

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

May 12, 2023

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Approval of Special Activity Permit 2024-32 for
John O'Sullivan, Monterey Bay Aquarium (MBA), Manager of Collections, to Collect
Regulated and Non-Regulated Organisms Including Various Species of Gelatinous
Zooplankton, Zooplankton and Jellyfish, in Regulated Areas (West Hawaii Regional
Fishery Management Area – “WHRFMA”) and Non-Regulated Areas in Offshore waters
of West Hawaii, for the Purposes of Educational Live Display in a Deep-Water Exhibit
 (“Aquarium Purposes”) and Associated Research (e.g. Husbandry Captive Research
and/or Culturing) at Monterey Bay Aquarium, Monterey, CA.

The applicant proposes to collect regulated organisms (lobster spp. / Scyllaridae
and Palinuridae spp.; larval/zooplanktonic stage) and non-regulated organisms (various
spp. of gelatinous zooplankton and zooplankton [larval/zooplanktonic stage] and jellyfish
[larval though adult stages]), using non-regulated gear, in areas of offshore waters (2 to
20 miles offshore) of Honokohau, Hawaii, including a regulated area (West Hawaii
Regional Fishery Management Area – “WHRFMA” – in areas in the WHRFMA in the 2-
3 mile zone offshore outside of all smaller FMA, MLCD, FRA and NRA) and the non-
regulated areas of offshore waters (3 to 20 miles offshore), for the purposes of
educational live display in a deep-water exhibit (“aquarium purposes”) and associated
research (e.g. husbandry captive research and/or culturing) at Monterey Bay Aquarium,
Monterey (“MBA”), CA.

The collections will support the new established Deep Exhibition that opened in
2022 at the aquarium, featuring the mid-water and deep-water marine species. The
permittee and authorized assistants (the MBA’s Midwater team and Dive Office staff)
will charter a vessel from Kona Honu Dive Charters in Honokohau Small Boat Harbor to
conduct a series of blackwater SCUBA dives using a bluewater rig to collect gelatinous
zooplankton in small plastic jars. After collection, MBA staff will transport the jars with
specimens to MBA's rented laboratory space at the Natural Energy Laboratory of Hawaii
Authority (NELHA) in Kailua-Kona, where they will be held for 3-5 days in chilled
seawater systems. After temporary holding at NELHA, the MBA staff will then transport
the specimens (in jars placed in coolers) via commercial airlines back to MBA where
they will be placed in MBA seawater system holding tanks until acclimated and then
placed on exhibit or utilized for culture work conducted by MBA staff.

Note: The collection activities 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 (MBA staff) will collect up to seven hundred and fifty (750) specimens of gelatinous zooplankton, zooplankton and jellyfish (various spp. and sizes) by hand, using 400ml, 1.0L, and 1.5L plastic jars to contain individual specimens. Collection amounts each species of organism will vary depending on incidence or need (in terms of educational exhibits or culturing/ research), but will range from twenty (20) to two hundred (200) specimens of each species. Note: The species list is made up of “gelatinous zooplankton” (defined as organisms that remain gelatinous their whole lifecycle from juvenile to adult), of which both adults and juveniles will be collected, “zooplankton” (consisting of organisms that are gelatinous in their larval/planktonic stage, but may settle out to the substrate to become hard-bodied organisms when they mature - such as commensal crabs, deep sea brittle stars, big fin reef squid, blanket octopus, lobster species, etc.), of which larval/planktonic stages will be collected, and ‘jellyfish’, of which larval through adult life stages may be collected. Note: Scyllaridae and Palinuridae spp./ lobster spp. may consist of the following regulated species: *Panulirus penicillatus*/ green spiny lobster (tufted spiny lobster), *Panulirus marginatus* / Black leg spiny lobster, *Scyllarides squammosus*/ Scaly Slipper lobster and *Scyllarides haanii*/ Ridgeback Spiny Lobster, and non-regulated invertebrates may consist of non-regulated specimens of Scyllaridae and Palinuridae spp./ lobster spp.

Collections planned for this year will consist of similar species that have been collected in the past; past collections have included specimens of the following various species of gelatinous zooplankton, zooplankton and jellyfish (see Appendix at end of permit for potential amounts per species or family/genus and example photos); **Note:** Not all species or amounts listed in the Appendix of this permit will be collected – amounts per species are requested in anticipation that some species may not be present during certain dives or at certain locations; in these cases, more of another species may be collected. The maximum amount of individuals to be collected will be seven hundred and fifty (750) specimens of gelatinous zooplankton, zooplankton and jellyfish (various spp. and sizes); species may include the following: *Paper Nautilus* (*Nautilus argonauta*), *Pelagic Blanket Octopus* (*Tremoctopus* spp.), *Glass Squid* (*Leachia pacifica*), *Glass Squid* (*Ancistrocheirus lesseurii*), *Bigfin Reef Squid* (*Sepioteuthis lessoniana*), *Diamond Squid* (*Thysanoteuthis rhombus*), *Larvaceans* (*Oikopleura* spp.), *Larvaceans* (*Bathochordaeus* spp.), *Larvaceans* (*Fritillaria* spp.), *Palm Gooseberry* (*Hormiphora palmata*), *Sea Gooseberry* (*Hormiphora* spp.), *Venus Girdle* (*Cestum veneris*), *Lobate Ctenophore* (*Eurhamphaea vexiligifera*), *Spotted Comb Jelly* (*Leucothea* spp.), *Pelagic Nudibranch* (*Phylliroe* spp.), *Amphipod* (*Phronima* spp.), *Shrimp*, *Deep Water Mysid* (*Gnathophausia* spp.), *Crabs*, *Commensal* (*Chyrostylidae* spp.), *Isopods* (*Order Isopoda*), *Amphipods* (*Order Amphipoda*), *Sea Spiders* (*Class Pycnogonidae*), *Phyllosoma*, *Lobster (larvae)* (*Family Scyllaridae*), *Phyllosoma*, *Lobster (larvae)* (*Family Synaxidae*), *Phyllosoma*, *Lobster (larvae)* (*Family Palinuridae*), *Siphonophore* (*Hula Skirt*)(*Physophora hydrostatica*), *Siphonophore* (*Diphyes* spp.), *Siphonophore* (*Forskalia* spp.), *Siphonophore* (*Agalma okeni*), *Siphonophore* (*Halistemma* spp.), *Siphonophore*

(*Apolesia* spp.), *Siphonophore* (*Sulculeolaria* spp.), *Coronamedusa* (*Atolla* spp.), *Coronamedusa* (*Atorella* spp.), *Coronamedusa* (*Nausithoe* spp.), *Coronamedusa* (*Paraphylla* spp.), *Hydromedusa* (*Merga* spp.), *Hydromedusa* (Order *Trachymedusae*), *Hydromedusa* (*Zancleopsis* spp.), *Hydromedusa* (*Aegina* spp.), *Jellyfish*, *Rainbow tasseled* (*Thysanostoma loriferum*), *Jellyfish* (*Crown*)(*Cephea cephea*), *Brittle star* (*Deep Sea*)(*Asteroschema* spp.), *Amphipods* (*Family Hyperiidae*), *Mauve stinger* (*Pelagia flaveola*), *Siphonophore* (*Athorybia rosacea*), *Siphonophore* (*Rhizophysa* spp.), *Swimming Comb Jelly* (*Ocyropsis* spp.), *Cubozoan Jelly* (*Copula sivickisi*), *Comb Jelly* (*Callianira* sp.), *Ctenophore* (*Velamen parallelum*), *Sea Butterfly* (*Clio pyramidata*), *Sea Butterfly* (*Clio cuspidate*), *Cigar Comb Jelly* (*Beroe* spp.).

Some of the jellyfish specimens, after acclimation in holding tanks will be placed into exhibit tanks in MBA's Into the Deep exhibit, which opened to the public in April of 2022. MBA's Jellyfish team will also continue on-going efforts to culture specimens in-house for future use in their Into the Deep exhibit. Aquarium will work to integrate Hawaiian-specific information into exhibits that display organisms that are sourced from Hawaii, to provide information on a species significance within the Hawaiian seamounts, pelagic ecosystems or culture (if applicable), or other relevant information such as the problems these organisms may face with climate change, environmental degradation, overfishing etc., as educational outreach. Black water dives using blue water rigs will take place ~1900-2100 PST. Activities may be conducted during a few different collection periods/trips throughout the year (permitting period); dates may vary due to delays or interruptions.

Research and Conservation Activities at Monterey Bay Aquarium. In addition to displaying organisms and providing educational opportunities (free of charge) for more than 81,000 students a year (many from low-income communities), the Monterey Aquarium also conducts various research (including life history, propagation techniques and husbandry). Monterey Bay Aquarium helped create momentum for the establishment of the Monterey Bay National Marine Sanctuary in 1992, one of the largest marine protected areas in the United States. Staff scientists have authored scientific publications involving sea otters, great white sharks, and bluefin tunas, which are important species in the northern Pacific Ocean. In addition to other animals, work has been published in the areas of veterinary medicine, visitor studies, and museum exhibition development. Among over 200 institutions accredited by the Association of Zoos and Aquariums, Monterey Bay Aquarium ranked 10th in scientific publication activity between 1993 and 2013. For Monterey Bay Aquarium's captive animal propagation efforts, the Association of Zoos and Aquariums has granted two awards, including one for the aquarium's work with purple-striped jellies in 1992. It has also received the association's general conservation award for its Sea Otter Research and Conservation Program.

MBA biologists have developed animal care methods for jellies that are now used by other aquariums and scientists worldwide (Raskoff et al 2003) and have described the life cycles of seven species of jellies displayed in the Aquarium: the cross jelly (*Mitrocoma cellularia*, Widmer 2004), the egg-yolk jelly (*Phacellophora camtschatica*, Widmer 2006), the flower hat jelly (*Olindias formosus*, Patry et al 2014), the Pacific sea nettle (*Chrysaora fuscescens*, Widmer 2008) and the purple-striped jelly (*Chrysaora*

colorata, Sommer 1993), *Earleria corachloae* (Widmer 2011) and *Earleria purpurea* (Widmer, Cailliet and Geier 2010). The aquarium grows jellies to minimize the need to collect from the wild and to contribute to the natural history and diversity knowledge of these important animals.

Most recently, aquarium biologists in collaboration with the University of Miami developed the first mass culture techniques for ctenophores, or comb jellies (Patry et al 2020 and Presnell et al 2022) which has led to renewed interest in the biology of ctenophores and a slew of important findings in evolutionary biology and biodiversity (Schultz et al 2021, Bessho-Uehara et al 2020, Johnson et al 2022, Presnell and Browne 2021, Burkhardt et al 2023, Dunn 2023). Biologists here have applied these or adapted similar techniques to culture and/or display several Hawaiian species of ctenophores, siphonophores and other gelatinous zooplankton; *Hormiphora sp.*, *Pelagia flaveola*, *Nausithoe sp.*, *Atorella sp.*, *Eurhamphaea vexilligera*, *Rizophysa eysenhardtii*, *Athorybia rosacea*, *Merga costata* and *Achelata* (various lobster larvae). The MBA hopes to continue this work over the coming years as culturing these species is not only critical to the sustainability of their collection at the aquarium but a vital part of their mission to inspire conservation of the ocean.

DAR does not anticipate cumulative impacts to occur as a result of the activities conducted under this permit. Gelatinous zooplankton, zooplankton and jellyfish have an extremely patchy distribution in the water column and the types of each species present and the numbers of any particular species collected on any single dive will vary depending on the water mass and migration of different species. The collections during each dive conducted by the MBA are anticipated to have a negligible impact on the biodiversity or density of species in Hawaiian waters as they will be a select subsample of the amount and type which are present throughout the islands. The MBA anticipates deploying six to eight (6-8) stationary divers in the water for forty to seventy (40 – 70) minutes per dive; each diver can only collect what arrives in front of them within arm's reach. The currents and drift of the MBA vessel will put the divers in a different location at the end of the dive from when they first entered the water; thus the collections are distributed over a large location and limited to the availability at the time and location and collection reach of the diver. The divers will be moving with the current, as will the specimens, therefore there should be no cumulative impacts on any particular species (i.e. no collections will occur in one concentrated location).

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 on a monthly basis or for a specific trip (if select collection trips will occur).

- Incidental mortality. Incidental mortality of target and non-target organisms (various spp. and sizes) may occur in the field or while or while in captivity (target organism). 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 gear at all times and release/return all unintended by-catch as quickly as possible to the marine environment (if applicable).
- 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.

This permit is being brought before the board due to a requirement for out-of-state institutions requesting Special Activity Permits (“SAP”) to go before the board for review. This permit was previously issued on an annual basis between 2019 and 2023 (with similar collections and same collection locations), using the permit process that is utilized for many SAP, consisting of approval from DAR and the 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. 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 increased awareness and education about various spp. of deep water gelatinous zooplankton, zooplankton and jellyfish that occur in Hawaiian waters and the role they play in the ecosystem, to people from around the world who visit the Monterey Bay Aquarium; increased awareness and education will aid future conservation efforts needed to preserve these organisms and the ecosystems they inhabit. In addition, facilities that have expertise holding these types of deep water organisms are able to collaborate with other institutions to develop and share successful techniques on husbandry research or culturing, which can then be utilized to continue research or propagate certain species within aquariums to reduce future collections (for educational display or research) 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 2024-32)
- 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: May 12, 2023

Valid not longer than: May 11, 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:	John O'Sullivan	Address:	Monterey Bay Aquarium
Title:	Manager of Collections		886 Cannery Row
Affiliation:	Monterey Bay Aquarium (MBA)		Monterey, CA 93940
Email:	JOSullivan@mbayaq.org		

This permit is issued, subject to the general and special conditions, to collect regulated organisms (lobster spp. / Scyllaridae and Palinuridae spp.; larval/zooplanktonic stage) and non-regulated organisms (various spp. of gelatinous zooplankton and zooplankton [larval/zooplanktonic stage] and jellyfish [larval though adult stages]), using nonregulated gear, in areas of offshore waters (2 to 20 miles offshore) of Honokohau, Hawaii, including a regulated area (West Hawaii Regional Fishery Management Area – “WHRFMA” – in areas in the WHRFMA in the 2-3 mile zone offshore outside of all smaller FMA, MLCDD, FRA and NRA) and the non-regulated areas of offshore waters (3 to 20 miles offshore), for the purposes of educational live display in a deep-water exhibit (“aquarium purposes”) and associated research (e.g. husbandry captive research and/or culturing) at Monterey Bay Aquarium, Monterey, CA.

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:

Sp. Code	Sp. Description	Sp. Amt.	Morphology	Sp. Size	Island	Location	Comments
<i>Regulated organisms</i>							
5117	Scyllaridae and Palinuridae spp./ lobster spp.) Panulirus penicillatus/ green spiny lobster (tufted spiny lobster)	Up to 400	Individuals	Individuals (planktonic/ larval size)	Hawaii	120- Hawaii Offshore (2 to 20 miles offshore)	Sampling will occur offshore of Honokohau, Hawaii (~2 miles offshore), in ~7000 ft. water depth or in areas further offshore (2 to 20 miles offshore).
5116	Panulirus marginatus / Black leg spiny lobster			Any available info on species, amounts or sizes will be specified in final report		(Locations to be specified in final report)	Scyllaridae and Palinuridae spp./lobster spp. will be collected; zooplanktonic/larval stage will be collected
5338	Scyllarides squammosus/ Scaly Slipper lobster						
5336	Scyllarides haanii/ Ridgeback Spiny Lobster See Appendix at end of permit for species list & amounts						Note: Up to a total of 750 specimens will be collected across both the regulated lobster species and non-regulated spp. of gelatinous zooplankton, zooplankton and jellyfish

<i>Non-regulated organisms</i>							
25710	Non-Regulated Marine Invertebrates (Various spp.) Various spp. of invertebrates, consisting of various spp. of gelatinous zooplankton, zooplankton and jellyfish will be collected (may include non-regulated specimens of Scyllaridae and Palinuridae spp.) See Appendix at end of permit for species list & amounts	Up to 750 (Various sizes)	Individuals	Individuals (various sizes; planktonic though adult stages) Any available info on species, amounts or sizes will be specified in final report	Hawaii	120-Hawaii Offshore (2 to 20 miles offshore) (Locations to be specified in final report)	Sampling will occur offshore of Honokohau, Hawaii (~2 miles offshore), in ~7000 ft. water depth or in areas further offshore (2 to 20 miles offshore). Various spp. of gelatinous zooplankton and various spp. of jellyfish will be collected; planktonic though adult stages Note: Up to a total of 750 specimens will be collected across both the regulated lobster species and non-regulated spp. of gelatinous zooplankton, zooplankton and jellyfish, across various offshore/blue water areas

I. SPECIAL CONDITIONS

A. Location

All activity will occur in areas of offshore waters (2 to 20 miles offshore) of Honokohau, Hawaii, including a regulated area (West Hawaii Regional Fishery Management Area – “WHRFMA” – in areas in the WHRFMA in the 2-3 mile zone offshore outside of all smaller FMA, MLCD, FRA and NRA) and the non-regulated areas of offshore waters (3 to 20 miles offshore), as listed in Table 1 on Page 1. The Monterey Bay Aquarium’s (MBA) Midwater team and Dive Office will conduct a series of blackwater SCUBA dives using a bluewater rig to collect gelatinous zooplankton (jellyfish) at a collection location that was previously approved on SAP 2023-26; ~2 miles off of Honokohau Small Boat Harbor, Hawaii in ~7000 ft water depth or in areas further offshore (2 to 20 miles offshore). Live collections will be transported to a temporary holding facility at Hawaii's Natural Energy Laboratory of Hawaii Authority (NELHA), for acclimation, and then transported the Monterey Bay Aquarium, Monterey, CA. for educational live display and research (e.g. husbandry captive research). 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 Honolua-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-Mākolē‘ā Point Netting Restricted Area (NRA ⁷)
<u>Island of LANAI</u> Manele Harbor FMA Manele-Hulopoe MLCD	<u>Island of HAWAI‘I</u> <u>Areas within the West Hawaii Regional Fishery Management Area:</u> Hilo Bay FMA Kailua Bay FMA Kawiahae Harbor FMA Kealahou Bay MLCD	
<u>Island of MOLOKA‘I</u> Kaunakakai Harbor FMA		
<u>Island of KAHOLA‘OKE</u> Restricted 2 nautical mile boundary Zone A and Zone B surrounding		

<p>Kaho'olawe</p> <p><u>Island of O'AHU</u></p> <p>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) Waikīkī-Diamond Head SFMA Waikiki MLCD Wahiawā Public Fishing Area</p>	<p>Keauhou Bay FMA Kiholo Bay FMA Kona Coast FMA Old Kona Airport MLCD Lapakahi Bay MLCD Papawai Bay FMA Puako FMA Waiakea PFA⁵ Wailea Bay MLCD Wailuku River FMA Wailoa River FMA Wawālohi FMA</p>	<p>(12) Nenuē Point–Kealakekua Bay NRA (13) Hanamalo Point–Kanewa'a Point NRA (Part of Miloli'i CBSFA) (14) Kanonone–Kalīpoa NRA</p> <p><u>Island of HAWAI'I</u> <u>West Hawaii Regional Fishery Management Area (WHRFMA)</u></p> <p>Areas in the WHRFMA outside of all smaller FMA, MLCD, FRA and NRA</p>
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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 to collect regulated organisms (lobster spp. / Scyllaridae and Palinuridae spp.; larval/zooplanktonic stage) and non-regulated organisms (various spp. of gelatinous zooplankton and zooplankton [larval/zooplanktonic stage] and jellyfish [larval though adult stages]), as listed in Table 1 on Page 1, in areas of offshore waters (2 to 20 miles offshore) of Honokohau, Hawaii, including a regulated area (West Hawaii Regional Fishery Management Area – “WHRFMA” – in areas in the WHRFMA in the 2-3 mile zone offshore outside of all smaller FMA, MLCD, FRA and NRA) and the non-regulated areas of offshore waters (3 to 20 miles offshore), using non-regulated gear. The objective of the activity is to collect gelatinous zooplankton, zooplankton and jellyfish for the purposes of educational live display in a deep-water exhibit (“aquarium purposes”) and associated research (e.g. husbandry captive research and/or culturing) at Monterey Bay Aquarium, Monterey, CA. The collections will support the new established Deep Exhibition that opened in 2022 at the aquarium, featuring the mid-water and deep-water marine species. The permittee and authorized assistants (MBA’s Midwater team and Dive Office staff) will charter a vessel from Kona Honu Dive Charters in Honokohau Small Boat Harbor to conduct a series of blackwater SCUBA dives using a bluewater rig to collect gelatinous zooplankton in small plastic jars. After collection, the MBA staff will transport the jars with specimens to MBA's rented laboratory space at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, where they will be held for 3-5 days in chilled seawater systems. After temporary holding at NELHA, the MBA staff will then transport the specimens (in jars placed in coolers) via commercial airlines back to MBA where they will be placed in MBA seawater system holding tanks until acclimated and then placed on exhibit or utilized for culture work conducted by MBA staff.

***Note:** The collection activities 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 (MBA staff) will collect up to seven hundred and fifty (750) specimens of gelatinous zooplankton, zooplankton and jellyfish (various spp. and sizes) by hand, using 400ml, 1.0L, and 1.5L plastic jars to contain individual specimens. Collection amounts each species of organism will vary depending on incidence or need (in terms of educational exhibits or culturing/ research), but will range from twenty (20) to two hundred (200) specimens of each species. Note: The species list is made up of “gelatinous zooplankton” (defined as organisms that remain gelatinous their whole lifecycle from juvenile to adult), of which both adults and juveniles will be collected, “zooplankton” (consisting of organisms that are gelatinous in their larval/planktonic stage, but may settle out to the substrate to become hard-bodied organisms when they mature - such as commensal crabs, deep sea brittle stars, big fin reef squid, blanket octopus, lobster species, etc.), of which larval/planktonic stages will be collected, and ‘jellyfish”, of which larval through adult life stages may be collected. Note:

Scyllaridae and Palinuridae spp./ lobster spp. may consist of the following regulated species: *Panulirus penicillatus* / green spiny lobster (tufted spiny lobster), *Panulirus marginatus* / Black leg spiny lobster, *Scyllarides squammosus* / Scaly Slipper lobster and *Scyllarides haanii* / Ridgeback Spiny Lobster, and non-regulated invertebrates may consist of non-regulated specimens of Scyllaridae and Palinuridae spp./ lobster spp.

Collections planned for this year will consist of similar species that have been collected in the past; past collections have included specimens of the following various species of gelatinous zooplankton, zooplankton and jellyfish (see Appendix at end of permit for potential amounts per species or family/genus and example photos); **Note:** Not all species or amounts listed in the Appendix of this permit will be collected – amounts per species are requested in anticipation that some species may not be present during certain dives or at certain locations; in these cases, more of another species may be collected. The maximum amount of individuals to be collected will be seven hundred and fifty (750) specimens of gelatinous zooplankton, zooplankton and jellyfish (various spp. and sizes); species may include the following: *Paper Nautilus* (*Nautilus argonauta*), *Pelagic Blanket Octopus* (*Tremoctopus* spp.), *Glass Squid* (*Leachia pacifica*), *Glass Squid* (*Ancistrocheirus lesseurii*), *Bigfin Reef Squid* (*Sepioteuthis lessoniana*), *Diamond Squid* (*Thysanoteuthis rhombus*), *Larvaceans* (*Oikopleura* spp.), *Larvaceans* (*Bathochordaeus* spp.), *Larvaceans* (*Fritillaria* spp.), *Palm Gooseberry* (*Hormiphora palmata*), *Sea Gooseberry* (*Hormiphora* spp.), *Venus Girdle* (*Cestum veneris*), *Lobate Ctenophore* (*Eurhamphaea vexiligifera*), *Spotted Comb Jelly* (*Leucothea* spp.), *Pelagic Nudibranch* (*Phylliroe* spp.), *Amphipod* (*Phronima* spp.), *Shrimp*, *Deep Water Mysid* (*Gnathophausia* spp.), *Crabs*, *Commensal* (*Chyrostylidae* spp.), *Isopods* (*Order Isopoda*), *Amphipods* (*Order Amphipoda*), *Sea Spiders* (*Class Pycnogonidae*), *Phyllosoma*, *Lobster* (larvae) (*Family Scyllaridae*), *Phyllosoma*, *Lobster* (larvae) (*Family Synaxidae*), *Phyllosoma*, *Lobster* (larvae) (*Family Palinuridae*), *Siphonophore* (*Hula Skirt*)(*Physophora hydrostatica*), *Siphonophore* (*Diphyes* spp.), *Siphonophore* (*Forskalia* spp.), *Siphonophore* (*Agalma okeni*), *Siphonophore* (*Halistemma* spp.), *Siphonophore* (*Apolemia* spp.), *Siphonophore* (*Sulculeolaria* spp.), *Coronamedusa* (*Atolla* spp.), *Coronamedusa* (*Atorella* spp.), *Coronamedusa* (*Nausithoe* spp.), *Coronamedusa* (*Paraphylla* spp.), *Hydromedusa* (*Merga* spp.), *Hydromedusa* (*Order Trachymedusae*), *Hydromedusa* (*Zancleopsis* spp.), *Hydromedusa* (*Aegina* spp.), *Jellyfish*, *Rainbow tasseled* (*Thysanostoma loriferum*), *Jellyfish* (*Crown*)(*Cephea cephea*), *Brittle star* (*Deep Sea*)(*Asteroschema* spp.), *Amphipods* (*Family Hyperiididae*), *Mauve stinger* (*Pelagia flaveola*), *Siphonophore* (*Athorybia rosacea*), *Siphonophore* (*Rhizophysa* spp.), *Swimming Comb Jelly* (*Ocyropsis* spp.), *Cubozoan Jelly* (*Copula sivickisi*), *Comb Jelly* (*Callianira* sp.), *Ctenophore* (*Velamen parallelum*), *Sea Butterfly* (*Clio pyramidata*), *Sea Butterfly* (*Clio cuspidate*), *Cigar Comb Jelly* (*Beroe* spp.).

Gelatinous zooplankton, zooplankton and jellyfish have an extremely patchy distribution in the water column and the types of each species present and the numbers of any particular species collected on any single dive will vary depending on the water mass and migration of different species. The collections during each dive conducted by the MBA are anticipated to have a negligible impact on the biodiversity or density of species in Hawaiian waters as they will be a select subsample of the amount and type which are present throughout the islands. The MBA anticipates deploying six to eight (6-8) stationary divers in the water for forty to seventy (40 – 70) minutes per dive; each diver can only collect what arrives in front of them within arm's reach. The currents and drift of the MBA vessel will put the divers in a different location at the end of the dive from when they first entered the water; thus the collections are distributed over a large location and limited to the availability at the time and location and collection reach of the diver. The divers will be moving with the current, as will the specimens, therefore there should be no cumulative impacts on any particular species (i.e. no collections will occur in one concentrated location). Some of the jellyfish specimens, after acclimation in holding tanks will be placed into exhibit tanks in MBA's Into the Deep exhibit, which opened to the public in April of 2022. MBA's Jellyfish team will also continue on-going efforts to culture specimens in-house for future use in their Into the Deep exhibit. Aquarium will work to integrate Hawaiian-specific information into exhibits that display organisms that are sourced from Hawaii, to provide information on a species significance within the Hawaiian seamounts, pelagic ecosystems or culture (if applicable), or other relevant information such as the problems these organisms may face with climate change, environmental degradation, overfishing etc., as educational outreach. Black water dives using blue water rigs will take place ~1900-2100 PST. Activities may be conducted during a few different collection periods/trips throughout the year (permitting period); dates may vary due to delays or interruptions.

Research and Conservation Activities at Monterey Bay Aquarium. In addition to displaying organisms and providing educational opportunities (free of charge) for more than 81,000 students a year (many from low-income communities), the Monterey Aquarium also conducts various research (including life history, propagation techniques and husbandry). Monterey Bay Aquarium helped create momentum for the establishment of the Monterey Bay National Marine Sanctuary in 1992, one of the largest marine protected areas in the United States. Staff scientists have authored scientific publications involving sea otters, great white sharks, and bluefin tunas, which are important species in the northern Pacific Ocean. In addition to other animals, work has been published in the areas of veterinary medicine, visitor studies, and museum exhibition development. Among over 200 institutions accredited by the Association of Zoos and Aquariums, Monterey Bay Aquarium ranked 10th in scientific publication activity between 1993 and 2013. For Monterey Bay Aquarium's captive animal propagation efforts, the Association of Zoos and Aquariums has granted two awards, including one for the aquarium's work with purple-striped jellies in 1992. It has also received the association's general conservation award for its Sea Otter Research and Conservation Program.

MBA biologists have developed animal care methods for jellies that are now used by other aquariums and scientists worldwide (Raskoff et al 2003) and have described the life cycles of seven species of jellies displayed in the Aquarium: the cross jelly (*Mitrocoma cellularia*, Widmer 2004), the egg-yolk jelly (*Phacellophora camtschatica*, Widmer 2006), the flower hat jelly (*Olindias formosus*, Patry et al 2014), the Pacific sea nettle (*Chrysaora fuscescens*, Widmer 2008) and the purple-striped jelly (*Chrysaora colorata*, Sommer 1993), *Earleria corachloeae* (Widmer 2011) and *Earleria purpurea* (Widmer, Cailliet and Geier 2010). The aquarium grows jellies to minimize the need to collect from the wild and to contribute to the natural history and diversity knowledge of these important animals.

Most recently, aquarium biologists in collaboration with the University of Miami developed the first mass culture techniques for ctenophores, or comb jellies (Patry et al 2020 and Presnell et al 2022) which has led to renewed interest in the biology of ctenophores and a slew of important findings in evolutionary biology and biodiversity (Schultz et al 2021, Bessho-Uehara et al 2020, Johnson et al 2022, Presnell and Browne 2021, Burkhardt et al 2023, Dunn 2023). Biologists here have applied these or adapted similar techniques to culture and/or display several Hawaiian species of ctenophores, siphonophores and other gelatinous zooplankton; *Hormiphora sp.*, *Pelagia flaveola*, *Nausithoe sp.*, *Atorella sp.*, *Eurhamphaea vexilligera*, *Rizophysa eysenhardtii*, *Athorybia rosacea*, *Merga costata* and *Achelata* (various lobster larvae). The MBA hopes to continue this work over the coming years as culturing these species is not only critical to the sustainability of their collection at the aquarium but a vital part of their mission to inspire conservation of the ocean.

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 on a monthly basis or for a specific trip (if select collection trips will occur). **Incidental mortality.** Incidental mortality of target and non-target organisms (various spp. and sizes) may occur in the field or while or while in captivity (target organism). 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 gear at all times and release/return all unintended by-catch as quickly as possible to the marine environment (if applicable).

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 for more guidelines and conditions**). Efforts will be made by permittee and authorized assistants to ensure that collection of samples is

conducted in such a manner as the process does not result in any additional harm to surrounding organisms or environment. **Permittee and authorized assistants will implement collection/sampling design that removes a sustainable proportion from the local population of target organisms and make efforts to distribute collection activities across shoreline/reef flat/benthic areas, so as not to consolidate the impacts of collection in one location (if applicable/if collecting samples).** 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 permittee and authorized assistants are employing are not approved for recreational fishing but research, education, management or propagation ONLY.

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

Non-regulated gear: Plastic collecting jars: 400ml, 1.0L, 1.5L or small plastic bags and containers to hold sensitive specimens and nylon mesh hand nets (~6-12" diameter rectangle frame with 6" to 3' handle).

D. Collection, Monthly or Trip 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: John O'Sullivan or authorized assistants (Scott Reid, George Matsumoto, Mackenzie Bubel, Jeff Milisen, Michael Howard, George Peterson, James Bonovich, Scott Chapman, Meriah Long, Evan Firl, Sara Namay, Wyatt Patry, Andrew Feifarek, Thomas Knowles, Sarah Milisen, Ellen Umeda).
 - 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 must be clearly marked with inscription or sign bearing the permittee's affiliation, 'Monterey Bay Aquarium' or a flag bearing a unique identifier number issued by DAR.
 - e) Every net or trap (if applicable), 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, "Monterey Bay Aquarium", and the number of this permit, 'SAP 2024-32'.
 - 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 either immediately before or throughout the permitting period (if requested);
- i) Mass mortality - the permittee must notify DAR 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) Monterey Bay Aquarium 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) Monterey Bay Aquarium 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 or each specific trip (if select collection trips will occur), in a form specified by the Division.

- a) Each 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 office (Oahu & Hawaii) for approval (West Hawaii: 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, education/display or propagation at Monterey Bay Aquarium, 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 organisms (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. If propagation is occurring, this condition may not apply to future progeny of organisms collected under this permit (see Section B Activities – Note – if applicable).
 - d) Signage approved by the Division must accompany any display(s) at Monterey Bay Aquarium (if open to the public), to communicate requirement for special activity 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 Monterey Bay Aquarium (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 or trip-specific (if select collection trips will occur) collecting report is due to the DAR office (Oahu & Hawaii) for approval (West Hawaii: 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 Monterey Bay Aquarium.

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 example of gear (e.g. plastic collecting jars: 400ml, 1.0L, 1.5L, etc.)**, photo-documentation of a **representative example of an average collection of organisms for different types of gear**, photo-documentation of **representative example of incidental mortality or by-catch (if applicable)**, photo-documentation of **tanks or aquaria organisms are housed in**, photo-documentation of **select organisms in Deep Water Exhibit**.
 - ii. Each representative example should include the following photos: For gear (e.g. plastic collecting jars: 400ml, 1.0L, 1.5L, etc.), photo-documentation should include: one (1) **photo of each piece of gear (with scale for size)**; For average collection of organisms for different types of gear, photo-documentation should include: one (1) **photo of collection of organisms for each different type of gear (with scale for size)**; For by-catch, photo-documentation should include: **photos of various incidental mortality or by-catch (if applicable; without causing by-catch mortality if live)**; For tanks or aquaria organisms are housed in, photo-documentation should include: one (1) **photo of example of different types of tanks or aquaria organisms are housed in (with scale for size)**; For example of select organisms in Deep Water Exhibit (after construction), photo-documentation should include: one (1) **photo of three to five representative examples of select organisms in Deep Water Exhibit**.
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 the permittee and authorized assistants to transport organisms listed in Table 1, within or outside of Hawai'i to the following institutions and authorizes the following institutions to receive organisms listed in Table 1 from the permittee and authorized assistants:
 - i. Natural Energy Laboratory of Hawaii Authority (NELHA), Kailua-Kona, HI
 - ii. Monterey Bay Aquarium, Monterey, CA

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 15, 16 or 17 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 immediately after returning to shore with fish collected under this permit, to give DOCARE the opportunity to conduct an on-site inspection if determined necessary. See section **O. Other Collection Guidelines** (below) for additional requirements.
- M. A violation of any terms or condition of this permit or any violation of State law not covered by this permit may result in revocation of the permit and other penalties as provided by law. In addition, the Department may consider any such violation as grounds for denying any future application for this or any other permit issued by the Department.
- N. Coral Activities: Activities under this permit shall abide by the following conditions (if authorized to collect coral):
1. Coral - the Permittee must notify DAR Oahu (catherine.a.gewecke@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), at least 24 hours prior to initial commencement of any series of field collection/sampling activities taken place under this permit and immediately after returning to shore with fish collected under this permit, to give DOCARE the opportunity to conduct an on-site inspection if determined necessary. Researcher will confirm with central DOCARE office (Oahu) to see if 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/institute on, date, location, activity description (e.g. sampling or handling turtles, collection of regulated organisms, use of regulated gear or conducting activities in regulated 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, etc.
 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.

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 (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: _____
John O'Sullivan

DESIGNATED ASSISTANTS:

Signature: _____

Print Name: Scott Reid

Signature: _____

Print Name: Jeff Milisen

Signature: _____

Print Name: George Matsumoto

Signature: _____

Print Name: Michael Howard

Signature: _____

Print Name: Mackenzie Bubel

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:	George Peterson	Print Name:	James Bonovich
Signature:	_____	Signature:	_____
Print Name:	Scott Chapman	Print Name:	Meriah Long
Signature:	_____	Signature:	_____
Print Name:	Evan Firl	Print Name:	Sara Namay
Signature:	_____	Signature:	_____
Print Name:	Wyatt Patry	Print Name:	Andrew Feifarek
Signature:	_____	Signature:	_____
Print Name:	Thomas Knowles	Print Name:	Sarah Milisen
Signature:	_____	Signature:	_____
Print Name:	Ellen Umeda	Print Name:	
Signature:	_____	Signature:	_____
Print Name:		Print Name:	
Signature:	_____	Signature:	_____
Print Name:		Print Name:	
Signature:	_____	Signature:	_____
Print Name:		Print Name:	

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

Appendix. Examples of the types of organisms that are collected from the water column in deep water areas off West Hawaii:

Photo 1. Hydrozoans in MBA Jelly Kreisel holding tank.

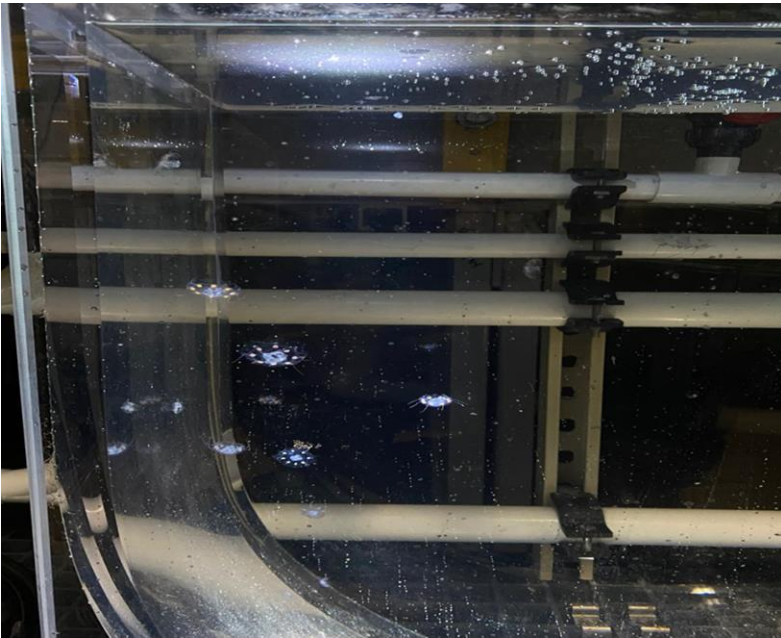


Photo 2. Scyphozoans in MBA Jelly Kreisel holding tank



SAP 2024-32**Species list for collections during 2023-2024**

Paper Nautilus	<i>Nautilus argonauta</i>	20	Waters of Hawaii
Pelagic Blanket Octopus	<i>Tremoctopus spp.</i>	20	Waters of Hawaii
Glass Squid	<i>Leachia pacifica</i>	20	Waters of Hawaii
Glass Squid	<i>Ancistrocheirus lesseurii</i>	200	Waters of Hawaii
Bigfin Reef Squid	<i>Sepioteuthis lessoniana</i>	200	Waters of Hawaii
Diamond Squid	<i>Thysanoteuthis rhombus</i>	200	Waters of Hawaii

Larvaceans	<i>Oikopleura spp.</i>	200 (larvae)	Waters of Hawaii
Larvaceans	<i>Bathochordaeus spp.</i>	200 (larvae)	Waters of Hawaii
Larvaceans	<i>Fritillaria spp.</i>	200 (larvae)	Waters of Hawaii
Palm Gooseberry	<i>Hormiphora palmata</i>	200	Waters of Hawaii
Sea Gooseberry	<i>Hormiphora spp.</i>	200	Waters of Hawaii
Venus Girdle	<i>Cestum veneris</i>	200	Waters of Hawaii
Lobate Ctenophore	<i>Eurhamphaea vexiligifera</i>	200	Waters of Hawaii
Spotted Comb Jelly	<i>Leucothea spp.</i>	200	Waters of Hawaii
Pelagic Nudibranch	<i>Phylliroe spp.</i>	200	Waters of Hawaii
Amphipod	<i>Phronima spp.</i>	200	Waters of Hawaii
Shrimp, Deep Water Mysid	<i>Gnathophausia spp.</i>	200	Waters of Hawaii
Crabs, Commensal	<i>Chyrostylidae spp.</i>	200	Waters of Hawaii

Isopods	<i>Order Isopoda</i>	200	Waters of Hawaii
Amphipods	<i>Order Amphipoda</i>	200	Waters of Hawaii
Sea Spiders	<i>Class Pycnogonidae</i>	200	Waters of Hawaii

Phyllosoma, Lobster (larvae)	<i>Family Scyllaridae</i>	200	Waters of Hawaii
Phyllosoma, Lobster (larvae)	<i>Family Synaxidae</i>	200	Waters of Hawaii
Phyllosoma, Lobster (larvae)	<i>Family Palinuridae</i>	200	Waters of Hawaii
Siphonophore, Hula Skirt	<i>Physophora hydrostatica</i>	200	Waters of Hawaii
Siphonophore	<i>Diphyes spp.</i>	200	Waters of Hawaii
Siphonophore	<i>Forskalia spp.</i>	200	Waters of Hawaii
Siphonophore	<i>Agalma okeni</i>	200	Waters of Hawaii
Siphonophore	<i>Halistemma spp.</i>	200	Waters of Hawaii
Siphonophore	<i>Apolemia spp.</i>	200	Waters of Hawaii
Siphonophore	<i>Sulculeolaria spp.</i>	200	Waters of Hawaii
Coronamedusa	<i>Atolla spp.</i>	200	Waters of Hawaii
Coronamedusa	<i>Atorella spp.</i>	200	Waters of Hawaii
Coronamedusa	<i>Nausithoe spp.</i>	200	Waters of Hawaii
Coronamedusa	<i>Paraphylla spp.</i>	200	Waters of Hawaii
Hydromedusa	<i>Merga spp.</i>	200	Waters of Hawaii
Hydromedusa	<i>Order Trachymedusae</i>	200	Waters of Hawaii

Hydromedusa	<i>Zancleopsis spp.</i>	200	Waters of Hawaii
Hydromedusa	<i>Aegina spp.</i>	200	Waters of Hawaii
Jellyfish, Rainbow tasseled	<i>Thysanostoma loriferum</i>	200	Waters of Hawaii
Jellyfish, Crown	<i>Cephea cephea</i>	200	Waters of Hawaii
Brittle star, Deep Sea	<i>Asteroschema spp.</i>	200	Waters of Hawaii
Amphipods	<i>Family Hyperiidae</i>	200	Waters of Hawaii
Mauve stinger	<i>Pelagia flaveola</i>	200	Waters of Hawaii
Siphonophore	<i>Athorybia rosacea</i>	200	Waters of Hawaii
Siphonophore	<i>Rhizophysa spp.</i>	200	Waters of Hawaii
SwimmingComb Jelly	<i>Ocyropsis spp.</i>	200	Waters of Hawaii
Cubozoan Jelly	<i>Copula sivickisi</i>	200	Waters of Hawaii
Comb Jelly	<i>Callianira sp.</i>	200	Waters of Hawaii
Ctenophore	<i>Velamen parallelum</i>	200	Waters of Hawaii
Sea Butterfly	<i>Clio pyramidata</i>	200	Waters of Hawaii
Sea Butterfly	<i>Clio cuspidate</i>	200	Waters of Hawaii
Cigar Comb Jelly	<i>Beroe spp.</i>	200	Waters of Hawaii

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

May 12, 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 John O'Sullivan of the Monterey Bay Aquarium, Manager of Collections.

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 John O'Sullivan of the Monterey Bay Aquarium, Manager of Collections, to Collect Regulated and Non-Regulated Organisms Including Various Species of Gelatinous Zooplankton, Zooplankton and Jellyfish, in Regulated Areas (West Hawaii Regional Fishery Management Area – “WHRFMA”) and Non-Regulated Areas in Offshore waters of West Hawaii, for the Purposes of Educational Live Display in a Deep-Water Exhibit (“Aquarium Purposes”) and Associated Research (e.g. Husbandry Captive Research and/or Culturing) at Monterey Bay Aquarium, Monterey, CA.

Permit Number: SAP 2024-32

Project Description: The permit, as described below, would authorize the collection, possession and transportation of regulated organisms (lobster spp. / Scyllaridae and Palinuridae spp.; larval/zooplanktonic stage) and non-regulated organisms (various spp. of gelatinous zooplankton and zooplankton [larval/zooplanktonic stage] and jellyfish [larval though adult stages]), using non-regulated gear, in areas of offshore waters (2 to 20 miles offshore) of Honokohau, Hawaii, including a regulated area (West Hawaii Regional Fishery Management Area – “WHRFMA” – in areas in the WHRFMA in the 2-3 mile zone offshore outside of all smaller FMA, MLCD, FRA and NRA) and the non-regulated areas of offshore waters (3 to 20 miles offshore), from May 12, 2023 through May 11, 2024, for the purposes of educational live display in a deep-water exhibit (“aquarium purposes”) and associated research (e.g. husbandry captive research and/or culturing) at Monterey Bay Aquarium, Monterey (“MBA”), CA. The taking of undersize specimens or collection during out-of-season for certain lobster species is prohibited under

sections 13-95-53 and 13-95-54 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.

This permit is being brought before the board due to a requirement for out-of-state institutions requesting Special Activity Permits ("SAP") to go before the board for review. This permit was previously issued on an annual basis between 2019 and 2023 (with similar collections and same collection locations), using the permit process that is utilized for many SAP, consisting of approval from DAR and the 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. 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 collections will support the new established Deep Exhibition that opened in 2022 at the aquarium, featuring the mid-water and deep-water marine species. The permittee and authorized assistants (the MBA's Midwater team and Dive Office staff) will charter a vessel from Kona Honu Dive Charters in Honokohau Small Boat Harbor to conduct a series of blackwater SCUBA dives using a bluewater rig to collect gelatinous zooplankton in small plastic jars. After collection, MBA staff will transport the jars with specimens to MBA's rented laboratory space at the Natural Energy Laboratory of Hawaii Authority (NELHA) in Kailua-Kona, where they will be held for 3-5 days in chilled seawater systems. After temporary holding at NELHA, the MBA staff will then transport the specimens (in jars placed in coolers) via commercial airlines back to MBA where they will be placed in MBA seawater system holding tanks until acclimated and then placed on exhibit or utilized for culture work conducted by MBA staff.

Note: The collection activities 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 (MBA staff) will collect up to seven hundred and fifty (750) specimens of gelatinous zooplankton, zooplankton and jellyfish (various spp. and sizes) by hand, using 400ml, 1.0L, and 1.5L plastic jars to contain individual specimens. Collection amounts each species of organism will vary depending on incidence or need (in terms of educational exhibits or culturing/research), but will range from twenty (20) to two hundred (200) specimens of each species. Note: The species list is made up of "gelatinous zooplankton" (defined as organisms that remain gelatinous their whole lifecycle from juvenile to adult), of which both adults and juveniles will be collected, "zooplankton" (consisting of organisms that are gelatinous in their larval/planktonic stage, but may settle out to the substrate to become hard-bodied organisms when they mature - such as commensal crabs, deep sea brittle stars, big fin reef squid, blanket octopus, lobster species, etc.), of which larval/planktonic stages will be collected, and "jellyfish", of which larval through adult life stages may be collected. Note: Scyllaridae and Palinuridae spp./ lobster spp. may consist of the following regulated species: *Panulirus penicillatus*/ green spiny lobster (tufted spiny lobster), *Panulirus marginatus* / Black leg spiny lobster, *Scyllarides*

squammosus/ Scaly Slipper lobster and *Scyllarides haanii*/ Ridgeback Spiny Lobster, and non-regulated invertebrates may consist of non-regulated specimens of Scyllaridae and Palinuridae spp./ lobster spp.

Collections planned for this year will consist of similar species that have been collected in the past; past collections have included specimens of the following various species of gelatinous zooplankton, zooplankton and jellyfish (see Appendix at end of permit for potential amounts per species or family/genus and example photos); **Note:** Not all species or amounts listed in the Appendix of this permit will be collected – amounts per species are requested in anticipation that some species may not be present during certain dives or at certain locations; in these cases, more of another species may be collected. The maximum amount of individuals to be collected will be seven hundred and fifty (750) specimens of gelatinous zooplankton, zooplankton and jellyfish (various spp. and sizes); species may include the following: *Paper Nautilus* (*Nautilus argonauta*), *Pelagic Blanket Octopus* (*Tremoctopus* spp.), *Glass Squid* (*Leachia pacifica*), *Glass Squid* (*Ancistrocheirus lesseurii*), *Bigfin Reef Squid* (*Sepioteuthis lessoniana*), *Diamond Squid* (*Thysanoteuthis rhombus*), *Larvaceans* (*Oikopleura* spp.), *Larvaceans* (*Bathochordaeus* spp.), *Larvaceans* (*Fritillaria* spp.), *Palm Gooseberry* (*Hormiphora palmata*), *Sea Gooseberry* (*Hormiphora* spp.), *Venus Girdle* (*Cestum veneris*), *Lobate Ctenophore* (*Eurhamphaea vexiligifera*), *Spotted Comb Jelly* (*Leucothea* spp.), *Pelagic Nudibranch* (*Phylliroe* spp.), *Amphipod* (*Phronima* spp.), *Shrimp*, *Deep Water Mysid* (*Gnathophausia* spp.), *Crabs*, *Commensal* (*Chyrostylidae* spp.), *Isopods* (*Order Isopoda*), *Amphipods* (*Order Amphipoda*), *Sea Spiders* (*Class Pycnogonidae*), *Phyllosoma*, *Lobster (larvae)* (*Family Scyllaridae*), *Phyllosoma*, *Lobster (larvae)* (*Family Synaxidae*), *Phyllosoma*, *Lobster (larvae)* (*Family Palinuridae*), *Siphonophore* (*Hula Skirt*)(*Physophora hydrostatica*), *Siphonophore* (*Diphyes* spp.), *Siphonophore* (*Forskalia* spp.), *Siphonophore* (*Agalma okeni*), *Siphonophore* (*Halistemma* spp.), *Siphonophore* (*Apolemia* spp.), *Siphonophore* (*Sulculeolaria* spp.), *Coronamedusa* (*Atolla* spp.), *Coronamedusa* (*Atorella* spp.), *Coronamedusa* (*Nausithoe* spp.), *Coronamedusa* (*Paraphylla* spp.), *Hydromedusa* (*Merga* spp.), *Hydromedusa* (*Order Trachymedusae*), *Hydromedusa* (*Zancleopsis* spp.), *Hydromedusa* (*Aegina* spp.), *Jellyfish*, *Rainbow tasseled* (*Thysanostoma loriferum*), *Jellyfish* (*Crown*)(*Cephea cephea*), *Brittle star* (*Deep Sea*)(*Asteroschema* spp.), *Amphipods* (*Family Hyperiidae*), *Mauve stinger* (*Pelagia flaveola*), *Siphonophore* (*Athorybia rosacea*), *Siphonophore* (*Rhizophysa* spp.), *Swimming Comb Jelly* (*Ocyropsis* spp.), *Cubozoan Jelly* (*Copula sivickisi*), *Comb Jelly* (*Callianira* sp.), *Ctenophore* (*Velamen parallelum*), *Sea Butterfly* (*Clio pyramidata*), *Sea Butterfly* (*Clio cuspidate*), *Cigar Comb Jelly* (*Beroe* spp.).

Some of the jellyfish specimens, after acclimation in holding tanks will be placed into exhibit tanks in MBA's Into the Deep exhibit, which opened to the public in April of 2022. MBA's Jellyfish team will also continue on-going efforts to culture specimens in-house for future use in their Into the Deep exhibit. Aquarium will work to integrate Hawaiian-specific information into exhibits that display organisms that are sourced from Hawaii, to provide information on a species significance within the Hawaiian seamounts, pelagic ecosystems or culture (if applicable), or other relevant information such as the problems these organisms may face with climate change, environmental degradation, overfishing etc., as educational outreach. Black water dives using blue water rigs will take place ~1900-2100 PST. Activities may be conducted during a few different collection periods/trips throughout the year (permitting period); dates may vary due to delays or interruptions.

Research and Conservation Activities at Monterey Bay Aquarium. In addition to displaying organisms and providing educational opportunities (free of charge) for more than 81,000 students a year (many from low-income communities), the Monterey Aquarium also conducts various research (including life history,

propagation techniques and husbandry). Monterey Bay Aquarium helped create momentum for the establishment of the Monterey Bay National Marine Sanctuary in 1992, one of the largest marine protected areas in the United States. Staff scientists have authored scientific publications involving sea otters, great white sharks, and bluefin tunas, which are important species in the northern Pacific Ocean. In addition to other animals, work has been published in the areas of veterinary medicine, visitor studies, and museum exhibition development. Among over 200 institutions accredited by the Association of Zoos and Aquariums, Monterey Bay Aquarium ranked 10th in scientific publication activity between 1993 and 2013. For Monterey Bay Aquarium's captive animal propagation efforts, the Association of Zoos and Aquariums has granted two awards, including one for the aquarium's work with purple-striped jellies in 1992. It has also received the association's general conservation award for its Sea Otter Research and Conservation Program.

MBA biologists have developed animal care methods for jellies that are now used by other aquariums and scientists worldwide (Raskoff et al 2003) and have described the life cycles of seven species of jellies displayed in the Aquarium: the cross jelly (*Mitrocoma cellularia*, Widmer 2004), the egg-yolk jelly (*Phacellophora camtschatica*, Widmer 2006), the flower hat jelly (*Olindias formosus*, Patry et al 2014), the Pacific sea nettle (*Chrysaora fuscescens*, Widmer 2008) and the purple-striped jelly (*Chrysaora colorata*, Sommer 1993), *Earleria corachloeae* (Widmer 2011) and *Earleria purpurea* (Widmer, Cailliet and Geier 2010). The aquarium grows jellies to minimize the need to collect from the wild and to contribute to the natural history and diversity knowledge of these important animals.

Most recently, aquarium biologists in collaboration with the University of Miami developed the first mass culture techniques for ctenophores, or comb jellies (Patry et al 2020 and Presnell et al 2022) which has led to renewed interest in the biology of ctenophores and a slew of important findings in evolutionary biology and biodiversity (Schultz et al 2021, Bessho-Uehara et al 2020, Johnson et al 2022, Presnell and Browne 2021, Burkhardt et al 2023, Dunn 2023). Biologists here have applied these or adapted similar techniques to culture and/or display several Hawaiian species of ctenophores, siphonophores and other gelatinous zooplankton; *Hormiphora sp.*, *Pelagia flaveola*, *Nausithoe sp.*, *Atorella sp.*, *Eurhamphaea vexilligera*, *Rizophysa eysenhardtii*, *Athorybia rosacea*, *Merga costata* and *Achelata* (various lobster larvae). The MBA hopes to continue this work over the coming years as culturing these species is not only critical to the sustainability of their collection at the aquarium but a vital part of their mission to inspire conservation of the ocean.

DAR does not anticipate cumulative impacts to occur as a result of the activities conducted under this permit. Gelatinous zooplankton, zooplankton and jellyfish have an extremely patchy distribution in the water column and the types of each species present and the numbers of any particular species collected on any single dive will vary depending on the water mass and migration of different species. The collections during each dive conducted by the MBA are anticipated to have a negligible impact on the biodiversity or density of species in Hawaiian waters as they will be a select subsample of the amount and type which are present throughout the islands. The MBA anticipates deploying six to eight (6-8) stationary divers in the water for forty to seventy (40 – 70) minutes per dive; each diver can only collect what arrives in front of them within arm's reach. The currents and drift of the MBA vessel will put the divers in a different location at the end of the dive from when they first entered the water; thus the collections are distributed over a large location and limited to the availability at the time and location and collection reach of the diver. The divers will be moving with the current, as will the specimens, therefore there should be

no cumulative impacts on any particular species (i.e. no collections will occur in one concentrated location).

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 on a monthly basis or for a specific trip (if select collection trips will occur).
- Incidental mortality. Incidental mortality of target and non-target organisms (various spp. and sizes) may occur in the field or while or while in captivity (target organism). 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 gear at all times and release/return all unintended by-catch as quickly as possible to the marine environment (if applicable).
- 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.

Benefits to the State of Hawaii. The benefits to the State of Hawaii from these collections include increased awareness and education about various spp. of deep water gelatinous zooplankton, zooplankton and jellyfish that occur in Hawaiian waters and the role they play in the ecosystem, to people from around the world who visit the Monterey Bay Aquarium; increased awareness and education will aid future conservation efforts needed to preserve these organisms and the ecosystems they inhabit. In addition, facilities that have expertise holding these types of deep water organisms are able to collaborate with other institutions to develop and share successful techniques on husbandry research or culturing, which can then be utilized to continue research or propagate certain species within aquariums to reduce future collections (for educational display or research) from the wild.

Consulted Parties: Chris Teague, Aquatic Biologist, DAR (Hawaii-Kona), Cathy Gewecke, Aquatic Biologist DAR (Oahu) and 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 purposes of educational live display in a deep-water exhibit (“aquarium purposes”) and associated research (e.g. husbandry captive research and/or culturing).

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