

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

June 9, 2023

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Approval of a Special Activity Permit (SAP 2024-27) for Chris Kiser, Eco Harvest Hawaii, LLC, Project Coordinator, to Collect and Possess Regulated Organisms (Yellow Tang and Potter's Angelfish), Using Regulated Gear (Small Meshed Nets; < 2 Inches Stretched Mesh), in Non-Regulated Areas within the West Hawai'i Regional Fishery Management Area (WHRFMA) on Hawaii Island, for the Purpose of Researching Propagation/Aquaculture Techniques (for Aquarium Purposes*).

The applicant proposes to collect and possess regulated organisms (yellow tang / *Zebrasoma flavescens* and Potter's angelfish / *Centropyge potteri*), using regulated gear (small meshed nets; < 2 inches stretched mesh), in non-regulated areas within the West Hawai'i Regional Fishery Management Area (WHRFMA) on Hawaii Island, for the purpose of researching propagation/aquaculture techniques (for aquarium purposes*). Permittee will collect specimens of both yellow tang and Potter's angelfish from the non-regulated areas between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA) and will additionally collect yellow tang from non-regulated areas between Puako 'Anaeho'omalu FRA to Kiholo Bay FMA and Potter's angelfish from non-regulated areas at Keahole Point (Kona International Airport at Keahole), within the WHRFMA, Hawaii, and will transport these organisms to an aquaculture facility at the Natural Energy Laboratory of Hawaii Authority (NELHA).

Locations. The benefit of collection in these areas is that the sites are in close proximity to the aquaculture facility and will therefore limit the stress of handling and transport on the collected fish. After collection, organisms will be transported to an aquaculture facility at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, for propagation/aquaculture purposes. No collection will occur in any Marine Life Conservation Districts (MLCD), Fisheries Management Area (FMA), Fish Replenishment Areas (FRA; including Ka'ūpūlehu Marine Reserve-FRA). **Note:** A location labeled as one area to another area in the location description above (e.g. 101-Keauhou Bay FMA to Red Hill FRA-804), indicates the collection will occur in the area between the two regulated areas (between the FMA and FRA), and does not authorize collection in any portion of the two regulated areas (FMA and FRA).

***Note:** The research of propagation/aquaculture techniques as proposed for this project fall under activities described under "Aquarium purposes" as defined under §13-60.4-3: Aquarium purposes means to hold aquatic life alive in a state of captivity, whether

as pets, for scientific study, for public exhibition, for public display, or for sale for these purposes.

Objective. The objective of these collections is for the research of propagation/aquaculture purposes (for aquarium purposes*) to facilitate the development of successful propagation techniques for select endemic or indigenous fish and to establish productively spawning/breeding populations of these species for aquarium purposes. The species proposed for collection are important commercially in the aquarium fish/ornamental fish industry and are also important to the reef ecosystems in the state of Hawaii. The hypothesis is that the establishment of a consistent supply of sustainable, aquacultured fish to the aquarium industry by Eco Harvest, will reduce the wild harvest/collection of fish from Hawaiian coral reefs for aquarium purposes and therefore reduce pressure on these local ecosystems, while still providing fish to the marine aquarium trade. The information learned as a result of this project can be applied to scale and will help develop and refine propagation techniques to support the commercial propagation of diverse marine ornamental species by an aquaculture company on the island of Hawaii. Future stocks may come from captive bred generations, eliminating the need for continued wild collection of brood fish to support the project itself. The company (Eco Harvest) will participate in the upcoming HATCH innovation studio at the NELHA facilities. The proposed collection will directly support those efforts set forth in the development of the program, which is supported by the recent \$1.8 million grant awarded to NELHA for the purpose of continuing the HATCH incubator to diversify Hawaii's economy, create jobs, and continue allow Hawaii to support companies that are leaders in the aquaculture industry. Some of the methods utilized for the aquaculture of this species will be based or similar to the methods and processes developed by the Finfish Program at Oceanic Institute of Hawaii Pacific University (Waimanalo, Hawaii) for previous culturing efforts of this species at their facility.

Collections. Permittee and authorized assistants are authorized to collect up to twenty (20) adult individuals of Yellow tang (*Zebrasoma flavescens*) (each ≥ 12 cm) per location, from three (3) locations, for a total of sixty (60) fish. The three (3) collection locations will consist of the non-regulated areas at Keahole Point, between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA), within the WHRFMA, Hawaii. The goal is to collect a ratio of $\approx 1:2$ (male to female); i.e. seven (7) males and thirteen (13) females for a total of twenty (20) fish per location, across three (3) locations, for a total of sixty (60) individuals (20 males and 40 females). Permittee and authorized assistants will also collect up to eight (8) adult individuals of Potter's angelfish (*Centropyge potteri*) (each ≥ 5 cm) per location, from three (3) locations, for a total of twenty four (24) fish. The three (3) collection locations will consist of the non-regulated areas at Keahole Point (Kona International Airport at Keahole), between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA), within the WHRFMA, Hawaii. The goal is to collect a ratio of 1:1 (male to female); i.e. four (4) males and four (4) females for a total of eight (8) fish per location, across three (3) locations, for a total of twenty-four (24) individuals (12 males and 12 females). Across the two species, a total of eighty-four (84) individuals will be collected (sixty [60] Yellow tang / *Zebrasoma flavescens* and twenty-four [24] Potters angelfish (*Centropyge potteri*). No collection will occur in any

Marine Life Conservation Districts (MLCD), Fishery Management Areas (FMA), or Fish Replenishment Area (FRA; including Ka'ūpūlehu Marine Reserve-FRA). Collectors will utilize regulated small mesh barrier nets (< 2 inches stretched mesh); regulated dip or hand nets (< 2 inches stretched mesh and greater than 3 feet in any dimension, including handle) or regulated dip or hand nets (< 2 inches stretched mesh and less than 3 feet in any dimension, including handle – if used commercially); and non-regulated gear (see section C. Gear and Methods below) to collect the fish.

Method. Capture. The method of capture for yellow tang will consist of blocking the travel of the target fish between reefs with barrier nets and quickly netting fish using the hand nets. Targeting collection between reef areas aims to avoid the potential for accidental damage to reef structure. **Note:** To mitigate for coral damage during the collection of Potter's angelfish the permittee and authorized assistants will implement the following two step protocol in order to confirm that no corals will be broken in order to access fish taking refuge in coral habitat: 1) The permittee and authorized assistants will place barrier nets in the sand surrounding the coral habitat or live-rock formations and the fish will be herded into the barrier nets using small fiberglass rods and/or hand held dive lights; 2) During this process, if a fish takes refuge inside of a coral head and does not leave on its own, the corals will not be broken or handled in order to access the fish and the collectors will cease the pursuit of that fish and look for other individuals of the target species to attempt collection. DAR requests that the underwater collections of Potter's angels be recorded via a Go-Pro video camera or similar by the collector and for the collector to submit this video to DAR for review after each collection trip. **Note:** The taking, breaking or damaging of corals and live rock is prohibited under sections 13-95-70 and 13-95-71, Hawaii Administrative Rules, unless authorized by a permit issued under section 187A-6, Hawaii Revised Statutes. This permit does not authorize the taking, breaking or damaging of corals and live rock. **Transport.** After capture, the fish will be transferred to containers where they can remain safe while decompressing. This method avoids the need to puncture swim bladders and avoids potential infection as a result. Once on the boat, the fish specimens will be kept in oxygenated live wells and transported to the Eco Harvest Facility at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, for propagation/aquaculture purposes (see example photos in Appendix 1 in permit). Once the specimens arrive at the NELHA compound in Kailua-Kona, they will be conditioned for spawning and providing eggs for cultivation. **Determination of Sex in the Field:** When collecting the fish in the field, the collectors will be targeting a specific ratio of male to females to optimize broodstock spawning success. In order to determine sex of adult yellow tangs in the field, the collectors will use a magnifying glass to inspect the genital openings of the fish. The difference in morphology between male and female is typically obvious in sexually mature fish as shown in the illustrations in Appendix 1 in permit. The sex of other species (e.g. *Centropyge* species or if additional species are collected in the future) can be easier to determine through evaluating differences in size and fin shape, as males are typically larger than females and have a more pointed dorsal and anal ventral fin compared to females, which are smaller with rounded fins.

Gear and Methods. Regulated Gear: Barrier net (dimensions: L x W: 8ft. x 4ft.; mesh size: ¼ inch stretched mesh); dip or hand nets (< 2 inches stretched mesh and greater than 3 feet in any dimension, including handle); hand nets (mesh size: ¼ inch

stretched mesh; 10-12 inches length with handles; or any dip or hand net < 2 inches stretched mesh and less than 3 feet in any dimension, including handle - if used commercially).

Non-regulated Gear: Barrier net – used in motion (dimensions: L x W: 8ft. x 4ft.; mesh size: 2 inch stretched mesh) or any Dip or hand nets (< 2 inches stretched mesh and less than 3 feet in any dimension, including handle).

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 the standard regulations for each net: <https://dlnr.hawaii.gov/dar/fishing/fishing-regulations/gear-restrictions/>

Collection Plans/Collection Reports (see section D. in permit): Collectors will submit monthly collection plans and collection reports to verify actual numbers and sizes of collected organisms that are reviewed and approved by DAR biologists (Kona) on a monthly basis. **Incidental mortality.** Incidental mortality of target and non-target fish (various spp. and sizes) may occur in the field or while or while in captivity (target fish). Researchers will report any incidental mortalities in monthly collection report and final report. 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. **Bycatch.** 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. **Note:** All specimens collected will be held indefinitely in captivity to provide a continuous supply of eggs to support the hatchery. Should the project end before the specimens have naturally expired or if the facility needs to exchange older broodstock for younger broodstock, the specimens may be transferred to another permitted/licensed research or education institute or aquaculture facility or organization for use in other projects (grazers for research projects holding organisms in tanks or educational display, etc.). **Note:** Any transference of organisms will only occur after review and approval by DAR. At this time, the organisms are not anticipated to be returned to the collection location in order to prevent the introduction to the marine environment of any AIS/disease/parasites that may have colonized or any medications that may be utilized, while being held in an aquaculture facility.

Renewal of Permit. This permit is a renewal; the permit is being renewed for an additional sixty (60) individuals of yellow tang broodstock (as previously authorized under the first permit – SAP 2023-05) and a newly proposed collection for twenty-four (24) individuals of Potter’s angelfish broodstock from the locations specified in the Table 1 (pgs. 1-2 in the permit). The project is requesting to collect an additional sixty (60) yellow tangs for the following reasons: Only about 10% of the fish (\approx 6 individuals out of 60) collected last year began spawning for Eco Harvest. While the project hopes that number of spawning individuals will increase this summer, as those fish have been gradually conditioned/acclimated to captivity over the past 1.5 years, the project still requires additional individuals of that species in order to generate enough spawning activity to

achieve the desired egg supply; i.e. the project needs to increase the number of reproductively viable cohorts on hand to increase egg supply (to increase genetic diversity, replace any mortalities, and to mitigate for individuals that never acclimate or become reproductively viable or who phase out of reproductive viability due to age). Note: Additionally there were nine (9) mortalities due to either one of the following reasons: black ich infection of gills, possible secondary infections from parasite infections or apparent septicemia; and one (1) mortality due to no apparent cause, for a total of ten (10) mortalities.

Aquaculture Facility License (AFL). Last year the project applied for and was issued an Aquaculture Facility License (#31576) in order to pursue commercial propagation of the regulated species authorized for collection under this permit and to provide transparency for species (which are also indigenous to Hawaii), imported to Hawaii from other locations in the Pacific region, under a Department of Agriculture import permit. The Letter of Authorization (LOA # 2023-02) was issued to Chris Kiser (Project Coordinator; “licensee”), to sell the progeny of regulated organisms (Yellow tang; *Zebrafish* *flavescens*), collected from the wild (as authorized under a Special Activity Permit [“SAP”]: SAP 2023-05) or the progeny of any regulated organisms additionally authorized under any amendment [or renewal] to the permit, for aquarium purposes, on behalf of Eco Harvest, Aquaculture Facility License #31576. Note: The LOA and AFL will be updated to include any new species authorized under future renewals of the SAP. This exemption to possess or sell any regulated aquatic life, provided the qualified aquaculturist rears or reared the regulated aquatic life in an aquaculture facility for commercial purpose is authorized by section 13-74-43, Hawaii Administrative Rules (HAR). In addition, the licensee will sell and possess the progeny of organisms imported under a Hawaii Department of Agriculture (HDOA) import permit (Permit No.: 23-06-H-A8745); the licensee is currently authorized to import all species from the following four families of fish: Callionymidae/dragonets (all species in family), Acanthuridae/surgeonfish (all species in family), Chaetodontidae/butterflyfish (all species in family) and Pomacanthidae/angel fish (all species in family). Some species currently planned for importation as broodstock under the HDOA import permit (Permit No.: 23-06-H-A8745), and the subsequent sale of their progeny, are regulated in the State of Hawaii either under section 13-77-6, Hawaii Administrative Rules (Oahu Aquarium Life Management) or may be regarded as regulated under the current prohibition on collecting and holding aquatic life [indigenous to Hawaii] alive in a state of captivity for aquarium purposes*. A Special Marine Products License (“SMPL”) (SMPL #31576) has been issued to possess, sell, or offer for sale, any such organism taken outside of the waters of the State, when such taking, possession, or sale of the same species is restricted if taken within the waters of the State (species listed below under family name). Note: Please see LOA # 2023-02 and Aquaculture Facility License #31576 for more information.

Determination of Minimum Cumulative Impact. DAR does not anticipate cumulative impacts to occur as a result of the activities conducted under this permit. As part of the permit conditions the permittee is required to implement a 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. An example of the current

subsampling protocol that the project utilizes is the following: During the collection of yellow tang the collectors usually will target large schools of fish; if a school of 100-200 target size fish per location are observed, the collectors may only take approximately twenty (20) individuals from each location (i.e. \approx 10% - 20% of the total observed). For Potter's angels (because this species may usually be found in pairs or in small harems), the collectors will attempt to collect both fish (in the event that a pair is located), as these fish are already bonded as a breeding pair, or (in the event that a harem is located) will collect only a pair or two (2) fish from a particular harem. Therefore, by implementing practices of distributed take and subsampling, there should be minimum cumulative impacts on any particular species (i.e. no collections will occur in one concentrated location or consist of large proportions of observed populations). In addition, as previously discussed, collectors will avoid coral damage by not continue further pursuit any individuals of fish that have taken refuge in coral colonies.

The special conditions within the permit have been designed to minimize the impact of this sampling method, provide transparency and optimize the potential benefits. No threatened or endangered species are being collected. Select special conditions are below – see the permit for all general and special conditions:

- Collection Plans/Collection Reports: Collectors will submit monthly collection plans and collection reports to verify actual numbers and sizes of collected organisms that are reviewed and approved by DAR biologists (Kona) on a monthly basis.
- Incidental mortality. Incidental mortality of target and non-target fish (various spp. and sizes) may occur in the field or while or while in captivity (target fish). Researchers will report any incidental mortalities in monthly collection report and final report. 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 the sampling location if mortality occurs.
- Bycatch. 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.
- 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.

Notice of Violation of Terms and Conditions of Special Activity Permit. In June of 2022, the project was issued a notice of violation of select terms and conditions of their permit (SAP 2023-05). During the review of the violations that transpired in March of 2022, the Division determined that they were procedural concerns that were fixable. The project was notified that in order to proceed with any similar collection activities in the future, they would need to address and rectify these activities which resulted in the violations and that the inability to address these violations directly or show earnest efforts to addressing future violations may result in the revocation or non-renewal of the permit and confiscation of the resources collected under the permit. The violations consisted of 1) adding an assistant without written approval from the Department, and 2) not marking boats, vehicles and nets or traps (regardless of mesh size - except for hand nets) used for collecting or hired for collecting under this permit, clearly with an inscription or sign bearing the permittee's affiliation ("Eco Harvest") and/or the number of the permit ("SAP 2023-05"). Since the initial incident, the project has made earnest efforts to confirm they are in compliance with all terms and conditions of the permit and no further violations have occurred. As an additional measure of compliance and as part of the regular notification to DAR and DOCARE 24 hours prior to initial commencement of any series of authorized activities (e.g. field collection/sampling) taken place under this permit, the permittee will (on collection days) coordinate an in-person check-in with DOCARE-Kona and DAR-Kona at the boat ramp before leaving to go out to conduct the collections and to coordinate an in-person check in again with DOCARE-Kona and DAR-Kona, immediately after returning to shore with organisms collected under this permit, in order to confirm that the conditions of the permit are being adhered to (e.g. gear types, collections, identification of vessel and vehicles, authorized assistants etc.).

Project Progress (2022-2023). The project has reported success with achieving spawning behavior/activity earlier than previously observed by other projects attempting similar propagation efforts with this species. At the time that the final report was submitted in January of 2023 for SAP 2023-05 (for work conducted between 2022-2023), the project had observed that the yellow tang spawning had slowly increased in egg volumes even as the winter months with cooler temperatures and shorter days approached and that the fish that were spawning were doing so regularly every full and new moon cycle of each month. The project stocked multiple small runs of yellow tang larvae from these spawning events and have gotten some fish through to the thirty (30) day mark (*note more progress may have been documented since the submission of the final report in January 2023). The Eco Harvest facilities are currently fully operational with live algae cultures and live feed cultures at full capacity, with the project consistently producing 40-50 million copepod nauplii (larval stage of copepods) daily which is the required first feed for these larval fish. The project has gotten survival rates in line or exceeding published results up to the current age of the larval fish produced at the facility. At the time of the submission of the final report, the project anticipated that the egg supply of the spawning individuals to increase as the season continues to proceed from into late spring into summer and for more individuals to potentially spawn as the fishes enter their natural spawning season, as all of the brood fish are now fully conditioned to captivity. Although the project anticipates this increase, they also need to take into account that select individuals may not become reproductively viable for various reasons and therefore have requested an additional collection of new fish to account for this variability and keep the number of reproductively

viable stock on hand consistent, while they continue to research the propagation techniques. Through consultation with other aquaculture operations, DAR has determined that the additional collections of newer stock at various stages while propagating organisms in aquaculture settings is a regular practice and provided that the operation becomes successful in their production of progeny from these collections of broodstock, the benefit of these collections should outweigh the costs through the reductions of future wild collections from the reef by other institutions and the development of propagation techniques. DAR will continue to monitor and evaluate the progress of the propagation efforts of this project in order to ensure that the collections are being utilized effectively.

BLNR Review. This permit is being brought before the board due to a requirement for applicants to go before the board for review, when requesting Special Activity Permits (“SAP”), if they are not categorized as recognized Hawaiian institutions, whose permits are of a perennial nature (continuous, year after year) for scientific research purposes. This permit was previously issued once between 2022 and 2023 (with similar collections and similar collection locations), using the permit process that is utilized for many SAP, consisting of approval from DAR and the Department Chair, as the board has delegated signature authority to the Department Chair for SAP for recognized Hawaiian institutions. This error was due to misunderstanding of the requirements of the delegation of signature authority assigned to SAP. In the first year that permit was issued this applicant would have been considered a new business or organization and therefore not yet a “recognized Hawaiian Institution”. Going forward, in order to rectify any other instances where this may have occurred in the past, DAR will be submitting any renewals of permits issued in the past or any new requests for permits, which are applied for by non-recognized Hawaiian institutions, to the board for review.

Benefits to the State of Hawaii. The benefits to the State of Hawaii from these collections include the development and refinement of propagation techniques to support the commercial propagation of diverse marine ornamental species, which will hypothetically establish a consistent supply of sustainable, aquacultured fish to the aquarium industry by Eco Harvest. This commercial propagation effort should, in turn, reduce the wild harvest/collection of fish from Hawaiian coral reefs for aquarium purposes, therefore reducing pressure on these local ecosystems, while still providing fish to the marine aquarium trade. Additionally, future broodstock fish may come from captive bred generations, which could eliminate the need for continued wild collection of broodstock fish to support the project itself. The company (Eco Harvest) will also be a participant in the upcoming HATCH innovation studio at the NELHA facilities; the HATCH program aims to diversify Hawaii’s economy, create jobs, and continue allow Hawaii to support companies that are leaders in the aquaculture industry. In addition, projects such as Eco Harvest who develop expertise in holding and propagating these types of organisms can either collaborate with other institutions to co-develop techniques for other species that may be more difficult or utilize their established techniques to produce progeny that can be used in other applications besides the aquarium trade, such as for research projects or educational display, which can then be utilized to continue research for additional techniques or to propagate certain species within aquariums or research institutions, further reducing collections from the wild.

RECOMMENDATION: The Department Recommends

Based on the Departments exemption determination (attached) and the application and record in this matter, the Board DECLARES, FINDS, and DECIDES:

- 1) That the actions covered by this permit will have little or no significant effect on the environment and is therefore exempt from the preparation of an environmental assessment;
- 2) To delegate the Chairperson to sign the declaration of exemption on behalf of the Board, for purposes of recordkeeping requirements of chapter 343, HRS, and chapter 11-200.1, HAR; and
- 3) To authorize and approve, with stated conditions, the proposed Special Activity Permit.

Respectfully submitted,



Brian J. Neilson, Administrator
Division of Aquatic Resources

APPROVED FOR SUBMITTAL



Dawn N. S. Chang, Chairperson
Board of Land and Natural Resources

Attachments:

- 1) Draft Special Activity Permit (SAP 2024-27)
- 2) Declaration of Exemption (“DE”) from the Preparation of an Environmental Assessment under the Authority of Chapter 343, HRS & Chapter 11-200.1 HAR

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

Date Issued: June 9, 2023

Valid not longer than: June 8, 2024

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:	Chris Kiser	Address:	Eco Harvest Hawaii, LLC
Title:	Project Coordinator		77-6440 Pualani Street
Affiliation:	Eco Harvest (NELHA)		Kailua-Kona, Hawaii 96740
Email:	ckiser@ecoharvesthi.com		

This permit is issued, subject to the general and special conditions, for the collection and possession of regulated organisms (yellow tang / *Zebrasoma flavescens* and Potter's angelfish / *Centropyge potteri*), using regulated gear (small meshed nets; < 2 inches stretched mesh), in non-regulated areas within the West Hawai'i Regional Fishery Management Area (WHRFMA) on Hawaii Island, for the purpose of researching propagation/aquaculture techniques (for aquarium purposes*). Permittee will collect specimens of both yellow tang and Potter's angelfish from the non-regulated areas between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA) and will additionally collect yellow tang from non-regulated areas between Puako 'Anaeho'omalua FRA to Kiholo Bay FMA and Potter's angelfish from non-regulated areas at Keahole Point (Kona International Airport at Keahole), within the WHRFMA, Hawaii, and will transport these organisms to an aquaculture facility at the Natural Energy Laboratory of Hawaii Authority (NELHA).

***Note:** The research of propagation/aquaculture techniques as proposed for this project fall under activities described under "Aquarium purposes" as defined under §13-60.4-3: Aquarium purposes means to hold aquatic life alive in a state of captivity, whether as pets, for scientific study, for public exhibition, for public display, or for sale for these purposes.

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 in Table 1:

Sp. Code	Sp. Description	Sp. Amt.	Morphology	Sp. Size	Island	Location	Comments
<i>Regulated organisms</i>							
5734	Centropyge potteri Russet angelfish (AFS), Potter's angelfish (Hoover, 1993; Randall, 1996a) Centropyge potteri	8	Fish (Adult)	Adult Fish (≥ 5 cm) Goal is a ratio of 1:1 male to female (i.e. 4 male and 4 female)	Hawai'i	101-Kaloko Honokohau FRA to Papawai Bay FMA-804	Target is to collect 8 adult fish per location to establish a captive breeding population to support our aquaculture hatchery facilities with sufficient supply of viable eggs.

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5734	Centropyge potteri Russet angelfish (AFS), Potter's angelfish (Hoover, 1993; Randall, 1996a) Centropyge potteri	8	Fish (Adult)	Adult Fish (≥ 5 cm) Goal is a ratio of 1:1 male to female (i.e. 4 male and 4 female)	Hawai'i	101-Keauhou Bay FMA to Red Hill FRA-804	Target is to collect 8 adult fish per location to establish a captive breeding population to support our aquaculture hatchery facilities with sufficient supply of viable eggs.
5734	Centropyge potteri Russet angelfish (AFS), Potter's angelfish (Hoover, 1993; Randall, 1996a) Centropyge potteri	8	Fish (Adult)	Adult Fish (≥ 5 cm) Goal is a ratio of 1:1 male to female (i.e. 4 male and 4 female)	Hawai'i	102-Kona International Airport at Keahole-805	Target is to collect 8 adult fish per location to establish a captive breeding population to support our aquaculture hatchery facilities with sufficient supply of viable eggs.
6664	Zebrasoma flavescens Yellow tang Lau-i-pala Zebrasoma flavescens	20	Fish (Adult)	Adult Fish (≥ 12 cm) Goal is a ratio of ≈ 1:2 male to female (i.e. 7 male and 13 female)	Hawai'i	101- Koloko Honokohau FRA to Papawai Bay FMA-804	Target is to collect 20 adult fish per location to establish a captive breeding population to support our aquaculture hatchery facilities with sufficient supply of viable eggs.
6664	Zebrasoma flavescens Yellow tang Lau-i-pala Zebrasoma flavescens	20	Fish (Adult)	Adult Fish (≥ 12 cm) Goal is a ratio of 1:3 male to female (i.e. 5 male and 15 female)	Hawai'i	101-Keauhou Bay FMA to Red Hill FRA-804	Target is to collect 20 adult fish per location to establish a captive breeding population to support our aquaculture hatchery facilities with sufficient supply of viable eggs.
6664	Zebrasoma flavescens Yellow tang Lau-i-pala Zebrasoma flavescens	20	Fish (Adult)	Adult Fish (≥ 12 cm) Goal is a ratio of 1:3 male to female (i.e. 5 male and 15 female)	Hawai'i	102-Puako 'Anaeho'omalu FRA to Kiholo Bay FMA-805	Target is to collect 20 adult fish per location to establish a captive breeding population to support our aquaculture hatchery facilities with sufficient supply of viable eggs.

I. SPECIAL CONDITIONS

A. Location

All activity will occur within non-regulated areas in the waters of Hawaii, within the West Hawai'i Regional Fishery Management Area (WHRFMA), as listed in Table 1 on Page 1. Permittee will collect specimens of both yellow tang and Potter's angelfish from the non-regulated areas between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA) and will additionally collect yellow tang from non-regulated areas between Puako 'Anaeho'omalu FRA to Kiholo Bay FMA and Potter's angelfish from non-regulated areas at Keahole Point (Kona International Airport at Keahole), within the WHRFMA, Hawaii. **Note:** A location labeled as one area to another area in the table above (e.g. 101-Keauhou Bay FMA to Red Hill FRA-804), indicates the collection will occur in the area between the two regulated areas (between the FMA and FRA), and does not authorize collection in any portion of the two regulated areas (FMA

and FRA). The benefit of collection in these areas is that the sites are in close proximity to the aquaculture facility and will therefore limit the stress of handling and transport on the collected fish. After collection, organisms will be transported to an aquaculture facility at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, for propagation/aquaculture purposes. No collection will occur in any Marine Life Conservation Districts (MLCD), Fisheries Management Area (FMA), Fish Replenishment Areas (FRA; including Ka‘ūpūlehu Marine Reserve-FRA). 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 ¹ Honolulu-Mokuleia MLCD ² Ahihi-Kinau NAR ³ 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 ⁸	<u>Island of HAWAI‘I</u> <u>Areas within the West Hawaii Regional Fishery Management Area (continued):</u> (1) Ka‘ūpūlehu Marine Reserve (2) North Kohala Fish Replenishment Area (FRA ⁶) (3) Puakō-‘Anaeho‘omalū 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 CBSFA (11) Kikaua Point-Mākole‘ā Point Netting Restricted Area (NRA ⁷) (12) Nenuē Point-Kealakekua Bay NRA (13) Hanamalo Point-Kanewa‘a Point NRA (Part of Miloli‘i CBSFA) (14) Kanonone-Kali‘poa NRA
<u>Island of LANAI</u> Manele Harbor FMA Manele-Hoopoe MLCD	<u>Island of HAWAI‘I</u> <u>Areas within the West Hawaii Regional Fishery Management Area:</u>	<u>Island of HAWAI‘I</u> <u>West Hawaii Regional Fishery Management Area (WHRFMA)</u> Areas in the WHRFMA outside of all smaller FMA, MLCD, FRA and NRA
<u>Island of MOLOKAI</u> Kaunakakai Harbor FMA	Hilo Bay FMA Kailua Bay FMA Kawiahae Harbor FMA Kealakekua Bay MLCD Keauhou Bay FMA Kiholo Bay FMA Kona Coast FMA Old Kona Airport MLCD Lapakahi Bay MLCD Papawai Bay FMA Puako FMA Waiakea PFA ⁵ Wailea Bay MLCD Wailuku River FMA Wailoa River FMA Wawāloli FMA	
<u>Island of KAHOLAWE</u> Restricted 2 nautical mile boundary Zone A and Zone B surrounding Kaho‘olawe		
<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 Pūpūkea MLCD Waialua Bay (Hale‘iwa Harbor) Waikiki-Diamond Head SFMA Waikiki MLCD Wahiawā Public Fishing Area		

Table 2 – Regulated Areas – Definitions: FMA¹ = Fisheries Management Area, MLCD² = Marine Life Conservation District, NAR³ = Natural Area Reserve (DOFAW), MLR⁴ = Marine Laboratory Refuge, PFA⁵ = Public Fishing Area, FRA⁶ = Fish Replenishment Area, NRA⁷ = Netting Restricted Area, CBSFA⁸ = Community-Based Subsistence Fishing Area

B. **Activities.** Permittee is authorized for the collection and possession of regulated organisms (yellow tang / *Zebrasoma flavescens* and Potter’s angelfish / *Centropyge potteri*), in non-regulated areas within the West Hawai‘i Regional Fishery Management Area (WHRFMA) on Hawaii Island, as listed in Table 1, using regulated gear (small meshed nets; < 2 inches stretched mesh). The objective of these collections is for the research of propagation/aquaculture purposes (for aquarium purposes*) to facilitate the development of successful propagation techniques for select endemic or indigenous fish and to establish productively spawning/breeding populations of these species for aquarium purposes. The species proposed for collection are important commercially in the aquarium fish/ornamental fish industry and are also important to the reef ecosystems in the state of Hawaii. The

hypothesis is that the establishment of a consistent supply of sustainable, aquacultured fish to the aquarium industry by Eco Harvest, will reduce the wild harvest/collection of fish from Hawaiian coral reefs for aquarium purposes and therefore reduce pressure on these local ecosystems, while still providing fish to the marine aquarium trade. The information learned as a result of this project can be applied to scale and will help develop and refine propagation techniques to support the commercial propagation of diverse marine ornamental species by an aquaculture company on the island of Hawaii. Future stocks may come from captive bred generations, eliminating the need for continued wild collection of brood fish to support the project itself. The company (Eco Harvest) will participate in the upcoming HATCH innovation studio at the NELHA facilities. The proposed collection will directly support those efforts set forth in the development of the program, which is supported by the recent \$1.8 million grant awarded to NELHA for the purpose of continuing the HATCH incubator to diversify Hawaii's economy, create jobs, and continue allow Hawaii to support companies that are leaders in the aquaculture industry. Some of the methods utilized for the aquaculture of this species will be based or similar to the methods and processes developed by the Finfish Program at Oceanic Institute of Hawaii Pacific University (Waimanalo, Hawaii) for previous culturing efforts of this species at their facility. ***Note:** The research of propagation/aquaculture techniques as proposed for this project fall under activities described under "Aquarium purposes" as defined under §13-60.4-3: Aquarium purposes means to hold aquatic life alive in a state of captivity, whether as pets, for scientific study, for public exhibition, for public display, or for sale for these purposes.

Collections. Permittee and authorized assistants are authorized to collect up to twenty (20) adult individuals of Yellow tang (*Zebrasoma flavescens*) (each ≥ 12 cm) per location, from three (3) locations, for a total of sixty (60) fish. The three (3) collection locations will consist of the non-regulated areas at Keahole Point, between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA), within the WHRFMA, Hawaii. The goal is to collect a ratio of $\approx 1:2$ (male to female); i.e. seven (7) males and thirteen (13) females for a total of twenty (20) fish per location, across three (3) locations, for a total of sixty (60) individuals (20 males and 40 females). Permittee and authorized assistants will also collect up to eight (8) adult individuals of Potter's angelfish (*Centropyge potteri*) (each ≥ 5 cm) per location, from three (3) locations, for a total of twenty four (24) fish. The three (3) collection locations will consist of the non-regulated areas at Keahole Point (Kona International Airport at Keahole), between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA), within the WHRFMA, Hawaii. The goal is to collect a ratio of 1:1 (male to female); i.e. four (4) males and four (4) females for a total of eight (8) fish per location, across three (3) locations, for a total of twenty-four (24) individuals (12 males and 12 females). Across the two species, a total of eighty-four (84) individuals will be collected (sixty [60] Yellow tang / *Zebrasoma flavescens* and twenty-four [24] Potters angelfish (*Centropyge potteri*). No collection will occur in any Marine Life Conservation Districts (MLCD), Fishery Management Areas (FMA), or Fish Replenishment Area (FRA; including Ka'ūpūlehu Marine Reserve-FRA). Collectors will utilize regulated small mesh barrier nets (< 2 inches stretched mesh); regulated dip or hand nets (< 2 inches stretched mesh and greater than 3 feet in any dimension, including handle) or regulated dip or hand nets (< 2 inches stretched mesh and less than 3 feet in any dimension, including handle – if used commercially); and non-regulated gear (see section C. Gear and Methods below) to collect the fish.

Method. Capture. The method of capture for yellow tang will consist of blocking the travel of the target fish between reefs with barrier nets and quickly netting fish using the hand nets. Targeting collection between reef areas aims to avoid the potential for accidental damage to reef structure. **Note:** To mitigate for coral damage during the collection of Potter's angelfish the permittee and authorized assistants will implement the following two step protocol in order to confirm that no corals will be broken in order to access fish taking refuge in coral habitat: 1) The permittee and authorized assistants will place barrier nets in the sand surrounding the coral habitat or live-rock formations and the fish will be herded into the barrier nets using small fiberglass rods and/or hand held dive lights; 2) During this process, if a fish takes refuge inside of a coral head and does not leave on its own, the corals will not be broken or handled in order to access the fish and the collectors will cease the pursuit of that fish and look for other individuals of the target species to attempt collection. DAR requests that the underwater collections of Potter's angels be recorded via a Go-Pro video camera or similar by the collector and for the collector to submit this video to DAR for review after each collection trip. **Note:** The taking, breaking or damaging of corals and live

rock is prohibited under sections 13-95-70 and 13-95-71, Hawaii Administrative Rules, unless authorized by a permit issued under section 187A-6, Hawaii Revised Statutes. This permit does not authorize the taking, breaking or damaging of corals and live rock. **Transport.** After capture, the fish will be transferred to containers where they can remain safe while decompressing. This method avoids the need to puncture swim bladders and avoids potential infection as a result. Once on the boat, the fish specimens will be kept in oxygenated live wells and transported to the Eco Harvest Facility at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, for propagation/aquaculture purposes (see example photos in Appendix 1). Once the specimens arrive at the NELHA compound in Kailua-Kona, they will be conditioned for spawning and providing eggs for cultivation. **Determination of Sex in the Field:** When collecting the fish in the field, the collectors will be targeting a specific ratio of male to females to optimize broodstock spawning success. In order to determine sex of adult yellow tangs in the field, the collectors will use a magnifying glass to inspect the genital openings of the fish. The difference in morphology between male and female is typically obvious in sexually mature fish as shown in the illustrations in Appendix 1. The sex of other species (e.g. *Centropyge* species or if additional species are collected in the future) can be easier to determine through evaluating differences in size and fin shape, as males are typically larger than females and have a more pointed dorsal and anal ventral fin compared to females, which are smaller with rounded fins. **Collection Plans/Collection Reports (see section D. below):** Collectors will submit monthly collection plans and collection reports to verify actual numbers and sizes of collected organisms that are reviewed and approved by DAR biologists (Kona) on a monthly basis. **Incidental mortality.** Incidental mortality of target and non-target fish (various spp. and sizes) may occur in the field or while or while in captivity (target fish). Researchers will report any incidental mortalities in monthly collection report and final report. 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. **Bycatch.** 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. **Note:** All specimens collected will be held indefinitely in captivity to provide a continuous supply of eggs to support the hatchery. Should the project end before the specimens have naturally expired or if the facility needs to exchange older broodstock for younger broodstock, the specimens may be transferred to another permitted/licensed research or education institute or aquaculture facility or organization for use in other projects (grazers for research projects holding organisms in tanks or educational display, etc.). **Note:** Any transference of organisms will only occur after review and approval by DAR. At this time, the organisms are not anticipated to be returned to the collection location in order to prevent the introduction to the marine environment of any AIS/disease/parasites that may have colonized or any medications that may be utilized, while being held in an aquaculture facility.

Renewal of Permit. This permit is a renewal; the permit is being renewed for an additional sixty (60) individuals of yellow tang broodstock (as previously authorized under the first permit – SAP 2023-05) and a newly proposed collection for twenty-four (24) individuals of Potter’s angelfish broodstock from the locations specified in the Table 1 (pgs. 1-2). The project is requesting to collect an additional sixty (60) yellow tangs for the following reasons: Only about 10% of the fish (≈ 6 individuals out of 60) collected last year began spawning for Eco Harvest. While the project hopes that number of spawning individuals will increase this summer as those fish have been gradually conditioned/acclimated to captivity over the past 1.5 years, the project still requires additional individuals of that species in order to generate enough spawning activity to achieve the desired egg supply; i.e. the project needs to increase the number of reproductively viable cohorts on hand to increase egg supply (to increase genetic diversity, replace any mortalities, and to mitigate for individuals that never acclimate or become reproductively viable or who phase out of reproductive viability due to age). **Note:** Additionally there were nine (9) mortalities due to either one of the following reasons: black ich infection of gills, possible secondary infections from parasite infections or apparent septicemia; and one (1) mortality due to no apparent cause, for a total of ten (10) mortalities.

Aquaculture Facility License (AFL). Last year the project applied for and was issued an Aquaculture Facility License (#31576) in order to pursue commercial propagation of the regulated species authorized for collection under this permit and to provide transparency for species (which are also indigenous to Hawaii), imported to Hawaii from other locations in the Pacific region, under a Department of Agriculture import permit. The Letter of Authorization (LOA # 2023-02) was issued to Chris Kiser (Project Coordinator; “licensee”), to sell the progeny of regulated organisms (Yellow tang; *Zebrasoma flavescens*), collected from the wild (as authorized under a Special Activity Permit [“SAP”]: SAP 2023-05) or the progeny of any regulated organisms additionally authorized under any amendment [or renewal] to the permit, for aquarium purposes, on behalf of Eco Harvest, Aquaculture Facility License #31576. Note: The LOA and AFL will be updated to include any new species authorized under future renewals of the SAP. This exemption to possess or sell any regulated aquatic life, provided the qualified aquaculturist rears or reared the regulated aquatic life in an aquaculture facility for commercial purpose is authorized by section 13-74-43, Hawaii Administrative Rules (HAR). In addition, the licensee will sell and possess the progeny of organisms imported under a Hawaii Department of Agriculture (HDOA) import permit (Permit No.: 23-06-H-A8745); the licensee is currently authorized to import all species from the following four families of fish: Callionymidae/dragonets (all species in family), Acanthuridae/surgeonfish (all species in family), Chaetodontidae/butterflyfish (all species in family) and Pomacanthidae/angel fish (all species in family). Some species currently planned for importation as broodstock under the HDOA import permit (Permit No.: 23-06-H-A8745), and the subsequent sale of their progeny, are regulated in the State of Hawaii either under section 13-77-6, Hawaii Administrative Rules (Oahu Aquarium Life Management) or may be regarded as regulated under the current prohibition on collecting and holding aquatic life [indigenous to Hawaii] alive in a state of captivity for aquarium purposes*. A Special Marine Products License (“SMPL”) (SMPL #31576) has been issued to possess, sell, or offer for sale, any such organism taken outside of the waters of the State, when such taking, possession, or sale of the same species is restricted if taken within the waters of the State (species listed below under family name). Note: Please see LOA # 2023-02 and Aquaculture Facility License #31576 for more information.

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. **Researcher 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, propagation or management purposes ONLY.

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

Regulated Gear: Barrier net (dimensions: L x W: 8ft. x 4ft.; mesh size: ¼ inch stretched mesh); dip or hand nets (< 2 inches stretched mesh and greater than 3 feet in any dimension, including handle); hand nets (mesh size: ¼ inch stretched mesh; 10-12 inches length with handles; or any dip or hand net < 2 inches stretched mesh and less than 3 feet in any dimension, including handle - if used commercially).

Non-regulated Gear: Barrier net – used in motion (dimensions: L x W: 8ft. x 4ft.; mesh size: 2 inch stretched mesh) or any Dip or hand nets (< 2 inches stretched mesh and less than 3 feet in any dimension, including handle).

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 the standard 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, 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 but not limited to the following: local communities, fishing or dive-tour industries, etc.
 - a) Collecting activities under authority of this permit must be supervised directly, on site, by the permittee: Chris Kiser.
 - b) Collectors should be hired under a separate contract/agreement with the organization or permittee which obtains the SAP. The collector will be regarded as the organization's staff and will provide services as a collector to the project. Collectors need to be listed as an authorized assistant under the SAP.
 - c) Collectors shall not collect fish opportunistically and offer them to various organizations. No collections should occur outside of the species/amounts/size classes that have been requested and approved under an SAP.
 - d) Boats and vehicles used or hired for collecting under this permit be clearly marked with inscription or sign bearing the permittee's affiliation, 'Eco Harvest' or a flag bearing a unique identifier number issued by DAR.
 - e) Every net or trap (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, "Eco Harvest", and the number of this permit, 'SAP 2024-27'.
 - f) Except as specified expressly in the permit or amendment to the permit and approved collecting plan, no organism unlawful for taking or possession by reason of size, season or sex, under statute or administrative rule, may be collected or displayed under this permit.
 - g) The Division may require the permittee to accommodate presence of an observer specified by the Division.
 - h) The permittee will accommodate periodic site visits by the Division throughout the permitting period; the Division (Kona DAR) will conduct a site visit immediately before the permit is issued.

- i) Mass mortality - the permittee must notify DAR Kona 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.
 - ii) Eco Harvest 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) Eco Harvest 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 to the DAR Kona office (Hawaii) for approval (Chris Teague - Aquatic Biologist; email: christopher.h.teague@hawaii.gov) and cc DAR Honolulu office (Oahu) (email: Catherine Gewecke - Aquatic Biologist; email: catherine.a.gewecke@hawaii.gov or dar.sap@hawaii.gov).
 - 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.

4. USE OF ORGANISMS: Organisms taken from Hawai'i waters under authority of this permit may be used only for research or propagation at Eco Harvest, except as authorized by prior written approval of the Division):

- a) Organisms collected under authority of this permit may not be used for personal consumption or sale;
- 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 non-regulated) between islands;
- c) The permittee may not convey in any fashion (including, but not limited to, exchanging, donating, selling, trading, giving or loaning) any organism collected under this permit to any person, party or organization in Hawai'i which does not already have a permit from the Department authorizing possession of same, unless authorized by this permit. This condition does not apply to future progeny of organisms collected under this permit (see Section B Activities - Note. on page 4).
- d) Signage approved by the Division must accompany any display(s) at Eco Harvest (if open to the public), 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 genus/species or other taxonomic designation acceptable to the Division, quantities and sizes collected (or names and quantities of organisms purchased or otherwise acquired), collection locations, dates and methods of collection, disposition of any specimens not maintained at Eco Harvest/NELHA (e.g. discarded on the spot, returned to the ocean, died during collection or in captivity);
- b) Reports should include names of collectors; collectors must be listed as authorized assistants on the permit;
- c) Each monthly collecting report is due at the DAR Kona office (Hawaii) for approval (Chris Teague - Aquatic Biologist; email: christopher.h.teague@hawaii.gov) and cc DAR Honolulu office (Oahu) (email: Catherine Gewecke - Aquatic Biologist; email: catherine.a.gewecke@hawaii.gov or dar.sap@hawaii.gov) within five working days after the last day of the month for which it reports;
- d) Upon request of the Department, the permittee will furnish with any monthly report an inventory of organisms collected under this permit and held at Eco Harvest/NELHA.

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> or via email from permit coordinator (for info from #2. a. & c. and #3) – include all other info (#1, #2 b. & d. into a PDF report) – **consult permit coordinator for most up-to-date reporting template (if necessary):**
 - 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 examples of average size of fish collected under this permit**, Photo-documentation of a **representative example per methodology used to collect organisms in the field, videography of methodology used to collect Potter angelfish in the field recorded via a Go-Pro video camera or similar by the collector (to be submitted to DAR for review after each collection trip)**; Photo-documentation of **representative example of incidental mortality or by-catch**, Photo-documentation of **representative examples of tanks or aquaria used to house organisms and** Photo-documentation of **representative examples of progeny cultured at the facility**.
 - ii. Photo-documentation of each representative example should include the following photos; For average size of fish collected, photo-documentation should include: **photos of a sub-sample of the total of average size fish (in tank, net or on measuring board) with a scale for size**; For sampling methodology, photo documentation should include: **one (1) photo of each method used by collectors to catch organisms in the field (including gear)**; For sampling methodology for Potter's angelfish, video documentation should include: **videos of each method used by collectors to catch Potter's angelfish in the field (including gear) (to be submitted to DAR for review after each collection trip)**; For by-catch, photo-documentation should include: **photos of various incidental mortality or by-catch (without causing by-catch mortality if live)**; For examples of tanks or aquaria used to house organisms, photo-documentation should include: **one photo for each different type of tank or aquaria used to house organisms and**; For progeny cultured at the facility, photo-documentation should include: **photos of a sub-sample of the total of progeny cultured (in tank, net or on measuring board) with a scale for size**;
3. An inventory (species list) of organisms (dead or alive) present at the facility or with the permittee the end of the report period, in form acceptable to the Division, must accompany the annual report;
 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 Chris Kiser and authorized assistants to transport organisms listed in Table 1, within Hawai'i to the following institutions and authorizes the following institutions to receive organisms listed in Table 1 from Chris Kiser and authorized assistants:
 - i. Eco Harvest Hawaii, LLC, Natural Energy Laboratory of Hawaii Authority (NELHA), Kailua-Kona, HI 96740

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 (30) days prior to the change. The addition of new assistants will require each individual to sign the Attachment on page 16, 17 or 18 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 the following changes; no change may be implemented without written approval from the Department:
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 email a PDF of this permit with all signature sheets (Cathy Gewecke: catherine.a.gewecke@hawaii.com or dar.sap@hawaii.gov) and additionally email a **PDF version of a final report** (to catherine.a.gewecke@hawaii.gov or dar.sap@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 – Kona Office (808-327-4961) at least 24 hours prior to any authorized activity being conducted in the field and (on collection days) to coordinate an in-person check-in with DOCARE-Kona and DAR-Kona at the boat ramp before leaving to go out to conduct the collections and to coordinate an in-person check in again with DOCARE-Kona and DAR-Kona, immediately after returning to shore with organisms collected under this permit, in order to confirm that the conditions of the permit are being adhered to (e.g. gear types, collections, identification of vessel and vehicles, authorized assistants etc.). 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 (if authorized to collect coral):
1. Coral - the Permittee must notify DAR Oahu (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 **does not authorize** 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 (dar.sap@hawaii.gov) and to the Department's Division of Conservation and Resources Enforcement Central Office - Oahu (DOCARE: 808-643-3567) or DOCARE – Kona Office (808-327-4961), at least 24 hours prior to initial commencement of any series of authorized activities (e.g. field collection/sampling) taken place under this permit and (on collection days) coordinate an in-person check-in with DOCARE-Kona and DAR-Kona at the boat ramp before leaving to go out to conduct the collections and to coordinate an in-person check in again with DOCARE-Kona and DAR-Kona, immediately after returning to shore with organisms collected under this permit, in order to confirm that the conditions of the permit are being adhered to (e.g. gear types, collections, identification of vessel and vehicles, authorized assistants etc.).

Researcher will confirm with central DOCARE office (Oahu) to see if Hawaii Island DOCARE office (Kona) (808-327-4961) should be contacted directly before and after each sampling. **Researcher will provide the following info when DOCARE is notified:** SAP #, researcher name/institution, 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 applicable) If collecting in Kaneohe Bay or Maunalua Bay:** 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. 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.

(If applicable) Transport out of Kaneohe Bay/Maunalua Bay (Oahu). Any specimens collected in Kaneohe Bay should not be transported outside of Kaneohe Bay unless being moved to a closed-system aquarium, preserved or verified to be free of non-native organisms (e.g. *Kappaphycus spp.*, *Eucheuma denticulatum*, *Orange keyhole sponge (Mycale armata/grandis)*) after undergoing quarantine treatment. Any specimens collected in Maunalua Bay should not be transported outside of Maunalua Bay unless being moved to a closed-system aquarium, preserved or verified to be free of non-native organisms (e.g. *Avrainvillea amadelpa/lacerata*) after undergoing quarantine treatment. **Note: No collections in Kaneohe Bay or Maunalua Bay are authorized under this permit.**

3. No organism other than those listed on this permit will be collected or impacted by any activities conducted under this permit.
4. 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.
5. **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).

DAWN N. S. CHANG, Chairperson
Department of Land and Natural Resources

cc: (x) DOCARE (Oahu and Hawaii - Kona)
(x) DAR – Hawaii (Kona)

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: _____
Chris Kiser

DESIGNATED ASSISTANTS:

Signature: _____

Print Name: Brian Greene

Signature: _____

Print Name: Erin Pereira

Signature: _____

Print Name: _____

Signature: _____

Print Name: Ron Tubbs

Signature: _____

Print Name: Julie Klaz

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

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.

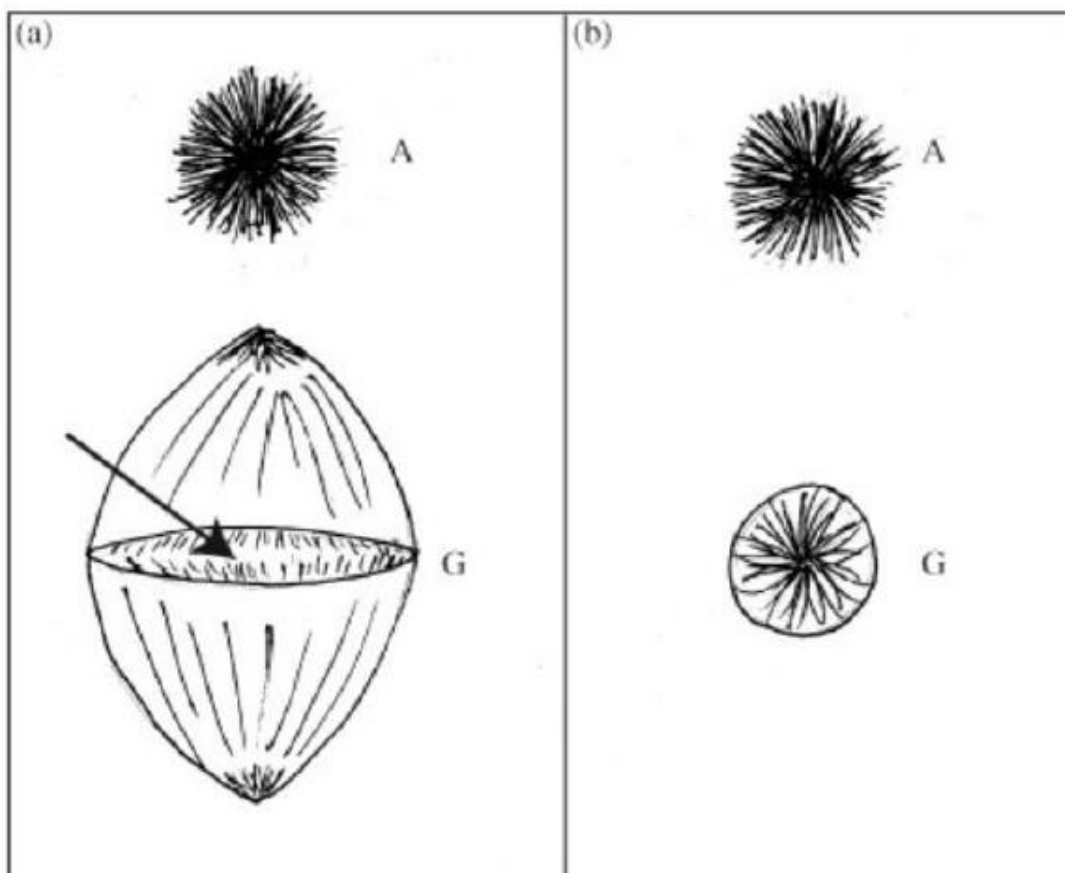
DESIGNATED ASSISTANTS:

Signature:	_____	Signature:	_____
Print Name:		Print Name:	
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Appendix 1. Figure 1. Determination of Sex in the Field

Determination of Sex in the Field

When collecting fish in the field we are targeting a specific ratio of male to females to optimize broodstock spawning success. In order to determine sex of adult yellow tangs in the field we will use a magnifying glass to inspect the genital openings of the fish. The difference in morphology between male and female is typically obvious in sexually mature fish as shown in the illustration below. The *Centropyge* species to be collected are easier to determine as males are typically larger than females and have a more pointed dorsal and anal ventral fin vs. females which are smaller with rounded fins.



Diagrams of adult (a) female and (b) male genital openings of *Zebrasoma flavescens* drawn to the same scale. The anus (A) is anterior to the genital (G) opening in both sexes. The arrow denotes the opening (slit) from which eggs are released. Sperm are released from the centre of the male genital opening.

Appendix 1. (continued) Photos 1 and 2: Photos of yellow tang after collection and propagation

Photo 1. Examples of Yellow tang in live well with oxygen for transport to Eco Harvest facility at NELHA after collection.

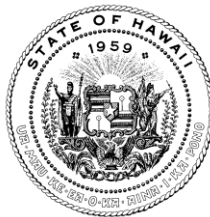


Photo 2. Example of Yellow tang larvae at 22 days post-hatch (dph) at the Eco Harvest facility at NELHA



JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA
HOPE KIA'ĀINA



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

DAWN N. S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

LAURA H. E. KAAKUA
FIRST DEPUTY

M. KALEO MANUEL
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

June 9, 2023

TO: Division of Aquatic Resources File

THROUGH: Dawn N. S. Chang, Chairperson

FROM: Brian J. Neilson, Administrator
Division of Aquatic Resources

SUBJECT: Declaration of Exemption from the Preparation of an Environmental Assessment under the Authority of Chapter 343, HRS, and Chapter 11-200.1, HAR, for a Special Activity Permit to Chris Kiser, Eco Harvest Hawaii, LLC, Project Coordinator.

The following permitted activities are found to be exempted from preparation of an environmental assessment under the authority of Chapter 343, HRS and Chapter 11-200.1, HAR:

Project Title: Special Activity Permit to Chris Kiser, Eco Harvest Hawaii, LLC, Project Coordinator, to Collect and Possess Regulated Organisms (Yellow Tang and Potter's Angelfish), Using Regulated Gear (Small Meshed Nets; < 2 Inches Stretched Mesh), in Non-Regulated Areas within the West Hawai'i Regional Fishery Management Area (WHRFMA) on Hawaii Island, for the Purpose of Researching Propagation/Aquaculture Techniques (for Aquarium Purposes*).

Permit Number: SAP 2024-27

Project Description: The permit, as described below, would authorize the collection and possession of regulated organisms (yellow tang / *Zebrasoma flavescens* and Potter's angelfish / *Centropyge potteri*), using regulated gear (small meshed nets; < 2 inches stretched mesh), in non-regulated areas within the West Hawai'i Regional Fishery Management Area (WHRFMA) on Hawaii Island, from June 9, 2023 through June 8, 2024, for the purpose of researching propagation/aquaculture techniques (for aquarium purposes*). The possession of the upper range size limit of specimens of yellow tang while on Oahu (in the event of transport to Oahu) or Hawaii is prohibited under sections 13-77-6 and 13-60.4 or above the bag limit for Potter's angel fish while on Oahu (in the event of transport to Oahu) is prohibited under sections 13-77-6, the possession aquarium collecting gear, or taking or possessing of any specimen of aquatic life for aquarium purposes without holding a valid West Hawai'i aquarium permit within the West Hawai'i Regional Fishery Management Area (WHRFMA) is prohibited under 13-60.4-4 and the collection of organisms for "Aquarium purposes" (to hold aquatic life alive in a state of captivity, whether

as pets, for scientific study, for public exhibition, for public display, or for sale for these purposes), is prohibited under the current aquarium ruling and section 13-60.4-3, unless authorized by a permit issued under section 187A-6, HRS.

BLNR Review. This permit is being brought before the board due to a requirement for applicants to go before the board for review, when requesting Special Activity Permits (“SAP”), if they are not categorized as recognized Hawaiian institutions, whose permits are of a perennial nature (continuous, year after year) for scientific research purposes. This permit was previously issued once between 2022 and 2023 (with similar collections and similar collection locations), using the permit process that is utilized for many SAP, consisting of approval from DAR and the Department Chair, as the board has delegated signature authority to the Department Chair for SAP for recognized Hawaiian institutions. This error was due to misunderstanding of the requirements of the delegation of signature authority assigned to SAP. In the first year that permit was issued this applicant would have been considered a new business or organization and therefore not yet a “recognized Hawaiian Institution”. Going forward, in order to rectify any other instances where this may have occurred in the past, DAR will be submitting any renewals of permits issued in the past or any new requests for permits, which are applied for by non-recognized Hawaiian institutions, to the board for review.

The applicant proposes to collect and possess regulated organisms (yellow tang / *Zebrasoma flavescens* and Potter’s angelfish / *Centropyge potteri*), using regulated gear (small meshed nets; < 2 inches stretched mesh), in non-regulated areas within the West Hawai‘i Regional Fishery Management Area (WHRFMA) on Hawaii Island, for the purpose of researching propagation/aquaculture techniques (for aquarium purposes*). Permittee will collect specimens of both yellow tang and Potter’s angelfish from the non-regulated areas between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA) and will additionally collect yellow tang from non-regulated areas between Puako ‘Anaeho‘omalu FRA to Kiholo Bay FMA and Potter’s angelfish from non-regulated areas at Keahole Point (Kona International Airport at Keahole), within the WHRFMA, Hawaii, and will transport these organisms to an aquaculture facility at the Natural Energy Laboratory of Hawaii Authority (NELHA).

Locations. The benefit of collection in these areas is that the sites are in close proximity to the aquaculture facility and will therefore limit the stress of handling and transport on the collected fish. After collection, organisms will be transported to an aquaculture facility at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, for propagation/aquaculture purposes. No collection will occur in any Marine Life Conservation Districts (MLCD), Fisheries Management Area (FMA), Fish Replenishment Areas (FRA; including Ka‘ūpūlehu Marine Reserve-FRA). **Note:** A location labeled as one area to another area in the location description above (e.g. 101-Keauhou Bay FMA to Red Hill FRA-804), indicates the collection will occur in the area between the two regulated areas (between the FMA and FRA), and does not authorize collection in any portion of the two regulated areas (FMA and FRA).

***Note:** The research of propagation/aquaculture techniques as proposed for this project fall under activities described under "Aquarium purposes" as defined under §13-60.4-3: Aquarium purposes

means to hold aquatic life alive in a state of captivity, whether as pets, for scientific study, for public exhibition, for public display, or for sale for these purposes.

Objective. The objective of these collections is for the research of propagation/aquaculture purposes (for aquarium purposes*) to facilitate the development of successful propagation techniques for select endemic or indigenous fish and to establish productively spawning/breeding populations of these species for aquarium purposes. The species proposed for collection are important commercially in the aquarium fish/ornamental fish industry and are also important to the reef ecosystems in the state of Hawaii. The hypothesis is that the establishment of a consistent supply of sustainable, aquacultured fish to the aquarium industry by Eco Harvest, will reduce the wild harvest/collection of fish from Hawaiian coral reefs for aquarium purposes and therefore reduce pressure on these local ecosystems, while still providing fish to the marine aquarium trade. The information learned as a result of this project can be applied to scale and will help develop and refine propagation techniques to support the commercial propagation of diverse marine ornamental species by an aquaculture company on the island of Hawaii. Future stocks may come from captive bred generations, eliminating the need for continued wild collection of brood fish to support the project itself. The company (Eco Harvest) will participate in the upcoming HATCH innovation studio at the NELHA facilities. The proposed collection will directly support those efforts set forth in the development of the program, which is supported by the recent \$1.8 million grant awarded to NELHA for the purpose of continuing the HATCH incubator to diversify Hawaii's economy, create jobs, and continue allow Hawaii to support companies that are leaders in the aquaculture industry. Some of the methods utilized for the aquaculture of this species will be based or similar to the methods and processes developed by the Finfish Program at Oceanic Institute of Hawaii Pacific University (Waimanalo, Hawaii) for previous culturing efforts of this species at their facility.

Collections. Permittee and authorized assistants are authorized to collect up to twenty (20) adult individuals of Yellow tang (*Zebrasoma flavescens*) (each ≥ 12 cm) per location, from three (3) locations, for a total of sixty (60) fish. The three (3) collection locations will consist of the non-regulated areas at Keahole Point, between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA), within the WHRFMA, Hawaii. The goal is to collect a ratio of $\approx 1:2$ (male to female); i.e. seven (7) males and thirteen (13) females for a total of twenty (20) fish per location, across three (3) locations, for a total of sixty (60) individuals (20 males and 40 females). Permittee and authorized assistants will also collect up to eight (8) adult individuals of Potter's angelfish (*Centropyge potteri*) (each ≥ 5 cm) per location, from three (3) locations, for a total of twenty four (24) fish. The three (3) collection locations will consist of the non-regulated areas at Keahole Point (Kona International Airport at Keahole), between Koloko Honokohau FRA to Papawai Bay FMA and between Keauhou Bay FMA to Red Hill Fish Replenishment Area (FRA), within the WHRFMA, Hawaii. The goal is to collect a ratio of 1:1 (male to female); i.e. four (4) males and four (4) females for a total of eight (8) fish per location, across three (3) locations, for a total of twenty-four (24) individuals (12 males and 12 females). Across the two species, a total of eighty-four (84) individuals will be collected (sixty [60] Yellow tang / *Zebrasoma flavescens* and twenty-four [24] Potters angelfish (*Centropyge potteri*). No collection will occur in any Marine Life Conservation Districts (MLCD), Fishery Management Areas (FMA), or Fish Replenishment Area (FRA; including Ka'ūpūlehu Marine Reserve-FRA). Collectors will

utilize regulated small mesh barrier nets (< 2 inches stretched mesh); regulated dip or hand nets (< 2 inches stretched mesh and greater than 3 feet in any dimension, including handle) or regulated dip or hand nets (< 2 inches stretched mesh and less than 3 feet in any dimension, including handle – if used commercially); and non-regulated gear (see section C. Gear and Methods below) to collect the fish.

Method. Capture. The method of capture for yellow tang will consist of blocking the travel of the target fish between reefs with barrier nets and quickly netting fish using the hand nets. Targeting collection between reef areas aims to avoid the potential for accidental damage to reef structure. **Note:** To mitigate for coral damage during the collection of Potter’s angelfish the permittee and authorized assistants will implement the following two step protocol in order to confirm that no corals will be broken in order to access fish taking refuge in coral habitat: 1) The permittee and authorized assistants will place barrier nets in the sand surrounding the coral habitat or live-rock formations and the fish will be herded into the barrier nets using small fiberglass rods and/or hand held dive lights; 2) During this process, if a fish takes refuge inside of a coral head and does not leave on its own, the corals will not be broken or handled in order to access the fish and the collectors will cease the pursuit of that fish and look for other individuals of the target species to attempt collection. DAR requests that the underwater collections of Potter’s angels be recorded via a Go-Pro video camera or similar by the collector and for the collector to submit this video to DAR for review after each collection trip. **Note:** The taking, breaking or damaging of corals and live rock is prohibited under sections 13-95-70 and 13-95-71, Hawaii Administrative Rules, unless authorized by a permit issued under section 187A-6, Hawaii Revised Statutes. This permit does not authorize the taking, breaking or damaging of corals and live rock. **Transport.** After capture, the fish will be transferred to containers where they can remain safe while decompressing. This method avoids the need to puncture swim bladders and avoids potential infection as a result. Once on the boat, the fish specimens will be kept in oxygenated live wells and transported to the Eco Harvest Facility at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, for propagation/aquaculture purposes (see example photos in Appendix 1 in permit). Once the specimens arrive at the NELHA compound in Kailua-Kona, they will be conditioned for spawning and providing eggs for cultivation. **Determination of Sex in the Field:** When collecting the fish in the field, the collectors will be targeting a specific ratio of male to females to optimize broodstock spawning success. In order to determine sex of adult yellow tangs in the field, the collectors will use a magnifying glass to inspect the genital openings of the fish. The difference in morphology between male and female is typically obvious in sexually mature fish as shown in the illustrations in Appendix 1 in permit. The sex of other species (e.g. *Centropyge* species or if additional species are collected in the future) can be easier to determine through evaluating differences in size and fin shape, as males are typically larger than females and have a more pointed dorsal and anal ventral fin compared to females, which are smaller with rounded fins.

Gear and Methods. Regulated Gear: Barrier net (dimensions: L x W: 8ft. x 4ft.; mesh size: ¼ inch stretched mesh); dip or hand nets (< 2 inches stretched mesh and greater than 3 feet in any dimension, including handle); hand nets (mesh size: ¼ inch stretched mesh; 10-12 inches length with handles; or any dip or hand net < 2 inches stretched mesh and less than 3 feet in any dimension, including handle - if used commercially).

Non-regulated Gear: Barrier net – used in motion (dimensions: L x W: 8ft. x 4ft.; mesh size: 2 inch stretched mesh) or any Dip or hand nets (< 2 inches stretched mesh and less than 3 feet in any dimension, including handle).

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 the standard regulations for each net: <https://dlnr.hawaii.gov/dar/fishing/fishing-regulations/gear-restrictions/>

Collection Plans/Collection Reports (see section D. in permit): Collectors will submit monthly collection plans and collection reports to verify actual numbers and sizes of collected organisms that are reviewed and approved by DAR biologists (Kona) on a monthly basis. **Incidental mortality.** Incidental mortality of target and non-target fish (various spp. and sizes) may occur in the field or while or while in captivity (target fish). Researchers will report any incidental mortalities in monthly collection report and final report. 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. **Bycatch.** 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. **Note:** All specimens collected will be held indefinitely in captivity to provide a continuous supply of eggs to support the hatchery. Should the project end before the specimens have naturally expired or if the facility needs to exchange older broodstock for younger broodstock, the specimens may be transferred to another permitted/licensed research or education institute or aquaculture facility or organization for use in other projects (grazers for research projects holding organisms in tanks or educational display, etc.). **Note:** Any transference of organisms will only occur after review and approval by DAR. At this time, the organisms are not anticipated to be returned to the collection location in order to prevent the introduction to the marine environment of any AIS/disease/parasites that may have colonized or any medications that may be utilized, while being held in an aquaculture facility.

Renewal of Permit. This permit is a renewal; the permit is being renewed for an additional sixty (60) individuals of yellow tang broodstock (as previously authorized under the first permit – SAP 2023-05) and a newly proposed collection for twenty-four (24) individuals of Potter’s angelfish broodstock from the locations specified in the Table 1 (pgs. 1-2 in the permit). The project is requesting to collect an additional sixty (60) yellow tangs for the following reasons: Only about 10% of the fish (\approx 6 individuals out of 60) collected last year began spawning for Eco Harvest. While the project hopes that number of spawning individuals will increase this summer, as those fish have been gradually conditioned/acclimated to captivity over the past 1.5 years, the project still requires additional individuals of that species in order to generate enough spawning activity to achieve the desired egg supply; i.e. the project needs to increase the number of reproductively viable cohorts on hand to increase egg supply (to increase genetic diversity, replace any mortalities, and to mitigate for individuals that never acclimate or become reproductively viable or who phase out of reproductive viability due to age). **Note:** Additionally there were nine (9) mortalities due to either one of the following reasons: black ich infection of gills, possible secondary infections from parasite infections

or apparent septicemia; and one (1) mortality due to no apparent cause, for a total of ten (10) mortalities.

Aquaculture Facility License (AFL). Last year the project applied for and was issued an Aquaculture Facility License (#31576) in order to pursue commercial propagation of the regulated species authorized for collection under this permit and to provide transparency for species (which are also indigenous to Hawaii), imported to Hawaii from other locations in the Pacific region, under a Department of Agriculture import permit. The Letter of Authorization (LOA # 2023-02) was issued to Chris Kiser (Project Coordinator; “licensee”), to sell the progeny of regulated organisms (Yellow tang; *Zebrasoma flavescens*), collected from the wild (as authorized under a Special Activity Permit [“SAP”]: SAP 2023-05) or the progeny of any regulated organisms additionally authorized under any amendment [or renewal] to the permit, for aquarium purposes, on behalf of Eco Harvest, Aquaculture Facility License #31576. Note: The LOA and AFL will be updated to include any new species authorized under future renewals of the SAP. This exemption to possess or sell any regulated aquatic life, provided the qualified aquaculturist rears or reared the regulated aquatic life in an aquaculture facility for commercial purpose is authorized by section 13-74-43, Hawaii Administrative Rules (HAR). In addition, the licensee will sell and possess the progeny of organisms imported under a Hawaii Department of Agriculture (HDOA) import permit (Permit No.: 23-06-H-A8745); the licensee is currently authorized to import all species from the following four families of fish: Callionymidae/dragonets (all species in family), Acanthuridae/surgeonfish (all species in family), Chaetodontidae/butterflyfish (all species in family) and Pomacanthidae/angel fish (all species in family). Some species currently planned for importation as broodstock under the HDOA import permit (Permit No.: 23-06-H-A8745), and the subsequent sale of their progeny, are regulated in the State of Hawaii either under section 13-77-6, Hawaii Administrative Rules (Oahu Aquarium Life Management) or may be regarded as regulated under the current prohibition on collecting and holding aquatic life [indigenous to Hawaii] alive in a state of captivity for aquarium purposes*. A Special Marine Products License (“SMPL”) (SMPL #31576) has been issued to possess, sell, or offer for sale, any such organism taken outside of the waters of the State, when such taking, possession, or sale of the same species is restricted if taken within the waters of the State (species listed below under family name). Note: Please see LOA # 2023-02 and Aquaculture Facility License #31576 for more information.

Determination of Minimum Cumulative Impact. DAR does not anticipate cumulative impacts to occur as a result of the activities conducted under this permit. As part of the permit conditions the permittee is required to implement a 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. An example of the current subsampling protocol that the project utilizes is the following: During the collection of yellow tang the collectors usually will target large schools of fish; if a school of 100-200 target size fish per location are observed, the collectors may only take approximately twenty (20) individuals from each location (i.e. \approx 10% - 20% of the total observed). For Potter’s angels (because this species may usually be found in pairs or in small harems), the collectors will attempt to collect both fish (in the event that a pair is located), as these fish are already bonded as a breeding pair, or (in the event that a harem is located) will collect only a pair or two (2) fish from a particular harem.

Therefore, by implementing practices of distributed take and subsampling, there should be minimum cumulative impacts on any particular species (i.e. no collections will occur in one concentrated location or consist of large proportions of observed populations). In addition, as previously discussed, collectors will avoid coral damage by not continue further pursuit any individuals of fish that have taken refuge in coral colonies.

The special conditions within the permit have been designed to minimize the impact of this sampling method, provide transparency and optimize the potential benefits. No threatened or endangered species are being collected. Select special conditions are below – see the permit for all general and special conditions:

- Collection Plans/Collection Reports: Collectors will submit monthly collection plans and collection reports to verify actual numbers and sizes of collected organisms that are reviewed and approved by DAR biologists (Kona) on a monthly basis.
- Incidental mortality. Incidental mortality of target and non-target fish (various spp. and sizes) may occur in the field or while or while in captivity (target fish). Researchers will report any incidental mortalities in monthly collection report and final report. 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 the sampling location if mortality occurs.
- Bycatch. 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.
- 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.

Notice of Violation of Terms and Conditions of Special Activity Permit. In June of 2022, the project was issued a notice of violation of select terms and conditions of their permit (SAP 2023-05). During the review of the violations that transpired in March of 2022, the Division determined that they were procedural concerns that were fixable. The project was notified that in order to proceed with any similar collection activities in the future, they would need to address and rectify these activities which resulted in the violations and that the inability to address these violations directly or show earnest efforts to addressing future violations may result in the revocation or non-renewal of the permit and confiscation of the resources collected under the permit. The violations consisted of 1) adding an assistant without written approval from the Department, and 2) not marking boats,

vehicles and nets or traps (regardless of mesh size - except for hand nets) used for collecting or hired for collecting under this permit, clearly with an inscription or sign bearing the permittee's affiliation ("Eco Harvest") and/or the number of the permit ("SAP 2023-05"). Since the initial incident, the project has made earnest efforts to confirm they are in compliance with all terms and conditions of the permit and no further violations have occurred. As an additional measure of compliance and as part of the regular notification to DAR and DOCARE 24 hours prior to initial commencement of any series of authorized activities (e.g. field collection/sampling) taken place under this permit, the permittee will (on collection days) coordinate an in-person check-in with DOCARE-Kona and DAR-Kona at the boat ramp before leaving to go out to conduct the collections and to coordinate an in-person check in again with DOCARE-Kona and DAR-Kona, immediately after returning to shore with organisms collected under this permit, in order to confirm that the conditions of the permit are being adhered to (e.g. gear types, collections, identification of vessel and vehicles, authorized assistants etc.).

Project Progress (2022-2023). The project has reported success with achieving spawning behavior/activity earlier than previously observed by other projects attempting similar propagation efforts with this species. At the time that the final report was submitted in January of 2023 for SAP 2023-05 (for work conducted between 2022-2023), the project had observed that the yellow tang spawning had slowly increased in egg volumes even as the winter months with cooler temperatures and shorter days approached and that the fish that were spawning were doing so regularly every full and new moon cycle of each month. The project stocked multiple small runs of yellow tang larvae from these spawning events and have gotten some fish through to the thirty (30) day mark (*note more progress may have been documented since the submission of the final report in January 2023). The Eco Harvest facilities are currently fully operational with live algae cultures and live feed cultures at full capacity, with the project consistently producing 40-50 million copepod nauplii (larval stage of copepods) daily which is the required first feed for these larval fish. The project has gotten survival rates in line or exceeding published results up to the current age of the larval fish produced at the facility. At the time of the submission of the final report, the project anticipated that the egg supply of the spawning individuals to increase as the season continues to proceed from into late spring into summer and for more individuals to potentially spawn as the fishes enter their natural spawning season, as all of the brood fish are now fully conditioned to captivity. Although the project anticipates this increase, they also need to take into account that select individuals may not become reproductively viable for various reasons and therefore have requested an additional collection of new fish to account for this variability and keep the number of reproductively viable stock on hand consistent, while they continue to research the propagation techniques. Through consultation with other aquaculture operations, DAR has determined that the additional collections of newer stock at various stages while propagating organisms in aquaculture settings is a regular practice and provided that the operation becomes successful in their production of progeny from these collections of broodstock, the benefit of these collections should outweigh the costs through the reductions of future wild collections from the reef by other institutions and the development of propagation techniques. DAR will continue to monitor and evaluate the progress of the propagation efforts of this project in order to ensure that the collections are being utilized effectively.

Benefits to the State of Hawaii. The benefits to the State of Hawaii from these collections include the development and refinement of propagation techniques to support the commercial propagation of diverse marine ornamental species, which will hypothetically establish a consistent supply of sustainable, aquacultured fish to the aquarium industry by Eco Harvest. This commercial propagation effort should, in turn, reduce the wild harvest/collection of fish from Hawaiian coral reefs for aquarium purposes, therefore reducing pressure on these local ecosystems, while still providing fish to the marine aquarium trade. Additionally, future broodstock fish may come from captive bred generations, which could eliminate the need for continued wild collection of broodstock fish to support the project itself. The company (Eco Harvest) will also be a participant in the upcoming HATCH innovation studio at the NELHA facilities; the HATCH program aims to diversify Hawaii's economy, create jobs, and continue allow Hawaii to support companies that are leaders in the aquaculture industry. In addition, projects such Eco Harvest who develop expertise in holding and propagating these types of organisms can either collaborate with other institutions to co-develop techniques for other species that may be more difficult or utilize their established techniques to produce progeny that can be used in other applications besides the aquarium trade, such as for research projects or educational display, which can then be utilized to continue research for additional techniques or to propagate certain species within aquariums or research institutions, further reducing collections from the wild.

Consulted Parties: Chris Teague, Aquatic Biologist, DAR (Hawaii-Kona), Cathy Gewecke, Aquatic Biologist, DAR (Oahu), David Cohen, Sea Urchin Hatchery Manager, DAR (Oahu) Brian Neilson, Administrator, DAR (Oahu).

Exemption Determination: Exemption Determination: After reviewing §11-200.1-15, HAR, including the criteria used to determine significance under §11-200.1-13, HAR, DLNR has concluded that the activities under this permit would have minimal or no significant effect on the environment and that issuance of the permit is categorically exempt from the requirement to prepare an environmental assessment based on the following analysis:

1. All activities associated with this permit have been evaluated as a single action. Since this permit involves an activity that is precedent to a later planned activity, i.e., the same methodology used throughout the permit period, the categorical exemption determination here will treat all planned activities as a single action under §11-200.1-10, HAR.

2. The General Exemption Type #1 for Operations, Repairs or Maintenance of Existing Structures, Facilities, Equipment, or Topographical Features, #5 for Basic Data Collection, Research, Experimental Management, And Resource Evaluation Activities Which Do Not Result In A Serious Or Major Disturbance To An Environmental Resource and #8 Continuing Administrative Activities, Appears to Apply. §11-200.1-16 (a) (1) and §11-200.1-16 (a) (2), HAR, exempts the class of actions that involve "maintenance of existing structures, involving minor expansion or minor change of use beyond that previously existing", basic data collection, research and experimental management with no serious or major environmental disturbance" and "educational activities". These exemption types have been interpreted to include the collection, possession and transportation of regulated and non-regulated organisms, for the purpose of researching propagation/aquaculture techniques.

The proposed activities here appear to fall squarely under the general the exemption classes identified under HAR §11-200.1-16 (a) (1) and as described under the 2020 DLNR exemption list, under exemption type #1 (Part 1), item #6 and under exemption type #5 (Part 1), item #15, and exemption type #8 (Part 1), item #5, which includes, respectively, “operation, repair and maintenance of existing fisheries facilities, involving capture, containment, sustaining, experimentation, and husbandry of various freshwater, estuarine, and marine fishes, invertebrates, and other aquatic organisms” and “game and non-game wildlife surveys, vegetation and rare plant surveys, aquatic life surveys, inventory studies, new transect lines, photographing, recording, sampling, collection, culture, and captive propagation” and “training, environmental interpretation, public safety efforts and other educational activities”.

As discussed below, no significant disturbance to any environmental resource is anticipated. Thus, so long as the below considerations are met, the general exemption types should include the action now contemplated.

3. Cumulative Impacts of Actions in the Same Place and Impacts with Respect to the Potentially Particularly Sensitive Environment Will Not be Significant. Even where a categorical exemption appears to include a proposed action, the action cannot be declared exempt if “the cumulative impact of planned successive actions in the same place, over time, is significant, or when an action that is normally insignificant in its impact on the environment may be significant in a particularly sensitive environment.” §11-200.1-15 (d), HAR. To gauge whether a significant impact or effect is probable, an exempting agency must consider every phase of a proposed action, any expected primary and secondary consequences, the long-term and short-term effects of the action, the overall and cumulative effect of the action, and the sum effects of an action on the quality of the environment. §11-200.1-13, HAR.

Significant cumulative impacts are not anticipated as a result of this activity, and numerous safeguards further ensure that the potentially sensitive environment of the project area will not be significantly affected. All activities will be conducted in a manner that does not diminish marine resources, qualities, and ecological integrity, or have any indirect, secondary, cultural, or cumulative effects.

Since no significant cumulative impacts or significant impacts with respect to any particularly sensitive aspect of the project area are anticipated, the categorical exemptions identified above should remain applicable.

4. Overall Impacts will Probably have a Minimal or No Significant Effect on the Environment. Any foreseeable impacts from the proposed activity will probably be minimal, and further mitigated by general and specific conditions attached to the permit. Specifically, all research activities covered by this permit will be carried out with strict safeguards for the natural, historic, and cultural resources, other applicable law and agency policies and standard operating procedures.

Conclusion. Upon consideration of the permit to be approved by the Chairperson, being delegated signatory authority on behalf of the Board of Land and Natural Resources at its meeting of October 24, 2008, the potential effects of the above listed project as provided by Chapter 343, HRS, and Chapter 11-200.1, HAR, have been determined to be of probable minimal or no significant effect on the environment and exempt from the preparation of an environmental assessment.

Dawn N. S. Chang, Chairperson
Board of Land and Natural Resources

Date