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

Coral Restoration Standard Permit Conditions

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Standard permit conditions are provided for regular restoration activities (not emergency restoration activities). While acknowledging each project is expected to utilize different methodologies based on objectives, locations, capacity, and desired outcomes, all are expected to comply with these standard conditions when conducting coral restoration work in the Main Hawaiian Islands. By outlining standard permit conditions, DAR aims to increase transparency, ensure coral reef health, minimize environmental impacts, and ensure compliance. If applying for a Special Activity Permit (SAP), please carefully read each section and ensure your project can comply, if, for any reason, your project cannot comply with a set condition, please provide justification and an alternative in your application to be reviewed by the Division.

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Glossary and Acronyms

The definitions below may not be widely accepted and only relevant in the context of this document.

Aquatic Invasive Species (AIS) – non-native freshwater or marine organism that, when introduced, causes or is likely to cause harm to the environment, economy, or human health.

Coral specimen - a coral organism in any form, including but not limited to an egg, gamete, sperm, larva/planula, fragment, colony, outplant, coral of opportunity, either free-living or as coral tissue attached to substrates such as modules, plugs, tiles, etc.

Ex-situ – out of place, or removed from its natural environment (aka not in the marine environment, typically land-based activity).

In-situ – in place, or in its natural position (aka in the marine environment).

Outplant - the transfer of a coral specimen from the source location to a secondary location (e.g. coral nursery) and then transfer again of the coral specimen (or a form thereof) to the restoration location. The secondary location may be *in-* or *ex situ,* and may or may not include some form of propagation or experimentation that alters the number of coral resources eventually outplanted.

Special Activity Permit (SAP) – Division of Aquatic Resources Special Activity Permit issued under the authority of Hawai‘i Revised Statue §187A-6.

The Permittee and Designated Assistants must comply with all conditions outlined in their issued Special Activity Permit, as well as the additional conditions specified for coral restoration work outlined below. By signing your Special Activity Permit, the Permittee acknowledges receipt and understanding of the Coral Restoration Standard Permit Conditions and agrees to comply with all listed terms and conditions. Any exceptions due to noncompliance with specific items must be discussed and approved by the Division of Aquatic Resources and will be outlined in the approved Special Activity Permit. Any noncompliance with these permit conditions constitutes a violation of the permit terms and may result in enforcement action, including permit termination, revocation and reissuance, modification, or denial of a renewal application.

1. Agency Compliance & Reporting

The Permittee will comply with all agency conditions and reporting requirements, including but not limited to:

a. Projects must comply with all local, state, and federal regulations and permit conditions.
b. Project must meet reporting requirements for all local, state, and federal agencies.
c. Project must notify the island office of the Division of Conservation and Resources Enforcement (DOCARE) at least 24 hours prior to any authorized activity being conducted in the field.
d. Only trained and permitted personnel may conduct coral restoration activities.
e. Project must maintain detailed records of activities.

f. Project must comply with mandatory sampling moratorium if issued by DAR.

2. Coral Handling & Holding (General)

The Permittee use best management practices when handling and/or holding coral specimens, including but not limited to:

a. Coral specimens must be treated with respect and care.
b. Coral specimens must be handled as little as practicable to minimize stress.
c. Any facility holding coral specimens must comply with all applicable county, state, and federal regulations and standards.
d. Any facility housing coral specimens must be properly equipped and staffed to maintain appropriate and stable conditions and water quality.

3. Aquatic Invasive Species Mitigation

The Permittee will mitigate the spread of aquatic invasive species (AIS) between work areas by utilizing best management practices including but not limited to:

a. When collecting corals, coral specimens showing the presence of AIS must not be collected.
b. When holding corals, coral specimens showing the presence of AIS must be quarantined and treated appropriately. Measures must be taken to reduce the spread of AIS within the facility or marine environment. Specimens may be sacrificed if required but must not be released back into the environment if the presence of AIS is detected.
c. Coral specimens showing signs of AIS, disease, infection, or poor health must not be transported.
d. Implementation of a quarantine period, requiring that collected specimens remain within the collection site’s watershed area until they are transferred to a quarantine system. There, they must be isolated from organisms outside the collection cohort until they are confirmed free of AIS, micropredators, and disease. Quarantine tanks can be either open or closed systems. Any effluent water must be treated appropriately with a UV light.
e. All gear and equipment must undergo visual inspection, and be disinfected, cleaned, and dried between collection events. Disinfecting procedures must include soaking the gear and equipment for a minimum of 10 minutes in a solution containing a chemical disinfecting agent proven to kill live organisms such as diluted bleach (1 part 8.25% bleach:20 parts freshwater, or similar concentration). Bleach must be neutralized and disposed of properly.
f. If gear cannot be bleached, gear must be thoroughly rinsed with fresh water and dried in the sun for at least 24 hours before use in an alternate location, or alternate sampling gear will be utilized.
g. Vessel(s) must be cleaned with fresh water and allowed to dry between fieldwork locations.
h. Any water within the bilge or ballast of the vessel(s) must be emptied before exiting the watershed.
i. If sampling disease or anomalous growth specimens, gear must be sterilized between each specimen or new collection gear should be used.
j. If collecting in Kane‘ohe Bay or Maunalua Bay: Kāne‘ohe 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, Anemonia manjano,* and *Mycale grandis/armata*) and disinfected with diluted bleach solution (1 part 8.25% bleach:20 parts freshwater, or similar concentration) 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.

4. Coral Collection

The Permittee will utilize best management practices when collecting coral specimens, including but not limited to:

a. Coral specimen collection must be conducted by trained individuals.
b. Project must use discretion to avoid user conflicts with fishers or others when conducting activity.
c. Coral specimen collections must implement collection/sampling design that distributes the take over large areas to avoid consolidation of take in one area and may not constitute more than 20% of the target species present at the site.
d. Project must preferentially collect corals of opportunity (COO) to the extent practicable.
e. Project must use non-destructive removal techniques to extent practicable.
f. Coral specimens attached to substrates must be dislodged in a manner that minimizes fragmentation of whole colonies, abrasion of coral polyps or tissue to the extent practicable.
g. Project must ensure collection is conducted in such a manner as to not cause additional harm to surrounding environment or organisms.
h. Coral specimen collection must not include take or damage of corals over 1 meter in diameter.
i. Coral specimen collection must not occur during a high stress event (e.g., bleaching event).
j. Coral specimen collection must not occur during a spawning time for target species.
k. Coral specimens collected from man-made structures must be collected in such a manner as to not cause structure further damage to the structure to the extent practicable.
l. Project must not collect corals that are considered “rare” unless granted approval by the Division.
m. If collecting core samples from coral colonies, the project must fill and seal the hole created by the activity.

5. Coral Spawning

The Permittee will utilize best management practices when collecting from or working around spawning corals, including but not limited to:

a. Project must avoid physical contact or direct disturbance to coral colonies and the surrounding reef environment that could disrupt natural spawning to the extent practicable.
b. Project must not have collection netting or material deployed around corals expected to spawn for more than 24 hours.
c. Project must responsibly dispose of unused coral spawning material (gametes, bundles, etc.) and must never discard gametes outside of the original collection area.

6. Coral Transportation

The Permittee will utilize best management practices when transporting coral specimens, including but not limited to:

a. If surface transport is being conducted, coral specimens must be transported in such a way as to minimize high exposure to UV light, air, and high temperatures and must be maintained in a temperature-stable, clean, aerated, and shaded container during transport.
b. Coral specimens must not remain in transport containers longer than 24 hours.
c. If subsurface transport (e.g. towing below vessel) of coral specimens is being conducted, project must utilize transport methods that minimize any environmental damage, and coral specimens must be transported in such a way to maintain coral health and integrity (avoid areas of high turbulence, avoid prop wash, etc.)
d. Project must utilize transportation methods that keep the density of coral specimens low and in a single layer to reduce abrasion.
e. Project must assist transport of colonies across reef areas to ensure stability of the platform/container/specimens/lift bags/surface buoys.
f. If utilizing baskets/containers/lift bags, Diver Propulsion Vehicle (DPV) etc., the project must take measures to minimize stress or shock in coral specimens (e.g., avoid jostling, sedimentation, keep neutral buoyancy, etc.)
g. Coral specimens must be transported to areas with a similar environment (water temperature, PAR, wave energy, sedimentation, etc.) if no intermediate phase such as a coral nursery or acclimation period is to occur.
h. Coral specimens intended for transport, whether between the Hawaiian Islands or out of state, must comply with all required documentation, inspection, and permitting protocols. Permit must be included in shipment.

7. Cache Sites

The Permittee will utilize best management practices when utilizing cache sites, including but not limited to:

a. Cache sites must be identified prior to collection or outplant event.
b. A cache site must be a naturally occurring pocket, valley, drop-off, or depression in a reef environment at a lower elevation than that of the surrounding reef, and must have reduced turbulence and water movement, and have a low potential for movement or impacts, be composted of hard substrate or rubble.
c. Cache sites must be within an appropriate distance of restoration site.
d. Project must ensure the selected cache site is, and will remain, undisturbed to the maximum extent practicable. The cache site must not have regular large swells, high sedimentation, temperature fluctuations, high corallivore presence, high potential for tissue abrasion, or exposure to sand scour.
e. Cache sites must be utilized for the shortest amount of time practicable.

f. Any project utilizing a cache site for longer than 24 hours must get approval from DAR (either email approval, or approval within SAP conditions).
g. Any cache site must not be utilized for coral specimens longer than four (4) weeks.
h. Cache site must not hold more than one hundred (100) corals at a single time.
i. If cache site is located in an area that is less than 30 ft. deep, an alternative cache site must be identified and ready to accept coral specimens in the event an impending weather event (hurricane, large swell event) is forecasted, and coral specimens need to be moved to a deeper location.

8. Coral Specimen Attachment

The Permittee will utilize best management practices when attaching coral specimens, including but not limited to:

a. Project must utilize methods and materials that stabilize or affix coral specimens to the substrate while minimizing damage to the coral specimens, surrounding environment, and organisms to the greatest extent practicable.
b. Project must minimize “plumes” created by attachment products to the greatest extent practicable.
c. Project must immediately cease operations if attachment material is affecting water quality (e.g. cement plume in an area with low water motion).
d. Project must use proper PPE and be knowledgeable about risks when using potentially harmful materials.
e. The project must minimize contact between attachment material and live coral tissue to the extent practicable and ensure that the attachment method prevents future contact (e.g., avoiding coral specimens 'sinking' into the material).
f. Project must minimize extra attachment material being left in the work area.
g. Prior to attaching coral specimens, the substrate must be carefully cleared of benthic organisms and algae (scrub brushes may be used). Areas with high crustose coralline algae will be avoided to the greatest extent practicable.
h. Any use of plastic materials such as zip ties or ropes must be temporary and later removed from the marine environment.
i. Coral specimens must be attached to the substrate in such a manner that ensures stability in normal conditions.
j. Project must utilize an attachment method that minimizes both material handling and coral handling to the greatest extent practicable.

9. Acclimation of Coral Specimens

The Permittee will utilize best management practices when acclimating coral specimens, including but not limited to:

a. Coral specimens will undergo an appropriate acclimation period when being transferred between environments.

b. Coral specimens will be acclimated to the conditions (water temperature, water chemistry, PAR, flow, etc.) of the recipient site

10. Outplanting of Coral Specimens

The Permittee will utilize best management practices when outplanting coral specimens, including but not limited to:

a. Projects must demonstrate support from the community and stakeholders to conduct work in area.
b. Prior to outplanting, the project must assess the health of each coral specimen, and only coral specimens considered “healthy” and free of AIS, disease, infection, and pests may be outplanted.
c. Coral specimens must be placed at least 20 cm away from other coral specimens to minimize intra- and inter-specific competition.
d. Coral specimens must be outplanted in such a way that is similar to proximal or reference habitats.
e. Coral specimens must be outplanted in an area that the project has thoroughly surveyed and deemed suitable to accept coral specimens.
f. Project must provide justification for restoration/recipient site’s need for additional coral specimens.
g. Project personnel must conduct themselves in such a manner as to minimize environmental damage at outplant site (reduce sedimentation due to work, avoid organisms existing in space).
h. Project must consider the genetic diversity of coral specimens to be outplanted.
i. Any non-natural, or plastic items must not be left in the marine environment unless approved by DAR or specified within SAP conditions.

11. Monitoring

The Permittee will utilize best management practices when monitoring coral specimens, including but not limited to:

a. Project personnel must conduct themselves in such a manner as to minimize environmental damage at monitoring site (reduce sedimentation due to work, avoid contact with organisms existing in space) to the extent practicable.
b. Project must conduct regular monitoring as required by permitting agencies.
c. Monitoring must occur one (1) month after outplant, and then again at six (6) months, one (1) year, three (3) years, and five (5) years unless other specified in SAP conditions.
d. Monitoring techniques must remain up to date with latest methodologies (e.g., digital tracking via photomosaic maps and Structure from Motion imaging) to the extent practicable.
e. Project must adhere to photo documentation and monitoring requirements set by the Division.

12. Nursery Structures (in- or ex-situ)

The Permittee will utilize best management practices when utilizing nursery structures for coral specimens, including but not limited to:

a. Structure must be compliant with all local, state, and federal permit agencies.
b. Projects must utilize best management practices to eliminate any potential for incidental entanglement of any unintended marine organisms including turtles, monk seals, cetacean, rays, sharks or other non-target species.
c. In-water structures must be designed to reduce entanglement risks by minimizing or eliminating loops, holes, slack lines, and excess or unsecured rope attached to the structure.
d. Any nursery or structure must incorporate a buffer distance between structure and live coral/reef habitat that is at least equal to or greater than the diameter of the structure. The Division prefers structures to be at least 30 ft away from coral/live rock habitat.
e. During scheduled maintenance, anchor systems and structure integrity must be inspected.
f. Projects must maintain the necessary team capacity to fully remove all structures and components upon project completion or if deemed necessary by DAR in an emergency (e.g., storm events or other situations where leaving the structures in place could cause damage).
g. Structure must not have dangling ropes or components that may cause harm or entanglement concerns for other aquatic life.
h. Structures must be secured/anchored with appropriate weights or anchoring systems that take into consideration all directions of water motion or potential weather events.
i. Project must develop contingency plan to prevent impact to the surrounding benthic habitat for installation and removal.
j. Installation of structures must occur in areas of bare substrate or sand.
k. Proper equipment must be used, and safety protocols adhered to when installing, moving or removing structures in the marine environment.
l. If any component or the entire structure breaks, the Division of Aquatic Resources must be immediately notified.

13. Hurricane & Large Storm Plan

In the event of a major storm or hurricane, the Central Pacific Hurricane Center (CPHC) or other weather services typically issue a 72-hour warning. Best management practices for these situations include, but are not limited to, the following:

a. Projects must regularly track storm developments through the Central Pacific Hurricane Center or other trusted sources.

b. Projects must develop a detailed response for storm events that includes a detailed contingency plan that includes emergency teams, roles, and necessary actions in response to such an event.

c. For both in- and ex-situ projects, if safe, a site inspection must immediately be conducted to ensure all anchoring components are in good condition and are not at risk of causing damage to coral specimens or the surrounding environment. Any structure or component of structures that can pose a risk to coral specimen health must be removed or modified.

d. Following a large storm or hurricane, projects must monitor and track damage as a result of weather activities.

e. Projects must take all actions to minimize entanglement threats in case of in-water structure collapse, flip, disassembly, etc.

14. Outreach Events

The Permittee will utilize best management practices when conducting outreach events with members of the public, including but not limited to:

a. Any project hosting outreach events that include the use of coral specimens must treat the coral specimens with respect and care.

b. Projects will utilize best management practices when transporting coral specimens to outreach events.

c. Projects must be compliant with any county, state, and federal permits that may be required.

d. Outreach events must be led by a trained authorized assistant, and may include active participation by assistants after comprehensive permit(s) briefing. All volunteers or members of the community must be comprehensively briefed on permit(s) conditions and added to the SAP as an Authorized Assistant.

e. Coral specimens must not be left unattended or in unsuitable conditions for any amount of time.

f. Specific protocols for holding coral, micro-fragmentation, attachment, or educational activities during outreach events must include shading, aeration, temperature monitoring, and regular water changes in holding containers to prevent sediment and mucus build-up.

g. Minimization of handling of coral specimens must be exercised to the extent practicable.