Oxycirrhites typus* (Longnose Hawkfish).

### **Flame Wrasse Research**

As part of the aquaculture portion of the Coral Reef Fish Breeding Program, students are investigating the ideal broodstock grouping of Flame Wrasse, *Cirrhilabrus jordani*. This study will determine the appropriate sex ratio of male to females that will produce the highest number of eggs nightly in a captive environment. This information will be given to commercial operations to promote captive breeding of Flame Wrasse in an effort to replace wild collection. Also, little has been documented regarding the reproductive behavior of Flame Wrasse. Information gathered while conducting this study can be used to develop hypotheses that can be used to study Flame Wrasse spawning in the wild.

### **Sydney Gamiao Master's Thesis**

Also, as part of the aquaculture portion of the Coral Reef Fish Breeding Program, Sydney Gamiao (Co-Principal Investigator of the Coral Reef Fish Breeding Program and UH Hilo Master's Degree student) is investigating the first feed of the Flame Wrasse larvae for her Master's thesis project. This study will use the eggs produced from the broodstock Flame Wrasse to develop the aquaculture techniques for captive propagation of Flame Wrasse. The Flame Wrasse produced utilizing these techniques can replace wild collection.

### **Examining the Populations of Flame Wrasse in Hawaii using Genetics**

MOC is working with Dr. Jolene Sutton in the UH Hilo Marine Science Department and her undergraduate genetics class to sequence the DNA of Flame Wrasse from populations from Oahu, Maui, the Big Island and Kauai. The goal of this project is to determine if there are genetically distinct populations of Flame Wrasse from the different islands or if there is one metapopulation within the Main Hawaiian Islands. Currently, the DNA of Flame Wrasse from Oahu have been sequenced. The results of this study on Flame Wrasse could be used as model for other reef species and used to better manage the coral reef resources.

### **Examining the otoliths of Flame Wrasse to determine age from size data**

MOC is working with Dr. Tim Grabowski of the USGS Hawaii Cooperative Fishery Research Unit to look at the otoliths of Flame Wrasse to determine their age. Using the samples available, researchers will be able to develop a model for predicting age from length that can be used to age fish in the wild. This information has not been gathered previously and would be invaluable in assessing wild populations. Also, these techniques could be used as a model for other reef fish species and aid in Hawaii's reef fish management practices.

### **Developing Culture Methods for Native Fish Species in Support of New Business Models for Increased Participation in Mariculture**

MOC has submitted proposals for working with native fish species to develop new aquaculture products. Specifically, they are working to develop the aquaculture techniques for commercial production of the Peacock Razorfish (*Nabeta*), *Iniistius pavo*. There is no published data on the reproductive behaviors of these fish, specifically whether or not they are paired spawners or group spawners. Small, juvenile, *Nabeta* will need to be collected for this project. The juvenile fish will be placed in a test tank and allowed to develop into either pairs or a spawning group. Therefore, due to the size required, small fish will be needed for this project and small mesh netting will be needed for collection.

### **Collection of broodstock reef fish to propagate a sustainable resource of certain fish species via aquaculture.**

Dr. Chad Callan, Director of Finfish Program of Hawaii Pacific University's Oceanic Institute, has conducted and succeeded in the rearing of several fish species in captivity. To continue his efforts on this project, MOC has requested to supply Oceanic Institute the adult broodstock to three different species found in Maui waters. They are as follows: *Zebriasoma flavescens* (Yellow Tang) = 12 adults, *Labroides phthiophagus* (Hawaiian Cleaner

Wrasse) = 4 adults, and *Centropyge potteri* (Potter's Angelfish) = 8 adults. These collections will gradually happen overtime throughout the year when their facility is ready to receive them.

### **Maui Ocean Center's Fish Hatchery 2023**

In collaboration with PACRC and Oceanic Institute, Maui Ocean Center would like to start-up a fish hatchery on site targeting Hawaii's endemic species in 2023. The goal is to create a sustainable environment/system in which MOC can harvest fertilized eggs, raise fish fry, and maintain a stock of these species in hopes of having a self-sustaining stock of fish for the aquarium.

### **Educational Outreach**

#### **Marine Naturalist Presentations**

The core of Maui Ocean Center's education program is their team of Marine Naturalists. Naturalists rotate throughout the center on a set schedule (see appendix). The education team receives regular training sessions, as well as ongoing coaching throughout the year to improve their interpretive delivery skills and discuss a variety of marine science and Hawaiian culture topics. By using theme-based teaching and interpretive techniques, the Marine Naturalists share information on Hawai'i's marine life through professional presentations in three main areas in the park; Living Reef, Harbor Plaza and Open Ocean. Four to five Marine Naturalists are scheduled daily, providing twenty-one publicized and fifteen unadvertised presentations each day, ensuring that all visitors to MOC have the opportunity to interact with the team of educators.

MOC's goal in 2022-2023 continues to be to fully engage all of the guests, enhancing their experience as they learn about our unique Hawaiian marine ecosystems and culture. Maui Ocean Center will be reintroducing their complimentary talk series featuring both cultural and scientific topics in 2023. These talks are held in the Sphere Theater and are always complimentary to the public. The capacity is 115 visitors and MOC is fully committed for nearly every talk. Kauhulu – the cultural series – features special guests (such as artists, authors and activists) to discuss marine related topics such as, literary pieces, artwork, community issues and global subjects with a local focus. Sea Talk – the scientific series - we invite experts to share their research and current fieldwork.\*

MOC hosts their annual Coral Spawning Event every summer in correlation with the new moon cycle and spawning of *Montipora capitata*, Rice coral. The special event gives guests the opportunity to learn about the biology of corals through interactive stations and guest speakers in anticipation to the predicted spawning around 8:45pm. It is a unique opportunity to share with the public on corals' reproductive cycles and possibly witness this incredible phenomenon.\*

MOC continues to implement new cultural programs within the park where practitioners and artisans come into the aquarium to share their knowledge and skills with our visitors. Activities and demonstrations include: hula, Mele, lei making, net weaving, coconut weaving and more. In addition, our Cultural Advisor Kahu Dane Maxwell visits the center regularly to "Talk Story" and provide hands-on cultural lessons. MOC continues various collaborative endeavors with NOAA, Whale Trust, Pacific Whale Foundation and the Maui Nui Seabird Recovery Project, providing a venue for their volunteers to come to MOC and share their educational and conservation messages with our guests. Topics include information on Hawaiian marine mammal and seabird species. MOC has also offered complimentary meeting space to conservation focused organizations such as the Maui Nui Marine Resource Council and Blue 'Aina.

#### **Educational Outreach within the Community**

MOC Marine Naturalists conduct outreach presentations at the following locations: Four Seasons Wailea, Westin Nanea, Kama'ole Sands Condos, Assorted Maui Nui schools, Maui Nui public fairs & festivals and private events. Maui Ocean Center participates in visitor outreach at the Hawaiian Marine Life Hale in a collaborative effort with the Westin Nanea. A Marine Naturalist is present from 9 am to noon each day with hands on learning tools for adults and children including a fish identification poster, interactive learning tools, and conservation tips. Topics include marine life identification, reef and sea turtle etiquette and the cultural connections between mauka and makai. In addition, hour-long presentations at Kama'ole Sands covers various topics including; Humpback whales, green sea turtles, ocean safety, reef etiquette and general information about Hawai'i's unique marine life. MOC

continues to participate in their seasonal outreach programs at the following properties: Four Seasons Wailea Keiki Club, The Westin Ka'anapali and select Marriott Bonvoy properties.

Two Marine Naturalists are present from 10 am to 11 am once a week with hands on learning activities and a "critter station" under the supervision and guidance of the Naturalists. Similar topics as the Sheraton program are shared at these two outreach posts.\*

### **Supporting Education**

Maui Ocean Center offers complimentary semester-long access to University of Hawai'i Maui College Marine Option students. MOP students are issued an Educational Journey Pass to Maui Ocean Center at no charge allowing them to study independently or as a class throughout the duration of their course.

Maui Ocean Center is committed to supporting Hawai'i's school children and teachers. Both public and private school teachers are invited to visit the aquarium for complimentary site inspections, allowing them to better prepare their lesson plans for fieldtrip visits with students. MOC offers fieldtrip worksheets that are made available online. These worksheets are designed to match common core curriculum for grades preschool through grade eight. The materials are provided to every teacher as part of their fieldtrips. Continuing the commitment to supporting Hawai'i's schools, MOC also offer discounted entry price (nearly 75% off our Kama'aina price) to all school groups with no charge for chaperones at a ratio of 1 free chaperone for every 8 paying students. In addition, a special non-profit student rate has continued to assist local organizations bringing students to the aquarium. As part of their visit, our Marine Naturalists greet all school groups as they arrive and provide a complimentary viewing of the new Humpbacks of Hawaii film in the dome theater.

In 2019, MOC Education and Curatorial departments successfully hosted four college-level interns for full internships, and an additional two high school-level internships. MOC aims to bring back their internship program for 2023, aligned with the return of in-person school programs on Maui Nui. In addition to their internship program, MOC hosts the Seabury Winterim program in February, which will also be returning in 2023. Nine students attend a four day program within MOC where the aquarium provides an opportunity for students to explore a career in marine biology through experiential learning. The Education department continues to assist with interviews (in person and in writing) for local high school students completing their senior projects.

MOC partnered with Maui Huliau on several youth projects for Maui Nui students including student-led documentary filming, a virtual series and two in-person events on Careers in Conservation from Mauka to Makai. MOC partnered with The Wisdom Center for Autism to successfully host two, complimentary after-hours Sensory Days in 2021-2022. This allowed their special guests to experience the park while accommodating their needs. Maui Ocean Center will continue to develop programs that make exhibits and experiences more accessible to all.

### **Marine Life Conservation**

MOC continues to work with Maui Ocean Center Marine Institute and NOAA to direct reports of monk seal, turtle, cetaceans, etc. sightings by the public.

Once a week, MOC host Hawaiian Islands Humpback Whale Sanctuary volunteers who come to the center from 10am-2pm to share information on humpback whales, sea turtles, monk seals, corals and more. This provides visitors an opportunity to whale watch from the Harbor Plaza during whale season and get their questions answered by the experts.

Whale Trust hosts a booth at the entrance of the Living Reef from 11am-2pm once weekly during whale season. Whale Trust volunteers have the opportunity to share information with guest about our winter visitors, the Humpback Whales. Their booth engages guests to listen to a number of different whale song recordings used in their ongoing research.

Maui Ocean Center Marine Institute (MOCMI) developed a permanent information kiosk near the Turtle Lagoon exhibit. Volunteers share anecdotal experiences and turtle rescue efforts with the public, educate guest on current threats to local marine life and inspire guests to conserve the ocean.

After being asked to participate in a collaboration of caring for rare corals through the Division of Aquatic Resources a non-profit entity, the Maui Ocean Center Marine Institute was established to advance this initiative. MOC is currently providing facility space & expertise to the non-profit and also fundraising on its behalf. The non-profit has an agreement to relieve the Hawaiian Islands Humpback Whale Sanctuary of the responsibility of the turtle response network so that they may focus on their marine mammal based mission.

MOC & MOCMI hosts volunteer beach cleanups throughout the year, and provides various opportunities for our staff to perform underwater reef cleanups where they collect abandoned fishing gear. The collected lead weights are then recycled into dive weights for our dive staff.

Through ongoing dialog with DAR, Maui Ocean Center continues to make efforts to collect marine organisms associated with manmade structures as opposed to natural areas. MOC have also voluntarily agreed to not collect near popular coastal habitats such as Mala Wharf and Baby Beach.

### **Marine Animal Rescues**

Due to its high visibility and experience, the public sometimes calls upon Maui Ocean Center when marine animals are in distress. MOC continues to assist in marine animal rescues whenever asked. In order to assist the resource management agencies in their appropriate and timely response, MOC has distributed written stranding protocol for turtles and marine mammals to all of its departments, and in press releases to The Maui News. Note: It is not the intention of Maui Ocean Center to supersede the agencies in marine animal rescue; MOC only assists in these matters whenever called upon.

**Turtles:** This permit authorizes possessing, transporting, feeding, measuring, caring, rescuing, treating, rehabilitating, and releasing live green sea turtles, provided such actions are in compliance with the Endangered Species Act and other applicable federal laws. The transporting is between the Sea Life Park facilities on Oahu and the Maui Ocean Center on Maui, for release into the wild. This permit **does not authorize** the take of marine turtles from the wild but the permittee may receive turtles from other authorized persons or agencies. These turtles are “pre-act” animals and thus exempt from the United States Endangered Species Act (ESA) and are not required to be authorized federally in Hawaii by a National Marine Fisheries Service (NMFS) permit. Therefore, there is no associated federal NMFS permit as seen with other Special Activity Permits (SAPs) issued to programs that work with ESA listed turtles. However, this program coordinates directly with turtle biologists from NMFS as described below and operates under their guidelines and in compliance with the Endangered Species Act (ESA). Sea Life Park Hawaii and Maui Ocean Center have an agreement whereby Sea Life Park Hawaii loans Maui Ocean Center young turtles for display with the condition that the interpretive focus is strongly directed toward education and conservation. The turtles will be released to the wild as part of Sea Life Park's long-term propagation program for sea turtles in Hawai'i. As a part of the agreement, the turtles' growth and health will be recorded. Sea Life Park Hawaii and NMFS will also monitor their progress. **Release:** Release of the turtles will be conducted under the supervision of Sea Life Park Hawaii at times and locations deemed appropriate. DOCARE, DAR and NOAA are notified of release and health of turtles.

### **C. Gear and Methods. This permit authorizes the following use of regulated and/or non-regulated gear and methodology:**

**Regulated Gear:** Barrier net (regulated size or < 2 inches stretched mesh – if used in motion and < 2 ¾ inches stretched mesh – if set like a lay net; 1/8 inch to ½ inch mesh sizes and dimensions that range from 4'x6 to 8'x25'), Hand net (regulated size or < 2 inches stretched mesh)

**Non-regulated Gear:** Trap (standard or > 2 x 1 inches rigid mesh), Chisels/hammer/bone-cutters/clippers

If using regulated nets, permittee or authorized assistants will attend nets at all times and release/return all unintended by-catch or non-target organisms as quickly as possible to the marine environment. If using non-

regulated nets or traps, permittee will follow regulations for each net: <https://dlnr.hawaii.gov/dar/fishing/fishing-regulations/gear-restrictions/>

**Entanglement Prevention.** Efforts will be made by permittee and authorized assistants to utilize best management practices to eliminate any potential for incidental entanglement of any unintended marine organisms (turtles, monk seals, cetaceans, sharks, rays or other protected species) while conducting barrier net activities. Entanglement prevention practices will include but are not limited to: minimizing the number of structures or components that may potentially cause entanglement during research operations (e.g. loops, holes, slack lines), checking the net regularly for unintended organisms and releasing non-target organisms and attending net at all times. **Permittee will immediately notify DAR and the appropriate federal agency to report the entanglement of any protected species if incidental entanglement occurs.**

**D. Collection, Monthly Plans/Reporting Off-Site Education Activities, Use of Organisms .**

1. COLLECTING PRACTICES: The permittee is responsible for persons engaging in activities under this permit behaving professionally and responsibly, in manner which does not generate conflict with public or private sectors, including fishing and dive-tour industries and local communities.
  - a) Collecting activities under authority of this permit must be supervised directly, on site, by John Gorman, Matt Gorman or Chris Keller or other authorized assistants as designated by MOC curators or leadership.
  - b) Boats and vehicles used or hired for collecting under this permit be clearly marked with inscription or sign bearing the permittee's affiliation, 'Maui Ocean Center'.
  - c) Every trap and net (except for hand-nets) used for collecting under this permit, regardless of mesh-size, must bear a tag or inscription showing the name of the permittee's affiliation, 'Maui Ocean Center', and the number of this permit, 'SAP 2023-50'.
  - d) Except as specified expressly in an approved collecting plan, no organism unlawful for taking or possession by reason of size, under law or administrative rule, may be collected or displayed under this permit.
  - e) Select fish (will be collected for collaborative research with the University of Hawaii at Hilo, Pacific Aquaculture and Coastal Resources Center (UH – Hilo PACRC) for their Coral Reef Fish Breeding Program or to the Hawaii Pacific University - Oceanic Institute (HPU – OI) to figure out ways in which aquaculture can be used to promote sustainable practices for aquarium facilities by researching methods to raise reef fish species that are endemic or important to Hawaii through captive propagation. Fish intended for this purpose are listed in Appendix 2.
  - f) The permittee agrees to make good-faith attempt to collect as much live rock and coral as possible from material/specimens which would be lost otherwise, e.g. to construction, dredging, etc.
  - g) The Division may require the permittee to accommodate presence of an observer specified by the Division, and may require the permittee to reimburse cost of the observer to the Department.
  - h) Collecting coral:
    - i) The permittee must give notice, in form specified by the Department, to DAR Maui and DOCARE Maui, either 24 hours prior to commencement (or on a schedule agreed to by DOCARE) of collecting "approved specimens" of coral as provided above.

- ii) The permittee must telephone notice, include coral species, specimen numbers and sizes, to DAR Maui and DOCARE Maui, prior to beginning return to shore from the collecting site, for all coral specimens, whether "approved" or "opportunity specimens" as provided above.
- i) Mass mortality - the permittee must notify DAR Maui within one day of:
- i) Any instance of major outbreak of disease or instance of mass mortality in a display or holding tank. "Mass Mortality" may be defined as unusual or large amounts of organisms (groups) perishing or repetitive cases of mortality due to activities such as collection or transportation practices or tank conditions (e.g. water quality/disease issues). "Unusual or large amounts" of organisms may be defined as more than the regular occurrence of incidental mortality of limited amounts of organisms that may occur due to natural causes (e.g. old age) or select incidences of stress, predation, lack of acclimation to captivity, of single organisms, etc. Mortality of any amount of sea turtles shall be reported immediately.
  - ii) MOC will provide information on measure(s) taken to control such disease or cause of mortality, and, as appropriate, measures taken to prevent or reduce release of pathogen or cause into ocean waters through the permittee's outfall, and;
  - iii) MOC will provide information on plan(s) for any additional such control and prevention measure(s).
2. COLLECTING PLANS: Collecting activities authorized under this permit must be approved in advance, by the Division's written approval of a collecting plan for each month, in a form specified by the Division.
- a) Each monthly collecting plan must
    - i) Describe species and quantities intended for collection at specific locations, by specific methods, within specific date-ranges;
    - ii) Be submitted (via email) to the Division's Honolulu office (DAR Oahu) and to the Division's Maui office (DAR Maui).
  - b) The Division may add conditions specific to particular species, locations, times, or methods proposed in a collecting plan.
  - c) Organisms approved for collection in one month but not actually collected, do not remain approved for collection in any subsequent month unless requested and approved again in a collecting plan for the subsequent month.
3. OFF-SITE EDUCATION ACTIVITIES: Activities that require the movement, display, and/or interpretation of organisms collected and maintained by MOC under this permit are allowed with the following conditions:



- a) MOC will submit to DAR an education plan for approval related to the type of off-site activity to be conducted under the annual permit which will be approved by DAR and listed as an appendix or an amendment to this permit.
  - b) All organisms used for the activity will be listed on a “Off-Site Educational Organism List” (see **Appendix 3**) which will be approved by DAR prior to their use, and listed as an appendix or an amendment to this permit.
  - c) Under no circumstances will water or organisms be released to the outside environment during any activity covered off-site. All waters used will be disposed of on MOC property through the normal seawater disposal procedure currently in place.
  - d) Off-site activities shall bear a tag or inscription showing the name of the permittee's affiliation, ‘Maui Ocean Center’, and the number of this permit, 'SAP 2023-50'.
  - e) Approved organisms used for off-site education programs shall be collected, maintained, handled and accounted for in the same manner as called for under other conditions listed in this permit. This includes, but is not limited to, requirements for notification and prior approval for collection, maintenance, disposition, mortality and sickness, loss, transfer, and signage.
4. USE OF ORGANISMS: Organisms and live rock taken from Hawai‘i waters under authority of this permit may be used only for display, research or propagation at Maui Ocean Center on Maui, except as authorized by prior written approval of the Division (or as identified in section e) below):
- a) Organisms collected under authority of this permit may not be used for personal consumption or sale; dead fish may not be carried or otherwise retained during collecting activity, except that mahimahi and ahi, which have died after collection for display, may be retained only to feed organisms on display at MOC and must be included in monthly and annual reports;
  - b) Written approval must be obtained from the Division prior to:
    - i) Purchasing or any other acquisition of regulated organisms (regardless of origin) from any other party,
    - ii) Transporting any live organism (regulated or not) between islands,
  - c) Exchanging or donating any organisms collected under this permit to any other person, party or organization;
  - d) The permittee may not convey in any fashion (including, but not limited to, selling, trading, or giving) any coral or live rock to any person or party in Hawai‘i which does not already have a permit from the Department authorizing possession of same;
  - e) Live rock in excess of the 100-cubic-foot limit may be taken only
    - i) For organisms displayed at MOC to graze on, and;
    - ii) From waters no more than 6' deep and within 200 yards of Maalaea Harbor, and;
    - iii) Provided that such rocks are returned to their original locations, approximately, as soon as needed no longer for grazing, and;

- iv) Live rock collected and returned is included in monthly and annual reports;
  - f) Signage approved by the Division must accompany display(s) at MOC, to communicate requirement for special permit to take and possess regulated organisms
5. MONTHLY COLLECTING REPORTS: The permittee must provide to the Division's Honolulu office and to DAR Maui monthly, written reports of collecting activity carried out under this permit:
- a) Each report, in form specified by the Department (e.g. include names of species--or other taxonomic designation acceptable to the Division-- and numbers--or other appropriate quantities— actually taken, names and quantities of organisms purchased or otherwise acquired, location(s), dates and methods of collection, disposition of any specimen(s) not maintained at Maui Ocean center--e.g. discarded on the spot, returned to the ocean, died during collection or in captivity);
  - b) Reports should include names and Commercial Marine License numbers (in lieu of locations) for all organisms purchased live;
  - c) Marine life purchased dead (for use as feed) must be reported separately on the Department's "Fish Dealer's" report form;
  - d) Each monthly collecting report is due at the Division's Honolulu office within five working days after the last day of the month for which it reports.
  - e) Upon request of the Department, the permittee will furnish with any monthly report an inventory of organisms collected under this permit and held at MOC.
6. PUBLIC COMPENSATION: In return for this permit allowing special use of resources belonging to the people of Hawai'i, the permittee agrees to provide the following compensation to the public:
- a) The permittee will provide, during each permit period in which Maui Ocean Center accepts any paid admission, at least one hundred free admissions to any combination of 1) Maui County residents and 2) students enrolled in any public or private school or institution of higher learning accredited in the State;
  - b) The permittee agrees to employ such students as part-time interns, to average at least five throughout each period Maui Ocean Center accepts any paid admission;
  - c) When feasible, the Department may require the permittee to replenish, restore or improve Maui's reef habitat by providing and planting stock propagated at Maui Ocean Center (after approval by DAR).
  - d) Where appropriate, and based upon staff availability, MOC agrees to endeavor to assist the Department with resource investigations and assessments when requested, based upon MOC's recognized expertise with habitat and organisms unique to the waters of Maui county.

**E. Annual Report:** Upon 90 days post expiration of the permit or 30 days prior to expiration of the permit (depending on **renewal** or **non-renewal** status), the permittee must provide to DAR a final written report summarizing the results of the collection activity carried out under this permit and (if available/applicable) analysis of the data.

1. The annual report should provide a written description of the activity and objective and a written explanation as to how the collection of or activity with a fully protected or regulated marine species for scientific, education, management or propagation purposes is benefiting the State of Hawai'i in general and specifically, the improved management of the species or related species.
2. The annual report must describe the following, in form specified by the Department (access to reporting template on the DAR Permitting Portal can be found at: <https://inforps-dp.hawaii.gov/dlnraquaticpermitting/#/research-spreadsheet> for info from #2. a. & c. and #3) – include all other info (#1, #2 b. & d. into a PDF report):
  - a. **Species name and total quantities and sizes** of all regulated and non-regulated specimens collected under this permit.
  - b. **Results of chemical, genetic, physiological, histological, pathological, statistical or other analysis of data** (if possible/applicable).
  - c. **GPS coordinates (decimal degrees) of location of each sample taken or action conducted and associated geographic location** (e.g. windward side or east side of Patch Reef 8, or north side of Lilipuna Pier). Multiple samples collected in one single area can be geo-referenced by a single GPS point and associated geographic location.

**If GPS is not available:** Make accurate note of your sampling location in field and obtain GPS location from Google Earth after field sampling (**instructions are for the downloaded program - Google Earth Pro, not web version**):

:

- i. Click “Tools” in the top line menu and open Options.
- ii. In the “3D View” tab, **find** the “Show Lat/Long” section. Change the default from Degrees, Minutes, Seconds to **Decimal Degrees**.
- iii. Next, click the pushpin icon in the menu; click and drag the pushpin that appears to the point on the map from which you wish to obtain a GPS coordinate:

(e.g.: Lat: 21.441646, Long: -157.799076)

- iv. Enter GPS coordinate into spreadsheet with associated sampling information (species, amount, size).

- d. **Photo-documentation** of a representative example of organisms collected, methodology, and gear:
  - i. Photo-documentation of a **representative example of average size of invertebrate (including coral, live rock and sand) collected under this permit**, Photo-documentation of a **representative example per methodology used to collect organisms in the field (if possible)**, Photo-documentation of **representative example of by-catch (if possible)**, and Photo-documentation of **representative examples of tanks or aquaria used to house organisms**.

- ii. Photo-documentation of each representative example should include the following photos; **For invertebrates:** one (1) photo per species of invertebrate (including coral, live rock and sand) **with a scale for size**; **For sampling methodology:** one (1) photo of each method used by collectors to catch organisms in the field (including gear); **For by-catch:** photos of various by-catch (if applicable/without causing by-catch mortality) and; **For examples of tanks or aquaria used to house organisms:** photos of different types of tank or aquaria used to house organisms.
3. An inventory (species list) of organisms (dead or alive) present at the facility or with the permittee at the end of the report period, must accompany the annual report, on the spreadsheet indicated above, including the **disposition** of each organism taken under the current SAP (e.g. Perished, Returned to Collection Location, Kept as Broodstock for Propagation, Consumed in Analysis, etc.). **Note:** if one type of disposition occurred then leave number in amount collected column and choose disposition; if multiple dispositions occurred (e.g. 5 were collected; 3 perished and 2 were kept for display) – then leave number in amount collected column but choose the best option under the multiple choices for disposition and clarify the ratios of numbers in the “Notes” column). **Note:** This spreadsheet can also be used for the monthly plans / all months can be kept on the same sheet – basic info can be filled in at the start of the month and all the post collection info can be filled in after collection (e.g. GPS points);
  4. The annual report is due at the Division's Honolulu office one month (30 days) before expiration of the permit if renewal is needed or within three months (90 days) after expiration of the permit if renewal is not needed or as otherwise instructed by the Division.

**F. Use of Organisms, Parts of Organisms, Tissue Samples or other Aquatic Resources.** The permittee may not convey in any fashion (including, but not limited to, selling, trading, or giving) any organisms, parts of organisms, tissue samples or other aquatic resources to any person or party in Hawai'i that does not already have a permit from the Department authorizing possession of same and without written approval from DAR. Organisms taken under authority of this permit may be used for scientific study or educational purposes **ONLY**, except as authorized by prior written approval of DAR.

- a. This permit authorizes the permittee and authorized assistants to transport organisms listed in Table 1 within Hawai'i to the following institutions and authorizes the following institutions to organisms listed in Table 1 from the permittee and authorized assistants:
  - i. University of Hawaii at Hilo (UHH), Pacific Aquaculture and Coastal Resources Center (PACRC), Hilo, HI
  - ii. Oceanic Institute, Waimanalo, Oahu
  - iii. Coral Restoration Nursery (CRN), Department of Land and Natural (DLNR) Resources-Division of Aquatic Resources (DAR), Sand Island, Oahu
  - iv. Waikiki Aquarium, Honolulu, HI

## II. GENERAL CONDITIONS:

- A. This permit does not make the Department of Land and Natural Resources or the State of Hawaii liable in any way for any claim of personal injury or property damage to the permittee or assistants which may occur during any activity conducted under this permit; moreover, the permittee and all assistants agree to hold the State harmless against any and all claims of personal injury, death or property damage resulting from activities of the permittee or any assistant.

- B. This permit conveys a privilege to engage in only those activities under the jurisdiction of the Department of Land and Natural Resources. The permittee is responsible for complying with all applicable County, State, and Federal requirements. The permit does not convey any privilege of access over or through private property.
- C. The permittee and each assistant are individually responsible and accountable for their actions while conducting activities authorized under this permit; additionally, the permittee is responsible and accountable for the actions of the permittee's assistants.
- D. This permit is not transferable or assignable. Any person whose name does not appear on this permit and is conducting any activity described herein is subject to prosecution for violation of State laws.
- E. The permittee may request changes to the permit. Any such request to make changes to the permit must be made in writing and received by the Department at least thirty days prior to the change. The addition of new assistants will require each individual to sign the Attachment on page 25, 26 or 27 stating that they have read, understood, and agree to abide by all general and special permit conditions. No change may be implemented without written approval from the Department.
- F. The permittee may request to:
1. Add assistants to the permit;
  2. Add another permittee or replace an existing permittee in the manner stated above; and
  3. Change the activities authorized under this permit.
- G. The permittee or their assistant(s) must have with them a copy of this permit while conducting activities authorized by this permit.
- H. This permit authorizes collection of organisms protected by Federal law only with prior appropriate Federal authority, which must be described on Page 1 of this permit (if applicable).
- I. This permit does not authorize the sale of any collected organism.
- J. This permit expires on the date indicated on Page 1. **If no renewal is needed**, the permittee must return this permit with all signature sheets (to the address listed on the upper left corner of page 1, c/o Cathy Gewecke) and additionally email a **PDF version of a final report** (to [catherine.a.gewecke@hawaii.gov](mailto:catherine.a.gewecke@hawaii.gov)) with complete information on all activities authorized under this permit (see **Special Conditions, Section E. Annual Report**) within **three months (90 days) after** the expiration date. **If renewal is needed**, permittee must submit a **PDF version of a final report** to the Division **one month (30 days) prior** to the expiration date for DAR biologists to review, in addition to turning in expired permit with signatures no later than the regular **three months (90 days) after expiry date**. If complete report cannot be submitted **one month (30 days) prior** to the expiration date, the permittee will submit a short synopsis of research conducted (PDF version- **one month (30 days) prior** to the expiration date) in past year including information on quantities, genus species and activities conducted, and submit full report no later than the regular **three months (90 days) after expiry date**.
- K. The permittee and assistants agree to provide access to data obtained under authority of this permit upon request of the Division of Aquatic Resources, and to provide to the Division a copy of each report, published for distribution, prepared with data obtained under this permit. The permittee agrees to provide the Division of Aquatic Resources access to organisms obtained and held under this permit for on-site inspection.

- L. The permittee agrees to notify the island office of the Division of Conservation and Resources Enforcement (DOCARE – Oahu Central Office: 808-643-3567 or DOCARE – Maui Office at least 24 hours prior to any authorized activity being conducted in the field, or on a schedule approved by DOCARE (if collecting year round), and immediately after returning to shore with fish collected under this permit, to give DOCARE the opportunity to conduct an on-site inspection if determined necessary. See section **O. Other Collection Guidelines** (below) for additional requirements.
- M. A violation of any terms or condition of this permit or any violation of State law not covered by this permit may result in revocation of the permit and other penalties as provided by law. In addition, the Department may consider any such violation as grounds for denying any future application for this or any other permit issued by the Department.
- N. Coral Activities: Activities under this permit shall abide by the following conditions.
1. Coral - the Permittee must notify DAR Oahu ([dar.sap@hawaii.gov](mailto:dar.sap@hawaii.gov)) within 24 hours of:
    - a. Any instance of major damage caused to coral or other marine natural resources, because of collection or other research activities conducted under this permit.
  2. Fragmentation - This permit **authorizes** fragmentation of coral colonies.
  3. Rare Species - The following *Porites* species require special permission from the Division prior to collection under this permit: *Porites pukoensis*, *Porites duerdeni*, *Porites studeri*. The following *Montipora* species require special permission from DAR prior to collection under this permit: *Montipora dilitata*. The following *Pocillopora* species require special permission from DAR prior to collection under this permit: *Pocillopora ligulata*, *Pocillopora molokensis*.
  4. **No impact-causing activities will be conducted on (or immediately adjacent to) any intact, attached coral colony measuring larger than 1 m x 1 m x 1 m. Specific efforts will be made to avoid damage to any large colonies of living coral.**
- O. Other Collection Guidelines:
1. Collecting generally - the Permittee must give notice, in form specified by the Department (email or phone call), to DAR ([catherine.a.gewecke@hawaii.gov](mailto:catherine.a.gewecke@hawaii.gov)) and to the Department's Division of Conservation and Resources Enforcement Central Office - Oahu (DOCARE: 808-643-3567), at least 24 hours prior to initial commencement of any series of field collection/sampling activities taken place under this permit, or on a schedule approved by DOCARE (if collecting year round) and immediately after returning to shore with fish collected under this permit, to give DOCARE the opportunity to conduct an on-site inspection if determined necessary. Researcher will confirm with central DOCARE office (Oahu) to see if DOCARE –Maui Office should be contacted directly before and after each sampling. **Researcher will provide the following info when DOCARE is notified:** SAP #, researcher name/institution, date, location, activity description (e.g. using small mesh nets to collect fish in a specific area), description of boat being used (color, size, type of boat)(if applicable), description of vehicle on shore (if applicable), number of people involved in activity.
  2. An **Aquatic Invasive Species (AIS) Mitigation Plan** will be filed with the Division prior to conducting any collection under this permit. The Plan will include methods and protocols to minimize AIS or disease movement through gear, supplies and activities of the permittee. Permittee must take actions to verify that collection tools have been disinfected before use if previously used in collection activities.

**Invasive Species/Disease/Parasites:** All collection gear deployed must be visually checked for invasive species/disease/parasites and disinfected with 10% bleach solution for 10 minutes before deployment in alternate location if current or previous activities involved collecting or conducting activities between multiple watersheds/distinct reef areas/islands. If collection gear cannot be bleached, gear must be thoroughly rinsed with fresh water and dried in sun for 24 hours before deployment in alternate location, sterilized with another viable method or alternate sampling gear should be utilized. If sampling disease or anomalous growth specimens, gear should be sterilized between each specimen or new collection gear should be used. **If collecting in Kaneohe Bay or Maunalua Bay: (If applicable)** Kaneohe Bay: All collection gear utilized in Kaneohe Bay must be visually checked for invasive species/disease/parasites (e.g. *Kappaphycus spp.*, *Eucheuma denticulatum*, *Gracilaria salicornia* and *Mycale grandis/armata*) and disinfected with 10% bleach solution for 10 minutes before deployment in alternate location other than Kaneohe Bay. Maunalua Bay: All collection gear deployed in Maunalua Bay must be visually checked for invasive species/disease/parasites (e.g. *Avrainvillea amadelpha/lacerata* and *Gracilaria salicornia*) and disinfected with 10% bleach solution for 10 minutes before deployment in alternate location other than Maunalua Bay. The following species remain a concern to the division: Alien invasive algae (*Kappaphycus spp.*, *Eucheuma denticulatum*, *Gracilaria salicornia*, *Acanthophora spicifera*, *Hypnea musciformis* and *Avrainvillea amadelpha/lacerata*), Coral disease (*Montipora White Syndrome*, *Porites trematodiasis*, *Montipora black band disease*, *Porites tissue loss syndrome*, and *Porites spp.* and *Montipora spp.* tumors, *Montipora spp.* growth anomaly), Orange keyhole sponge (*Mycale armata/grandis*). **Note: No collections in Kaneohe Bay or Maunalua Bay are authorized under this permit.**

**(If applicable)** Permittee will mitigate for the spread of invasive species/disease/parasites by ensuring that all organisms (e.g. coral colonies, fragments or live rock) collected from Kaneohe Bay are absent of any algae fragments or basal attachments of the invasive alga *Kappaphycus spp.*, *Eucheuma denticulatum*, *Gracilaria salicornia*, or other invasive species/disease/parasites (unless collecting these non-native species specifically) before transporting organisms to alternative location for research. **Note: No collections in Kaneohe Bay or Maunalua Bay are authorized under this permit.**

**(If applicable)** Permittee will mitigate for the spread of invasive species/disease/parasites by ensuring that all organisms (e.g. coral colonies, fragments or live rock) collected in Maunalua Bay are absent of any algae fragments or basal attachments of the invasive alga *Avrainvillea amadelpha/lacerata*, *Gracilaria salicornia*, or other invasive species/disease/parasites (unless collecting these non-native species specifically) before transporting organisms to alternative location for research. **Note: No collections in Kaneohe Bay or Maunalua Bay are authorized under this permit.**

**Quarantine Protocol.** **If transporting and holding live organisms (including live rock) in an aquarium/tank:** After inspection, organisms transported to or from other locations on island must have a quarantine protocol involving either closed-system tanks for the entire research period or closed-system tanks for a select amount of quarantine time followed by flow-through tanks with UV lights on outfall or treatment system for all outflow water via a protein skimmer and ozone or another treatment approved by DAR after review. Organisms will be placed in placed into flow-through tanks only if observations indicate that no invasive species are present. Permittee will sacrifice any AIS/disease/parasites if found at this stage, and keep host organisms in closed system tanks for research. Length of quarantine time and type of holding tank (closed-system or open-system) will be determined based on location of collection/location of holding and type of organism collected, after consultation with DAR. Exceptions (after consultation with DAR): If the quarantine process is not possible (due to capacity/lack of available closed-system tanks), then the quarantine process is not required for researchers working with fish and invertebrates (other than coral) collected from areas outside of area where research tanks are located, if researchers are able to conduct initial inspection of organisms for AIS/disease/parasites before transporting organisms back to open-system (flow-through tanks) at research

location. DAR will work with researchers on a case by case basis, that work with coral and live rock collected from areas outside of outside of the area where research tanks are located, but which may have limited quarantine capacity (lack of available closed-system tanks), to determine if the quarantine process is necessary

3. No organism other than those listed on this permit will be collected or impacted by any activities conducted under this permit.
4. Collecting and transport activities under authority of this permit must be supervised directly, on site, by either the permittee or their authorized assistants (who must be a signatory of this permit).
5. Gear and Methods: Use of any chemical substances pursuant to Section 188-23, Hawai'i Revised Statutes, electrical shocking devices, or explosives remains expressly prohibited.
6. Use of Organisms: Organisms collected under authority of this permit may not be used for personal consumption or sale; organisms collected under this permit may not be traded, bartered or loaned to other individuals, institutions or entities;
  1. Written approval must be obtained from the Division prior to:
    - a. Purchasing or any other acquisition of regulated organisms (regardless of origin) from any other party;
    - b. Exchanging or donating any organisms collected under this permit to any other person, party or organization (unless authorized by this permit);
7. Sampling Moratoriums: The Division may request a voluntary sampling moratorium, or in some cases, implement a mandatory sampling moratorium, for certain organisms authorized for collection under any current permit, during times of ecosystem pressure caused by natural or anthropogenic stressors. Example of ecosystem pressure may include coral bleaching events, which have occurred most recently in Hawaii during the months of July/August to November. Please take this into consideration when applying for a permit, plan your collections accordingly and be prepared to take a sampling hiatus (if necessary) until the stressor event is determined to have ended. Exemptions may be provided for studies or projects that have a research objective directly related to the naturally or anthropogenically caused stressors, which require collecting data or samples during this period, or select projects that are evaluated to not cause additional pressure during this period.

P. **OWNERSHIP OF BIOGENETIC RESOURCES.** The State holds legal title to the natural resources and biogenetic resources gathered from state lands, including submerged lands. See Haw. Op. Atty. Gen. Opinion No. 03-03 ([April 11, 2003](#)). Biogenetic resources refer to the genetic material or composition of the natural resources and other things connected to, or gathered from public lands. See Davis v. Green, 2 Haw. 327 (1861); United States v. Gerber, 999F.2d 1112 (7th Cir. 1993).

*Suzanne D. Case*

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SUZANNE D. CASE, Chairperson  
Department of Land and Natural Resources

cc: (x) DOCARE  
(x) DAR – Maui  
(x) DAR – Oahu



SIGNATURES AND AGREEMENT

By my signature below, I acknowledge receipt and understanding of the general and special conditions of this Special Activity Permit. Further, I agree to abide by all of these conditions when conducting activities authorized by this permit.

PRINCIPAL PERMITTEES:  11/01/22  
Tapani Vuori

DESIGNATED ASSISTANTS:

Signature: _____	Signature: _____
Print Name: Chris Keller	Print Name: John Gorman
Signature: _____	Signature: _____
Print Name: Nadine Nagata	Print Name: Harry Abrahamsen
Signature: _____	
Print Name: Aharon Miroz	

SIGNATURES AND AGREEMENT

By my signature below, I acknowledge receipt and understanding of the general and special conditions of this Special Activity Permit. Further, I agree to abide by all of these conditions when conducting activities authorized by this permit.

DESIGNATED ASSISTANTS:

Signature:	_____	Signature:	_____
Print Name:	Matt Gorman	Print Name:	Richard Nezelek
Signature:	_____	Signature:	_____
Print Name:	Leslie Hoeffken	Print Name:	Paul Sandlin
Signature:	_____	Signature:	_____
Print Name:	Tessa Mancini Gillen	Print Name:	Amy Strawbridge
Signature:	_____	Signature:	_____
Print Name:	Katilin Brawley	Print Name:	William Flynn
Signature:	_____	Signature:	_____
Print Name:	Dave Alexander	Print Name:	Kawika Cosma
Signature:	_____	Signature:	_____
Print Name:	Hannah Powless	Print Name:	
Signature:	_____	Signature:	_____
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Signature:	_____	Signature:	_____
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Print Name:		Print Name:	

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Signature:	_____	Signature:	_____
Print Name:	_____	Print Name:	_____
Signature:	_____	Signature:	_____
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Print Name:	_____	Print Name:	_____

Appendix 1: SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts (Note: Green Highlights = New additions or modified amounts for 2022-2023; **Orange Highlights** = Organisms collected for University of Hawaii at Hilo, Pacific Aquaculture and Coastal Resources Center (UH - Hilo PACRC) and the Hawaii Pacific University – Oceanic Institute (HPU – OI) for fish propagation research.

Appendix 1 (cont.): SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts

Marine Invertebrates					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Regulated Organisms					
Sea cucumber	Black Sea Cucumber	<i>Holothuria atra</i>	8	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling
Sea cucumber	Hawaiian Spiky Sea Cucumber	<i>Stichopus sp. 1</i>	2	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling
Octopus	Day Octopus	<i>Octopus cyanea</i>	2	juveniles only	Juvenile for change out every 6 months
Lobster	Banded Spiny Lobster	<i>Panulirus marginatus</i>	2	various sizes; specified in final report	Replacements
Lobster	Tufted Spiny Lobster	<i>Panulirus penicillatus</i>	2	various sizes; specified in final report	Replacements
Lobster	Ridgeback Slipper Lobster	<i>Scyllarides haanii</i>	1	various sizes; specified in final report	n/a
Lobster	Scyllarides squammosus	<i>Scaly Slipper Lobster</i>	2	various sizes; specified in final report	n/a
Crab	Kona Crab	<i>Ranina ranina</i>	1	various sizes; specified in final report	n/a
Coral	Antler Coral	<i>Pocillopora eydouxi</i>	8 fragments	8 inches	Will be collected from colonies that are ~ 26 inches diameter
Coral	Cauliflower Coral	<i>Pocillopora meandrina</i>	4 colonies	8 inches diameter	Full colonies collected
Coral	Moloka'i Cauliflower Coral	<i>Pocillopora molokensis</i>	4 fragments	6 inches	Will be collected from colonies that are ~ 18 diameter
Coral	Rice Coral	<i>Montipora capitata</i>	10 colonies	14 inches diameter	Full colonies collected
Coral	Lobe Coral	<i>Porites lobata</i>	2 colonies	14 inches diameter	Full colonies collected

## Appendix 1 (cont.): SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts

Marine Invertebrates					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Coral	Honeycomb Coral	<i>Gardineroseris planulata</i>	4 fragments	8 inches	Will be collected from colonies that are ≈ 24 inches diameter
Coral	Transverse Coral	<i>Leptastrea transversa</i>	6 fragments	8 inches	Will be collected from colonies that are ≈ 24 diameter
Coral	Porkchop Coral	<i>Pavona duerdeni</i>	6 fragments	8 inches	Will be collected from colonies that are ≈ 36 inches diameter
Coral	Corrugated Coral	<i>Pavona varians</i>	6 fragments	8 inches	Will be collected from colonies that are ≈ 18 inches diameter
Coral	Tube Coral	<i>Leptoseris tubulifera</i>	8 colonies	2 inches diameter	Full colonies collected
Coral	Stellar Coral	<i>Psammocora stellata</i>	4 fragments	3 inches	Will be collected from colonies that are ≈ 6 inches diameter
Coral	Mushroom Coral	<i>Fungia scutaria</i>	6 colonies (green in color)	6 inches diameter	Full colonies collected
Coral	Mushroom coral	<i>Cycloseris</i> sp.	10	1-2 inches <sup>2</sup>	Full colonies collected
Coral	Cup Coral	<i>Tubastrea</i> sp.	15 colonies	1-2 inches diameter	Full colonies collected
Black Coral	Grand Black Coral	<i>Antipathes grandis</i>	3 individuals (branches)	24 inches long	Will be collected from colonies that are ≈ 72 inches <sup>2</sup>
Black Coral	Feathery Black Coral	<i>Myriopathes ulex</i>	1 individual (branches)	18 inches long	Will be collected from colonies that are ≈ 36 inches <sup>2</sup>
Octocorals	Leather Coral	<i>Sinularia densa</i>	4 colonies	10 inches <sup>2</sup>	Full colonies collected
Non-Regulated Organisms					
Corallimorphs & Zoanthids	Rubbery or Pillow Zoanthids	<i>Palythoa tuberculosa</i> ( <i>Palythoa caesia</i> )	8 fragments	6 inches diameter	Will be collected from colonies that are ≈ 24 inches <sup>2</sup>
Corallimorphs & Zoanthids	Mat Zoanthid	<i>Zoanthus</i> sp.	10 individuals	8 inches <sup>2</sup>	Will be collected from colonies that are ≈ 24 inches <sup>2</sup>
Wire Coral	Wire Coral	<i>Cirripathes anguina</i>	6 individuals (branches)	30 inches long	Will be collected from colonies that are ≈ 72 inches long

Appendix 1 (cont.): SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts

Marine Invertebrates					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Jellyfish	Moon Jellyfish	<i>Aurelia aurita</i>	40	various sizes; specified in final report	Annual additions due to limited lifespan; MOC may receive shipments of Moon Jellyfish from Waikiki Aquarium or other institutions in Hawaii with prior notification to DAR
Jellyfish	Lagoon Jellyfish	<i>Mastigias spp.</i>	4	various sizes; specified in final report	Existing collection is limited; MOC would like to expand
Anemones	Sand Anemone	<i>Heteractis malu</i>	4	various sizes; specified in final report	Replacement; organisms may shrink or lose color while on display
Anemones	Day Tube Anemone	<i>Cerianthus spp.</i>	3	various sizes; specified in final report	Replacement; organisms may shrink or lose color while on display
Worms	Feather Duster Worm	<i>Sabellastarte spectabilis</i>	10	various sizes; specified in final report	n/a
Worms	Medusa Spaghetti Worm	<i>Loimia medusa</i>	1	various sizes; specified in final report	n/a
Snail	Textile Cone	<i>Conus textile</i>	2	various sizes; specified in final report	n/a
Oyster	Spiny Oyster	<i>Spondylus nicobaricus</i>	2	various sizes; specified in final report	n/a
Shrimp	Giant Mantis Shrimp	<i>Lysiosquilla maculata</i>	1	various sizes; specified in final report	n/a

Appendix 1 (cont.): SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts

<b>Marine Invertebrates</b>					
<b>Common Group</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b># of Specimens</b>	<b>Sizes</b>	<b>Comments</b>
Shrimp	Philippine Mantis Shrimp	<i>Gonodactylaceus falcatus</i>	3	various sizes; specified in final report	n/a
Shrimp	Banded Coral Shrimp	<i>Stenopus hispidus</i>	4	various sizes; specified in final report	n/a
Shrimp	Harlequin Shrimp	<i>Hymenocera picta</i>	2	various sizes; specified in final report	replacement; in case of display shrimp mortality
Shrimp	White-stripe Cleaner Shrimp	<i>Lysmata amboinensis</i>	8	various sizes; specified in final report	n/a
Lobster	Red Reef Lobster	<i>Enoplometopus occidentalis</i>	1	various sizes; specified in final report	n/a
Lobster	Sculptured Slipper Lobster	<i>Parribacus antarcticus</i>	1	various sizes; specified in final report	n/a
Lobster	Actides regalis	<i>Regal Slipper Lobster</i>	1	various sizes; specified in final report	n/a
Crab	Hairy Yellow Hermit Crab	<i>Aniculus maximus</i>	1	various sizes; specified in final report	n/a
Crab	White-spotted Hermit Crab	<i>Dardanus megistos</i>	3	various sizes; specified in final report	n/a

## Appendix 1 (cont.): SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts

Marine Invertebrates					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Crab	Jeweled Anemone Crab	<i>Dardanus gemmatus</i>	2	various sizes; specified in final report	n/a
	Pale Anemone Crab	<i>Dardanus deformis</i>	1	various sizes; specified in final report	n/a
Crab	White-spotted Hermit Crab	<i>Dromia dormia</i>	1	various sizes; specified in final report	n/a
Crab	Common Box Crab	<i>Calappa hepatica</i>	1	various sizes; specified in final report	n/a
Seastar	Green Linckia	<i>Linckia guildingi</i>	3	various sizes; specified in final report	Replacements; MOC uses nubbins 1/2 inch in length to feed the harlequin shrimp; will be returned to the ocean
Seastar	Spotted Linckia	<i>Linckia multifora</i>	3	various sizes; specified in final report	Replacements
Seastar	Cushion Star	<i>Culcita novaeguineae</i>	8	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling
Seastar	Knobby Star	<i>Pentaceraster cumingi</i>	10	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling
Seastar	Purple Velvet Star	<i>Leiaster leachi</i>	5	various sizes; specified in final report	Replacements
Squid	Bigfin Squid	<i>Sepioteuthis lessoniana</i>	5	various sizes; specified in final report	Need to replace; the squid often lay eggs and then expire or they can be cannibalistic



## Appendix 1 (cont.): SAP 2023-50 Approved List of Marine Invertebrate Species and Amounts

Marine Invertebrates					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Urchins	Banded Urchin	<i>Echinothrix calamaris</i>	3	various sizes; specified in final report	Replacements
Urchins	Helmet Urchin	<i>Colobocentrotus atratus</i>	8	various sizes; specified in final report	n/a
Urchins	Collector Urchin	<i>Tripneustes gratilla</i>	20	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling
Urchins	Red Pencil Urchin	<i>Heterocentrotus mammillatus</i>	8	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling
Urchins	Black Longspine Urchin	<i>Diadema setosum</i>	5	various sizes; specified in final report	Replacements; to swap out specimens in tide pool; concerns with potential handling

## Appendix 2: SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Regulated Fish					
Wrasse	Hawaiian Cleaner Wrasse	<i>Labroides phthirophagus</i>	4	Adults - various sizes; specified in final report	4 individuals may be collected for HPU Oceanic Institute for propagation research (only if facilities and researchers have capacity)(only if facilities and researchers have capacity)
Butterflyfish	Oval Butterflyfish	<i>Chaetodon lunulatus</i>	2	juvenile only	Juveniles for Aptasia control
Moorish Idol	Moorish Idol	<i>Zanclus cornutus</i>	4	various sizes; specified in final report	n/a
Angelfish	Potter's Angelfish	<i>Centropyge potteri</i>	20	various sizes; specified in final report	4 individuals to be collected for MOC; 8 extra individuals may be collected for UH-PACRC for propagation research and 8 extra individuals may be collected for HPU Oceanic Institute for propagation research (only if facilities and researchers have capacity)(only if facilities and researchers have capacity)
Surgeonfish	Convict Surgeonfish	<i>Acanthurus triostegus</i>	8	various sizes; specified in final report	n/a
Surgeonfish	Achilles Tang	<i>Acanthurus achilles</i>	18	various sizes; specified in final report	10 individuals to be collected for MOC; 8 extra individuals may be collected for UH-PACRC for propagation research (only if facilities and researchers have capacity)
Surgeonfish	Yellow Tang	<i>Zebrasoma flavescens</i>	10	juveniles only	Juveniles only for algae control

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Surgeonfish	Yellow Tang	<i>Zebrasoma flavescens</i>	12	Adults - various sizes; specified in final report	12 individuals may be collected for HPU Oceanic Institute for propagation research (only if facilities and researchers have capacity)
Surgeonfish	Goldring Surgeonfish	<i>Ctenochaetus strigosus</i>	12	various sizes; specified in final report	4 individuals to be collected for MOC (juveniles only - for algae control) and 8 extra individuals may be collected for UH-PACRC for propagation research (only if facilities and researchers have capacity)
Surgeonfish	Orangespine Unicornfish	<i>Naso lituratus</i>	6	juveniles only	Juveniles to grow up
Goatfish	Sidespot Goatfish	<i>Parupeneus pleurostigma</i>	8	various sizes; specified in final report	n/a
Goatfish	Blue Goatfish	<i>Parupeneus cyclostomus</i>	1	juveniles only	n/a
Goatfish	Manybar Goatfish	<i>Parupeneus multifasciatus</i>	2	various sizes; specified in final report	n/a
Goatfish	Bandtail Goatfish	<i>Upeneus arge</i>	8	various sizes; specified in final report	n/a
Shark	Tiger shark	<i>Galeocerdo cuvier</i>	1	various sizes; specified in final report	MOC holds a tiger shark on display for one (1) year at most, so they need replacement within the permit period

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Shark	Scalloped Hammerhead Shark	<i>Sphyrna lewini</i>	4	juveniles only	MOC grows out hammerhead pups in outdoor tank. After they reach a certain size they are added to the pelagic exhibit or returned to the ocean.
Shark	Blacktip Reef Shark	<i>Carcharhinus melanopterus</i>	5	juveniles only	Pups for replacement. MOC collects blacktip pups at Olowalu every year and returns two (2) year old blacktips back to the same location of collection.
Shark	Sandbar Shark	<i>Carcharhinus plumbeus</i>	1	various sizes; specified in final report	Male to add for breeding
Shark	Whitetip Reef Shark	<i>Triaendon obesus</i>	1	various sizes; specified in final report	Male to add for breeding
Ray	Broad Stingray	<i>Dasyatis latus</i>	2	juveniles only	Pups to replace
Ray	Spotted Eagle Ray	<i>Aetobatus narinari</i>	2	various sizes; specified in final report	Replacement
Non-regulated organisms					
Coris/ Wrasse	Yellowtail Coris	<i>Coris gaimard</i>	2	juvenile only	n/a
Coris/ Wrasse	Yellowstriped Coris	<i>Coris flavovittata</i>	2	juvenile only	n/a
Coris/ Wrasse	Elegant Coris	<i>Coris venusta</i>	2	various sizes; specified in final report	n/a

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Coris/ Wrasse	Lined Coris	<i>Coris ballieui</i>	2	various sizes; specified in final report	n/a
Wrasse	Psychedelic Wrasse	<i>Anampses chrysocephalus</i>	6	various sizes; specified in final report	n/a
Wrasse	Saddle Wrasse	<i>Thalassoma duperrey</i>	4	various sizes; specified in final report	n/a
Wrasse	Belted Wrasse	<i>Stethojulis balteata</i>	1	various sizes; specified in final report	n/a
Wrasse	Flame Wrasse	<i>Cirrhilabrus jordani</i>	6	various sizes; specified in final report	n/a
Wrasse	Hawaiian Flame Wrasse	<i>Cirrhilabrus jordani</i>	15	various sizes; specified in final report	Collected for UH-PACRC for propagation research
Wrasse	Rockmover Wrasse	<i>Novaculichthys taeniourus</i>	2	juvenile only	n/a
Wrasse	Smalltail Wrasse	<i>Pseudojuloides cerasinus</i>	10	various sizes; specified in final report	n/a
Wrasse	Fourstripe Wrasse	<i>Pseudocheilinus tetraetania</i>	1	various sizes; specified in final report	n/a

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Wrasse	Eightstripe Wrasse	<i>Pseudocheilinus octotaenia</i>	1	various sizes; specified in final report	n/a
Wrasse	Ornate Wrasse	<i>Halichoeres ornatissimus</i>	3	various sizes; specified in final report	n/a
Wrasse	Hawaiian Hogfish	<i>Bodianus bilunulatus</i>	3	juvenile only	n/a
Wrasse	Pearl Wrasse	<i>Anampses cuvier</i>	2	various sizes; specified in final report	n/a
Wrasse	Shortnose Wrasse	<i>Macropharyngodon geoffroy</i>	5	various sizes; specified in final report	n/a
Tilefish	Flagtail Tilefish	<i>Malacanthus brevirostris</i>	1	juvenile only	n/a
Sandperch	Redspotted Sandperch	<i>Parapercis schauinslandii</i>	2	various sizes; specified in final report	n/a
Dartfish	Spottail Dartfish	<i>Ptereleotris heteroptera</i>	10	various sizes; specified in final report	n/a
Razorfish	Peacock Razorfish	<i>Xyrichtys pavo</i>	2	various sizes; specified in final report	n/a

Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Razorfish	Peacock Razorfish or Nabeta	<i>Iniistius pavo</i>	30	juvenile only	30 collected for UH-PACRC for propagation research
Butterflyfish	Bluestripe Butterflyfish	<i>Chaetodon fremblii</i>	2	various sizes; specified in final report	n/a
Butterflyfish	Milletseed Butterflyfish	<i>Chaetodon miliaris</i>	12	various sizes; specified in final report	n/a
Butterflyfish	Raccoon Butterflyfish	<i>Chaetodon lunula</i>	4	juvenile only	Juveniles for Aptasia control
Butterflyfish	Blacklip Butterflyfish	<i>Chaetodon kleinii</i>	3	various sizes; specified in final report	n/a
Butterflyfish	Pyramid Butterflyfish	<i>Hemitaurichthys polylepis</i>	10	various sizes; specified in final report	n/a
Butterflyfish	Pennantfish	<i>Heniochus diphreutes</i>	10	juvenile only	n/a
Butterflyfish	Stripey	<i>Microcanthus strigatus</i>	3	various sizes; specified in final report	n/a
Butterflyfish	Tinker's Butterflyfish	<i>Chaetodon tinkeri</i>	8	various sizes; specified in final report	8 individuals may be collected for UH-PACRC for propagation research (only if facilities and researchers have capacity)

Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Butterflyfish	Longnose Butterflyfish	<i>Forcipiger longirostris</i>	4	various sizes; specified in final report	n/a
Butterflyfish	Forcepsfish	<i>Forcipiger flavissimus</i>	4	various sizes; specified in final report	n/a
Angelfish	Flame Angelfish	<i>Centropyge loricula</i>	1	various sizes; specified in final report	n/a
Angelfish	Fisher's Angelfish	<i>Centropyge fisherii</i>	2	various sizes; specified in final report	n/a
Damsel Fish	Hawaiian Dascyllus	<i>Dascyllus albisella</i>	38	various sizes; specified in final report	30 individuals to be collected for MOC; Juveniles for replacement and 8 extra individuals may be collected for UH-PACRC for propagation research (only if facilities and researchers have capacity)
Chromis	Oval Chromis	<i>Chromis ovalis</i>	20	various sizes; specified in final report	n/a
Chromis	Blackfin Chromis	<i>Chromis vanderbilti</i>	30	various sizes; specified in final report	n/a
Chromis	Agile Chromis	<i>Chromis agilis</i>	10	various sizes; specified in final report	n/a



Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Chromis	Chocolate-dip Chromis	<i>Chromis hanui</i>	6	various sizes; specified in final report	n/a
Anthias	Longfin Anthias	<i>Pseudanthias hawaiiensis</i>	8	various sizes; specified in final report	8 individuals may be collected for UH-PACRC for propagation research (only if facilities and researchers have capacity)
Cardinalfish	Spotted Cardinalfish	<i>Apogon maculiferus</i>	8	juvenile only	n/a
Cardinalfish	Iridescent Cardinalfish	<i>Apogon kallopterus</i>	8	juvenile only	n/a
Cardinalfish	Bay Cardinalfish	<i>Foa brachygramma</i>	5	juvenile only	n/a
Snapper	Bluestripe Snapper	<i>Lutjanus kasmira</i>	20	various sizes; specified in final report	n/a
Snapper	Blacktail Snapper	<i>Lutjanus fulvus</i>	2	various sizes; specified in final report	n/a
Emeperor	Bigeye Emperor	<i>Monotaxis grandoculis</i>	4	juvenile only	Juveniles for replacement
Anthias	Bicolor Anthias	<i>Pseudanthias bicolor</i>	20	various sizes; specified in final report	n/a
Flounder	Flowery Flounder	<i>Bothus mancus</i>	4	various sizes; specified in final report	n/a

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Flounder	Threespot Flounder	<i>Samariscus triocellatus</i>	5	various sizes; specified in final report	n/a
Flounder	Leopard Flounder	<i>Bothus pantherinus</i>	5	various sizes; specified in final report	n/a
Pufferfish	Hawaiian Whitespotted Toby	<i>Canthigaster jactator</i>	3	various sizes; specified in final report	n/a
Pufferfish	Crown Toby	<i>Canthigaster coronata</i>	2	various sizes; specified in final report	n/a
Pufferfish	Lantern Toby	<i>Canthigaster epilampra</i>	1	various sizes; specified in final report	n/a
Pufferfish	Spotted Puffer	<i>Arothron meleagris</i>	1	various sizes; specified in final report	n/a
Pufferfish	Stripebelly Puffer	<i>Arothron hispidus</i>	3	juveniles only	Juveniles for replacement
Trunkfish	Whitley's Trunkfish	<i>Ostracion whitleyi</i>	1	various sizes; specified in final report	n/a
Cowfish	Thornback Cowfish	<i>Lactoria fornasini</i>	1	various sizes; specified in final report	n/a

Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Boxfish	Spotted Boxfish	<i>Ostracion meleagris</i>	2	juveniles only	Juveniles for replacement
Triggerfish	Lei Triggerfish	<i>Sufflamen bursa</i>	2	juveniles only	Juveniles for replacement
Triggerfish	Reef Triggerfish	<i>Rhinecanthus rectangulus</i>	3	juveniles only	Juveniles for replacement
Triggerfish	Lagoon Triggerfish	<i>Rhinecanthus aculeatus</i>	3	juveniles only	Juveniles for replacement
Surgeonfish	Lavender Tang	<i>Acanthurus nigrofuscus</i>	4	various sizes; specified in final report	n/a
Surgeonfish	Goldrim Surgeonfish	<i>Acanthurus nigricans</i>	5	various sizes; specified in final report	n/a
Surgeonfish	Orangeband Surgeonfish	<i>Acanthurus olivaceus</i>	4	juveniles only	Juveniles for replacement
Surgeonfish	Whitebar Surgeonfish	<i>Acanthurus leucopareius</i>	2	various sizes; specified in final report	n/a
Surgeonfish	Whitespotted Surgeonfish	<i>Acanthurus guttatus</i>	4	various sizes; specified in final report	n/a
Surgeonfish	Bluespine Unicornfish	<i>Naso unicornis</i>	6	juveniles only	Juveniles to grow up
Surgeonfish	Sailfin Tang	<i>Zebrasoma veliferum</i>	4	juveniles only	Juveniles only

Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Surgeonfish	White Margin Unicornfish	<i>Naso annulatus</i>	6	juveniles only	Juveniles only
Wrasse/ Razorfish/ Knifefish	Hawaiian Knifefish	<i>Cymolutes lecluse</i>	2	various sizes; specified in final report	n/a
Scorpionfish	Titan Scorpionfish	<i>Scorpaenopsis cacopsis</i>	1	various sizes; specified in final report	n/a
Scorpionfish	Kellogg's Scorpionfish	<i>Scorpaenodes kelloggi</i>	1	various sizes; specified in final report	n/a
Scorpionfish	Devil Scorpionfish	<i>Scorpaenopsis diabolus</i>	1	various sizes; specified in final report	n/a
Scorpionfish	Leaf Scorpionfish	<i>Taenianotus triacanthus</i>	4	various sizes; specified in final report	n/a
Scorpionfish	Hawaiian Green Lionfish	<i>Dendrochirus barberi</i>	4	various sizes; specified in final report	n/a
Scorpionfish	Hawaiian Red Lionfish or Turkeyfish	<i>Pterois sphex</i>	2	various sizes; specified in final report	n/a
Hawkfish	Arc-eye Hawkfish	<i>Paracirrhites arcatus</i>	2	various sizes; specified in final report	n/a

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Hawkfish	Longnose Hawkfish	<i>Oxycirrhites typus</i>	8	various sizes; specified in final report	8 individuals may be collected for PACRC-Research on Propagation of Aquarium Fish (only if facilities and researchers have capacity)
Frogfish	Commerson's Frogfish	<i>Antennarius commerson</i>	2	juveniles only	Juveniles only to grow up and potentially replace exhibit fishes
Squirrelfish	Hawaiian Squirrelfish	<i>Sargocentron xantherythrum</i>	8	various sizes; specified in final report	n/a
Squirrelfish	Saber Squirrelfish	<i>Sargocentron spiniferum</i>	4	various sizes; specified in final report	n/a
Squirrelfish	Crown Squirrelfish	<i>Sargocentron diadema</i>	10	various sizes; specified in final report	n/a
Squirrelfish	Spotfiin Squirrelfish	<i>Neoniphon sammara</i>	20	various sizes; specified in final report	n/a
Soldierfish	Brick Soldierfish	<i>Myripristis amaena</i>	12	various sizes; specified in final report	n/a
Soldierfish	Epaulet Soldierfish	<i>Myripristis kuntee</i>	5	various sizes; specified in final report	n/a
Soldierfish	Bigscale Soldierfish	<i>Myripristis berndti</i>	12	various sizes; specified in final report	n/a

## Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish					
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments
Trumpetfish	Trumpetfish	<i>Aulostomus chinensis</i>	1	juveniles only	Juveniles for replacement
Trumpetfish	Bluespotted Cornetfish	<i>Fistularia commersoni</i>	3		n/a
Pipefish	Bluestriped Pipefish	<i>Doryrhamphus exisus</i>	2	various sizes; specified in final report	n/a
Pipefish	Redstripe Pipefish	<i>Dunckerocampus baldwini</i>	2	various sizes; specified in final report	n/a
Seahorse	Yellow Seahorse	<i>Hippocampus kuda</i>	2	various sizes; specified in final report	Maintain breeding stock
Conger Eel	Mustache Conger	<i>Conger cinerius</i>	1	various sizes; specified in final report	n/a
Garden Eel	Hawaiian Garden Eel	<i>Gorgasia hawaiiensis</i>	6	various sizes; specified in final report	n/a
Moray Eel	Snowflake Moray	<i>Echidna nebulosa</i>	1	various sizes; specified in final report	n/a
Moray Eel	Dragon Moray	<i>Enchelycore pardalis</i>	1	various sizes; specified in final report	n/a
Moray Eel	Zebra Moray	<i>Gymnomuraena zebra</i>	1	various sizes; specified in final report	n/a

Appendix 2 (continued): SAP 2023-50 Approved List of Marine Fish Species and Amounts

Fish											
Common Group	Common Name	Scientific Name	# of Specimens	Sizes	Comments						
Moray Eel	Yellowmargin Moray	<i>Gymnothorax flavimarginatus</i>	2	various sizes; specified in final report	For replacement						
Moray Eel	Whitemouth Moray	<i>Gymnothorax meleagris</i>	2	various sizes; specified in final report	For replacement						
Barracuda	Great Barracuda	<i>Sphyaena barracuda</i>	1	various sizes; specified in final report	n/a						
Jack	African Pompano	<i>Alectis ciliaris</i>	2	various sizes; specified in final report	n/a						

Appendix 3: SAP 2023-50 MOC Outreach Species.

**Note:** these species are already accounted for in Appendix 1 – the purpose of this list is to indicate which species from the collection list may be utilized for a mobile outreach efforts (i.e. traveling to schools and outreach events with organisms in mobile aquaria).

**Appendix. Outreach Species - SAP Permit Application 2022**

Maui Ocean Center participates in visitor & community outreach initiatives in collaboration with select partners throughout Maui Nui with the purpose of providing educational opportunities outside of our facility. We seek to provide unique interactive experiences with select marine life (listed below) under the guidance and supervision of a Maui Ocean Center Marine Naturalist.

	Species (Common)	Species (Scientific)	# of Specimens	Comment
	<b>Sea Cucumbers</b>			
1	White-spotted Sea Cucumber	<i>Actinopyga varians</i>	2	echinoderms station
2	Black Sea Cucumber	<i>Holothuria atra</i> Jaeger	2	echinoderms station
	<b>Sea Stars</b>			
1	Knobby Sea Star	<i>Pentaceraster cumingi</i>	2	echinoderms station
2	Cushion Sea Star	<i>Culcita novaeguineae</i>	2	echinoderms station
3	Purple Velvet Sea Star	<i>Leiaster leachi</i>	2	echinoderms station
4	Linckia sp. Sea Star	<i>Linckia sp.</i>	2	echinoderms station
	<b>Sea Urchins</b>			
1	Collector Sea Urchin	<i>Tripneustes gratilla</i>	2	echinoderms station
2	Red Pencil Sea Urchin	<i>Heterocentrotus mamillatus</i>	2	echinoderms station
	<b>Corals</b>			
1	Mushroom Coral	<i>Fungia sp.</i>	> 4	coral explore station
2	Orange Cup Coral	<i>Tubastraea sp.</i>	> 4	coral explore station
	<b>Total:</b>		<b>24</b>	