National Marine Fisheries Service

Endangered Species Scientific Research and Enhancement Permit Application (For Proposed Reclassification of Pillar Coral)

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# Introduction

This application is for requesting an **Endangered Species Act (ESA) scientific research or enhancement permit** to take[[1]](#footnote-1), import, or export National Marine Fisheries Service (NMFS) protected species, including:

* Corals: Currently, this application only applies to pillar coral in the event the species is reclassified as endangered.

## Need help or have questions?

Visit our [ESA scientific research permit web page](https://www.fisheries.noaa.gov/permit/esa-scientific-research-and-enhancement-permits), see [Additional Information](#Additional_Information) on page 21, or contact us at [nmfs.pr1.apps@noaa.gov](mailto:nmfs.pr1.apps@noaa.gov).

## When filling out your application:

* Your application must be a stand-alone document, readable to a layperson.

# Application Instructions

## Project Information

**\*Project Title** (up to 255 characters): Provide a concise title that includes activities, species (or taxa if multiple species), location, and purpose. For example:

*Collection of wild pillar coral in waters off Puerto Rico for captive studies and propagation.*

***\**Research Timeframe:** Enter the desired start and end dates of the entire project in the following format: MM/DD/YYYY. Refer to [Additional Information](#Additional_Information) on page 21 for details about when to apply. The start date must be after the date you submit the application and should consider how long it may take to process your request, at least 6 months.

**\*Duration Justification:** Justify your requested permit duration. The duration should be reasonable in scale, based on your objectives, study design, and available resources. If your proposed activities may be covered under a programmatic ESA Section 7 consultation, you cannot request a permit for more than 10 years.

**\*Sampling Season/Project Duration**(up to 1,000 characters): Describe in which months or seasons you will work. If year-round, indicated when activities are most likely to occur. How frequently will you conduct your activities?

**\*Abstract** (up to 2,000 characters): provide a short summary that must include:

* + Purpose of the research or enhancement.
  + Species that may be taken, imported, or exported (common names).
* Take activities (e.g., collection, sampling, tagging), import, or export
* Where your activities will occur and where animals or samples will be imported or to where they will be exported.

## Project Description

\*Project Purpose: Hypothesis/Objectives and Justification (up to 64,000 characters)

We recommend you provide the information in this order:

1. Discuss the **need for the research** and your **research objectives or hypotheses**.
2. Explain how your proposed research would further a *bona fide* and necessary or desirable purpose, taking into account the anticipated benefits for the target species.
3. Briefly summarize **published findings** related to your research.
   * If you previously held or worked under a permit, use literature citations from that work to discuss how you previously met your objectives;
   * If you previously held or worked under a permit and have not published your findings or made them publicly available, explain why; and
   * Use other published literature on the subject.
4. Describe how this study is different from, builds upon, or duplicates past research.
5. If proposing **novel procedures**, include a discussion on results from pilot studies or studies on other species, if available.
6. Discuss why your project **must involve ESA-listed species** (e.g., explain why similar results could not be obtained by using an alternative non-endangered or captive surrogate).
7. Discuss how your project will contribute to the objectives identified in the [species’ recovery or conservation plan](https://www.fisheries.noaa.gov/resources/documents?title=&field_category_document_value%5Brecovery_plan%5D=recovery_plan&sort_by=created) or otherwise respond to recommendations of a scientific body charged with management of the species.
8. If your goals are to **directly enhance the survival or propagation** of an ESA-listed species, explain how your project will achieve these goals. Please note, according to the [proposed rule](https://www.federalregister.gov/documents/2023/08/29/2023-17769/endangered-and-threatened-wildlife-and-plants-proposed-reclassification-of-pillar-coral-dendrogyra), propagation of coral held in captivity falls under normal husbandry and does not require an ESA permit as long as corals are not harmed, injured, or killed (i.e., the prohibitions of ESA section 9(a)(1) are not violated).
9. **Take Number Rationale**: Explain how you determined your sample size or take numbers and why they are needed to meet the objectives. Discuss serious injury and mortality in the Mortalities section below.
   * For example, did you base your numbers on abundance estimates for your study area and the number of surveys to be conducted?
   * If appropriate for your study, include a power analysis or other sample size estimation to show whether the sample size is sufficient to provide statistically significant or otherwise robust results.
   * Your take numbers should be realistic based on your future research plans as well as your previous experience.
   * Discuss whether the **same individual animals may be taken more than once** a year.
     + If individual animals **can be identified**, indicate the number of times known individuals may be intentionally taken in a year (e.g., multiple samples per year). Explain why multiple takes of the same individual are needed to meet your objectives.

\*Project Description(up to 64,000 characters)

**Overview**

Provide a **brief overview of a typical day** in the field, laboratory facility, aquarium, or nursery; as well as the suite of activities you intend to perform on each animal. Discuss the order in which you’ll perform the different methods. Include where your work will happen, especially if different projects occur in different locations.

**Methods**

Describe your methods following the guidance below. Your narrative description must match your take table (see [Take Table](#Take_Table) section below).

When describing your methods, keep in mind:

* + [Table 1](#Take_Table) (see pages 6 - 10) lists specific details you must provide for commonly used methods.
  + If you have **multiple projects**, it is helpful to name them by project number or title and include project names in the Details column of the [Take Table](#Take_Table).
  + It is also helpful to reference take table lines in the narrative that correspond to the take actions and procedures.
  + **Mitigation measures** that are inherent to your methods may be included in this section or in the [Effects and Mitigation](#Effects_Mitigation) section below.
  + **Figures and photographs** that illustrate your methods. You can attach them on the [Project Supplemental Information](#Supplemental_Information) page.
  + **Cite references** for the methods where applicable, but do not substitute a literature citation for a complete description of the methods. You can attach a Literature Cited on the [Project Supplemental Information](#Supplemental_Information) page. References must be made available upon request.

You must provide the following information in the narrative description of the methods (i.e., the take actions, observe/collect methods, and procedures in the take table):

* **Clear descriptions of all methods** (i.e., each take action, observe/collect method, and procedure in your Take table). See Table 1 below for guidance on what details to include.
* A brief statement of **how each procedure or suite of procedures relate to meeting your objectives**.
* **For coral,** indicate the number of colonies that will be affected by your activities. This is to gauge the overall impact of your activities on the survivability and reproductive success of the coral. Include a description of the extent of how each colony will be affected with respect to the total area you may affect, the % of corals within that area that you may affect, and the number of individual branches each colony you may affect.
* A list of the **suite of procedures** that will be performed on a subset of animals. Explain how you will decide which animals will receive which procedures. Is this based on sex, life stage, body size, body condition, health or appearance, needed sample size, etc.?
  + If you will intentionally target compromised animals, explain the criteria you would use and describe the conditions of the animals.
* **Opportunistic research**: If there are conspecifics or species in the same taxa that are not your main research focus, but that you would study opportunistically, include a discussion of them in this section. Describe how the research would fit within your objectives and which methods you would use to study these species. Include rows for these species in your take table.
* Discuss whether animals of the same species (i.e., conspecifics) may betaken(e.g., harassed, captured) during your work. Note that you should discuss other non-target sea turtles and ESA-listed fish in the [Non-target ESA-listed Sea Turtle and Fish Species section](#Non_target_Sea_Turtle_and_Fish). You should address non-target taxa (e.g., marine mammals) in the [Effects and Mitigation](#Effects_Mitigation) section.
* **Data analysis**: Provide a brief description of how data and/or samples will be analyzed.

**Table 1. Guidance on Describing Commonly Used Methods**

When describing your methods, include the following information, as applicable:

| **Take action/ procedures** | **Method Description Guidance** |
| --- | --- |
| **Administer drugs or other substances** (e.g., stable isotopes, bone marking, anesthesia) | Name of each drug/chemical and its purpose, including for reversal/recovery  For captive fish: Euthanasia drugs and protocols  Dosage of each drug/chemical  Delivery method and route (e.g., intramuscular, intravenous, subcutaneous, topical, immersion)  Location of administration on body  Duration of each drug  Post drug administration monitoring  Optional: you may include a drug table with the information requested above |
| **Captive research** | In addition to describing the procedures of the experiment(s) on the animals, describe their care and maintenance, including a complete description of the facilities where they will be maintained. This includes but is not limited to:   * + Dimensions of the pools, tanks, or other holding facilities   + Number, sex (not applicable for corals), and age (or size for corals) of animals by species to be held in each tank/enclosure   + Water supply, amount, quality, power supply, and backup redundancy   + Diet, amount and type   + Sanitation & quarantine practices   If animals will be transported as part of captive holding, complete the Transport information in Take Table section.  Indicate the final disposition of animals after completion of permitted activities (e.g., for sturgeon: continued maintenance, euthanasia or transfer to another permitted facility, if appropriate).  For corals: If not addressed in another category in this table, describe the procedures or experiments on the animals. E.g., exposing corals to altered temperature outside of ideal range, contaminants, potentially harmful chemicals, disease, or coral predators.  Information regarding holding corals in captivity must be included when requesting collection from the wild, captive experiments, or planning to release to the wild to assess the potential impacts to wild corals. As a reminder, according to the [proposed rule](https://www.federalregister.gov/documents/2023/08/29/2023-17769/endangered-and-threatened-wildlife-and-plants-proposed-reclassification-of-pillar-coral-dendrogyra), captive maintenance and propagation of coral held in captivity falls under normal husbandry and does not require an ESA permit as long as the corals are not harmed, injured, or killed (i.e., prohibitions of ESA section 9(a)(1) are not violated). |
| **Collection and sampling of corals** | Describe the collection process, including   * Samples to be collected (e.g. gametes/larvae, fragments, cores, mucus, tissues) * Protocol for collecting samples   + Equipment (e.g., punch, clippers, hammer/chisel, syringe)   + If drugs are used during collection, provide the details required in “Administer drugs or other substances” above   + Sterilization or disinfection protocol(s) * Sample preservation and storage (if applicable) * Calculating take numbers:   + How many times per year will you collect from or sample each colony?   + How many colonies will you target per sampling event?   + How many fragments/samples will you take permit colony per sampling event?   + What is the total of fragments/samples will collect per colony per year (including all sampling events)? * What is the minimum size of colony to be targeted for collection/sampling? * What is the maximum size of fragments or sample to be collected?   If you are collecting corals from the wild for propagation, provide the information required above in “Captive Research,” and describe the following:   * Method of reproduction (sexual or asexual) * Description of reproductive methods, if applicable * Estimation of capacity for maintaining recruits/progeny/fragments |
| **Export/ import/ receive samples** | Type of activities:   * Export samples collected under the requested permit or received from other legal sources * Re-import exported samples * Import samples from foreign countries * Receive samples from other U.S. legal sources   Sample type (e.g., tissue, DNA, fragments, gametes)  U.S. or foreign sources of samples:   * Authorized persons or collections, including your own research; * Animals in captivity (samples from routine husbandry procedures or under separate authorization); * Animals in foreign countries stranded alive or dead or that died during rehabilitation; * Animals killed during legal subsistence harvests; or * Animals killed incidental to legal commercial fishing operations   How the sample or animal was originally taken  The legal authority for the original take for imported/received samples  Sample preservation, storage/shipping/analysis  What country are samples being exported to?  Where are samples being imported or received from:  high seas, name and affiliation, or country  Designated port of entry/import or export  See also [Disposition of Tissue Samples](#Disposition_of_Tissue_Samples) below |
| **Field research (Corals in the wild only)** | Description of the experiment or research  Chemicals, nutrients, drugs, treatments to be used   * Dosage of treatment * Method of application * Duration of treatment   Frequency of activities  Description of monitoring to measure impacts  \*For drugs, provide the details required in “Administer drugs or other substances” above |
| **Marking** or Tagging (e.g., bone mark (OTC, fluorescent), flipper tag, Floy/dart tags, paint, PIT tag, shell etching, plastic tags, dyes/chemical markers) | Type of mark or tag  Dimensions of tag or mark  Total number and combination of tags or marks on each animal  Location on body/colony  Method of application  Cleaning and disinfection procedures  Duration of mark or tag  Whether mark or tag would be reapplied, if lost  Size of animals to receive tags including minimum size  For corals, this only applies to tags physically attached to the coral (not the substrate) or dyes/chemical markers |
| **Response and restoration (Corals)** | Response – Describe your activities associated with response to emergencies (e.g. vessel groundings, storm damage).  Restoration – Describe your activities associated with recovering a functioning and self-sustaining reef ecosystem.    Associated procedures and needed information:  Field Planting (outplanting and transplant/relocate):   * Origin of the animals to be field planted, including location of founder (wild) animals and location animals were raised/maintained for field planting (facility or water body) * Location where animals will be field planted, including a description of the site(s) (e.g., depth, benthic community present, physical characteristics, presence of other ESA-listed corals) * Method of field planting, including health screening and site preparation * Description of and duration of monitoring to measure field planting success (attachment stability and percent survival)   Other Restoration: Describe restoration activity (e.g., substrate stabilization, corallivore and sediment removal, other emergency response or activity that results in contact with the species)  Treatment:   * Identify the chemicals, nutrients, drugs (such as for disease treatment)\*, etc. or other treatments to be used * Dosage of treatment * Method of application * Duration of treatment * Description of monitoring to measure treatment success   \*For drugs, provide the details required in “Administer drugs or other substances” above |

**Non-target ESA-listed Sea Turtle and Fish Species**

Discuss whether and how non-target ESA-listed sea turtles or fish species may be unintentionally captured or otherwise affected. These are species that co-occur with your target species and that could be harassed or taken during your work, but that you will not opportunistically incorporate into your study.

Include these non-target species on separate rows in the [Take Table](#Take_Table) if you expect take (e.g., unintentional harassment or capture). For ESA species designated by Distinct Population Segment, specify the DPSs.

Other non-target taxa (e.g., marine mammals) should be addressed in the [Effects and Mitigation](#Effects_Mitigation) section below.

## Project Supplemental Information

**Attach a Supplemental Information File**

You can attach up to 10 files to provide additional information.

* Preferred file formats: Microsoft Word, Excel, or PDF.
* The maximum file size allowed is 20 MB.
* Audio and video files (such as mp3, m4b, wav) cannot be uploaded. Contact us if you need assistance.
* On the Location screen you will be asked to attach a map.

**Status of the Affected Species**(up to 2,000 characters)

**If choosing “range-wide”** in the Stock/Listing Unit column in a row of the take table, indicate the specific DPSs you are targeting, their status under the ESA, and location. Otherwise, put N/A and choose the specific stock or DPS in the take table.

**\*Effects and Mitigation** (up to 64,000 characters)

**Discuss how Take Table actions** (Take Actions, Observe/Collect Method (e.g., capture), and Procedures) **will affect individual target and non-target animals**.

Cite the **best available science** (i.e., peer-reviewed literature or other published data sources) and your experience (e.g., personal communication, annual permit reports). References must be made available upon request.

**Group together take actions with similar responses** and describe, as applicable:

* + Typical behavioral and physiological responses
  + Worst-case responses
  + % of animals that typically exhibit each response type
  + Average/estimated recovery time
  + Wound healing time (e.g., from invasive sampling or tagging)
* Condition of animals on resight
  + Recovery from handling
  + Post-release behavior (immediate and long-term)
  + Tag retention and tag breakage
  + Effects on sensitive life stages (e.g., spawning adults)
* **Bycaught non-target species:** will they be released alive? Or is a certain percentage expected to be unintentionally harmed or killed?
  + For **novel procedures**, discuss the most likely anticipated responses based on literature from studies on other species, if available, and any results from testing, if applicable.
  + Discuss the anticipated **effects on the species**, especially if mortalities or reproductive effects are possible. On what is your determination based?

You may **include mitigation and monitoring protocols here or in the** [**Methods**](#Methods) section above. Do not restate those here if they are included above; simply reference the section where the following information appears.

* + For **invasive procedures**, including biological sampling and instrumentation, describe your steps to prevent infection or additional harm. For example, describe if and how you will:
* Prepare the sampling site by cleaning and disinfecting the tissue.
* Use single-use, sterile instruments (e.g., needles).
* Sterilize[[2]](#footnote-2) other devices prior to use and in the field if contaminated including but not limited to use of cold sterilization
* Administer prophylactic antibiotics to animals (include the drug, dosage, and route of administration).
* Use epoxy or modeling clay on exposed coral skeletons to protect it from other organisms.
* Describe your short- and long-term **post-procedure monitoring** protocols.
* Explain if and why monitoring or mitigation is not feasible for specific procedures, species, situations, etc., as needed.
* Describe any **mitigation you will take to avoid or minimize impacts to non-target** protected species (e.g., marine mammals, sturgeon, sea turtles, corals, U.S. Fish and Wildlife Service species). Discuss whether and how they may be unintentionally harassed, captured, or otherwise affected. Identify if you require take of these species. For ESA species designated by DPS, specify the DPSs. Identify if you require takes of these species.

**Research Coordination**

* Describe how you will coordinate with other permit holders in your action area.
  + List their names and affiliations.
  + Explain how you will work together. For example, will you share vessels or coordinate the timing of surveys to avoid repeated takes of the same animals?
* Will you collaborate with other permitted researchers to share data? Will you contribute your data to relevant catalogs and databases (e.g., telemetry)? If so, list their names and affiliations and explain your collaboration plans.

**Attach a References File**

Attach a **bibliography** of references cited in this application. Referenced materials must be made available upon request, as needed for evaluation of the application and preparation of ESA or NEPA analyses. If a link to your referenced material is available, add the link to your References File.

**\*Resources Needed to Accomplish Objectives**(up to 4,000 characters and attach files if necessary)

* Explain how your expertise, facilities, and resources[[3]](#footnote-3) are adequate to accomplish your proposed objectives and activities.
* List relevant proposals, contracts, grant awards, or letters of agreement that would demonstrate your resources. If funding is not yet secured, provide a history of funding over the past 5 years. Copies must be made available upon request.
* Indicate the status of other international, federal, state, or local authorizations and permits you have applied for, secured, or will apply for.

**\*Disposition of Tissue Samples**(up to 4,000 characters)

**Outline what will be done with the biological samples** during your research or enhancement and after your project is complete, as follows:

1. If you are performing your analyses in-house, state whether the samples will be consumed, destroyed, or curated.
2. If you are sending samples to another entity:
   * List the name, affiliation, and location of any person or institution that will receive, analyze, or curate samples.[[4]](#footnote-4)
   * Include the sample type and purpose of transfer (type of analysis and/or curation). State whether samples will be consumed in analysis, destroyed, curated, or returned.
3. If samples will remain after the completion of your research, indicate if you will retain legal custody of the curated samples or if you will permanently transfer custody of the samples.

**\*Public Availability of Product/Publications** (up to 800 characters)

Describe the end products of your proposed project and how they will be made available to the public.

## Project Locations

First, follow the guidance below to describe where you plan to work. Then, for each location, use the [Take Table](#Take_Table) to list the species you expect to encounter and the procedures you will conduct in each location.

* Provide information about one or more study areas
  + General area (ocean basin)
  + State(s), as applicable.
* Enter **Location Details**, as applicable:
  + Waterbody: enter names of rivers, estuaries, bays, etc. Latitude and longitude of your study area
  + Limits of your study area (e.g., to the U.S. EEZ, to the edge of the continental shelf, to 50m depth)
  + Names of land masses where research will occur (e.g., islands).
* **Attach File**: Include a map(s) to scale that clearly shows the location of your proposed activity. If requested, provide a shapefile or Google Earth kmz/kml with lat/long data and the associated basic metadata with your application.

## Take Table

The take table represents the **estimated** number of animals you propose to take, import, or export **annually** during your research. Please refer to Appendix A for additional guidance and coral-specific scenarios.

Columns you will fill out in the take table:

1. **Listing Unit/Stock**: For pillar coral: Caribbean/ Western Atlantic/Gulf of Mexico
2. **Production/Origin**: Select from the drop-down list either captive or wild.
3. **Life Stage**: For coral permitting, the only unit of take is the colony.
4. **Sex**: This column is N/A for corals.
5. **Expected Take**: This represents a reasonable estimate of the number of colonies you are affecting (additional details are required in the Project Description).
6. **Take Action**: Note that the take action for corals is “Coral Activities.” You will provide details about your activities in subsequent fields.
7. **Observe/Collect Method**: Select only one observe/collect method per row. If multiple methods are proposed, you must provide take information in separate rows for each method.
8. **Procedures**: Select all activities to be performed concurrently on the same animals.
   1. Choose “Other” if a proposed activity is not listed. In the Details box (see below), briefly describe what the “Other” means.
   2. You must select “Transport” if you will temporarily hold and perform experiments on **wild** animals (e.g., exposure studies) in a facility. This also applies to moving captive animals from one facility to another for a permitted activity.
   3. If some animals will only get a **subset of procedures**, list this subset on a separate row.
9. **Transport**: If you chose Transport as a Procedure, provide the following information:
10. **Mode(s) of transportation:** Describe the vehicle or other platform used to transport animals.
11. **The name of the transportation company, if applicable, and the qualifications of the common carrier to transport live animals:** If a contractor or other entity will do the transportation, enter information in the box. Otherwise, click on N/A.
12. **Maximum length of time from capture to arrival at destination:** How long will the animals be in transport?
13. **Description of the container used to hold the animal during transit:** Include the material and design of the container and its dimensions.
14. **Any special care procedures to be administered during transport:** How will the animals be cared for during transport?
15. **A statement as to whether the animals will be accompanied by a veterinarian or some similarly qualified person:** If so, give the name, affiliation, contact information for each person.
16. **Destination:** For corals: If the animals will be taken to a laboratory or aquarium, provide details of the location. If the animals will be released in another waterbody, provide details of the location.
17. **How will the animals be contained at the destination facility?** Describe the containment system for the animals, quarantine procedures, and effluent treatment.
18. **The final disposition of the animals:** Describe, for example, whether the animal will be released into the wild or retained in permanent captivity.
19. **Details**: Enter up to 255 characters to provide details on each take table row. This is especially useful to clarify takes, intentional repeated takes, specific activities, or projects.

## \*Anticipated Effects on the Environment

1. Will you be working in or near areas with **unique environmental characteristics or important scientific, cultural, or historical resources**? Yes or no.

Examples include:

* Animals used for subsistence
* Archaeological resources
* [Critical Habitat of ESA-listed species](https://www.fisheries.noaa.gov/national/endangered-species-conservation/critical-habitat)
* [Essential Fish Habitat](https://www.fisheries.noaa.gov/national/habitat-conservation/essential-fish-habitat) including wetlands, coral reefs, sea grasses, and rivers
* Federally recognized Tribal and Native Alaskan lands, cultural or natural resources, or religious or cultural sites
* [Marine Protected Areas](https://marineprotectedareas.noaa.gov/)
* Minority or low-income communities
* [National](https://www.nps.gov/findapark/index.htm) or State Parks
* [National Marine Sanctuaries](https://sanctuaries.noaa.gov/) and [National Monuments](https://www.nps.gov/archeology/sites/antiquities/monumentslist.htm)
* [National Historic Landmarks](https://www.nps.gov/subjects/nationalhistoriclandmarks/list-of-nhls-by-state.htm)
* Sites listed in or eligible for listing in the [National Register of Historic Places](https://www.nps.gov/subjects/nationalregister/index.htm)
* [Wild and Scenic Rivers](https://www.rivers.gov/map.php)
* [Wilderness Areas](https://wilderness.net/visit-wilderness/find-a-wilderness.php)
* [Wildlife Refuges](https://www.fws.gov/refuges/profiles/bystate.cfm)

1. If yes, please list those areas. As applicable, mention if you will need to or have already obtained permission (licenses, permits, authorizations) to work in these areas. (up to 1,200 characters)
2. How would your activities affect such resources? What measures will you take to ensure your work does not cause loss or destruction of such resources? (up to 1,200 characters)
3. For marine mammal activities in Alaska or Washington, how will you ensure your project does not adversely affect the availability (e.g., distribution, abundance) or suitability (e.g., food safety) of marine mammals for subsistence uses? (up to 800 characters) Enter Not Applicable.
4. Discuss if your activities have the **potential to impact the physical or biological environment**, in particular coastal and marine environments. Impacts can be positive or negative. (up to 2,000 characters)

Examples of potential impacts include:

* Altering substrate while anchoring vessels and buoys
* Using bottom trawls or other types of nets
* Erecting structures
* Ingress and egress of researchers
* Injuring or killing benthic organisms (e.g., seagrass, corals)
* Altering the physical or chemical characteristics of water (e.g., oil spills)
* Affecting a species’ abundance or distribution

1. Invasive Species

a. Does your project involve activities known or suspected of **introducing or spreading invasive species**, intentionally or not? Examples include transporting animals, discharging ballast water, and using boats/equipment at multiple sites. Yes or no.

b. Describe measures you would take to prevent the possible introduction or spread of non-indigenous or invasive species, including plants, animals, microbes, or other biological agents. (up to 1,200 characters)

1. Biological Specimens

a. Will your activities involve collecting, handling, or transporting **potentially infectious agents or pathogens, such as biological specimens** (animals, blood, tissues)? Yes or no.

b. Will your activities involve using or transporting **hazardous substances**, such as toxic chemicals? Yes or no.

c. If yes to either question, describe the protocols you will use to ensure that public health and human safety are not adversely affected, such as by spread of zoonotic diseases, chemical injuries, or contamination of food or water supplies. (up to 1,200 characters)

1. Do your activities involve equipment (e.g., scientific instruments) or techniques that are untested, or have unknown or uncertain impacts on the biological or physical environment? Yes or no.

If yes:

1. Briefly describe the equipment or techniques and provide any information about the use of these in your study area and/or with other taxa and what is known about their impacts. (up to 1,200 characters)
2. Discuss the degree to which they are likely to be adopted by others for similar activities or applied more broadly. (up to 800 characters)

## Project Contacts

**Descriptions of Personnel Roles**

A project must have a **Responsible Party if the Applicant/Permit Holder is an organization, institution, or agency**. The Responsible Party or Applicant/Permit Holder is an official who has the legal authority to bind the organization, institution, or agency and is ultimately responsible for the activities of any individual operating under the authority of the permit.

The **Principal Investigator** (PI) is the individual primarily responsible for the take, import, export, and any related activities conducted under the permit. There can only be one PI on a permit. The PI:

* Must have qualifications, knowledge, and experience relevant to the activities authorized by the permit.
* Must be on site during activities conducted under the permit unless a Co-Investigator is present to act in place of the PI.
* May also be the Applicant/Permit Holder and Primary Contact.

The **Primary Contact** is the person primarily responsible for correspondence during the application review process and after a permit is issued. Typically this person administers the permit, requests modifications (e.g., personnel changes), and submits reports. The Primary Contact may also serve other roles on the permit (e.g., Applicant/Permit Holder, PI, CI).

**Co-Investigators** (CIs) are individuals who are qualified and authorized to conduct or directly supervise activities conducted under a permit without the on-site supervision of the PI.

* You must add CIs to the application if the PI will not always be present during the permitted activities.
* CIs can also be added or removed once a permit has been issued.

**Research Assistants** (RAs) are individuals who work under the direct and on-site supervision of the PI or a CI. RAs cannot conduct permitted activities in the absence of the PI or a CI. RAs do not need to be named in the application or permit.

**Qualifications and Experience**

**The PI and each CI must complete a Qualifications Form (QF).** Previously we accepted CVs, resumes, and biosketches, but often these did not include sufficient information about the person’s field experience to demonstrate they were qualified in the proposed take activities. You can download a blank QF from our pillar coral web page.

**Persons authorized as the PI or CIs must have qualifications corresponding to their duties**. Note, if the PI or a CI will be supervising but not performing specific procedures, they must demonstrate sufficient cumulative experience to oversee the project, personnel (e.g., other CIs, research assistants, veterinarians), and procedures.

If you do not provide sufficient information, we will not authorize the person(s).

In addition, **you must submit a table (see Table 3) defining the PI and CI roles** and activities (i.e., supervising or conducting specific procedures) to be performed. Attach this table on the [Supplemental Information](#Supplemental_Information) screen.

Table 3. Example Personnel Roles

|  |  |  |
| --- | --- | --- |
| **Name/Affiliation** | **Role** | **Activities** |
| John Smith, Ph.D., University A, City, State | Principal Investigator | Supervise and perform all activities under the permit |
| Jane Smith, Institution B, City, State | Co-Investigator | Conduct all activities |

## Submit Application

At the end of your permit application, please include the following statement:

*I hereby certify, under penalty of perjury, that the information in this application is complete, true, and correct to the best of my knowledge and belief. It is my intent to submit the information for the purpose of obtaining a permit. Should a permit be issued, I will be responsible for the activities conducted under this permit.*

The Responsible Party/Applicant should sign and date the application.

Submit your application via email to [nmfs.pr1.apps@noaa.gov](mailto:nmfs.pr1.apps@noaa.gov).

# Additional Information

## What is this application not for?

Research or enhancement activities on:

* Protected species parts (**only** involving importing, exporting, or receiving parts); for corals this means non-living parts (e.g., preserved samples or skeletons), see MMPA/ESA parts application.
* Coral Observations, Photography/videography, and Counts that do not result in take (no permit is needed).
* Care and propagation of corals held in captivity falls under normal husbandry and does not require an ESA permit as long as the corals are not harmed, injured, or killed.
* Treatment of coral in the wild – localized treatments for disease by experienced individuals using non-experimental methods proven to be effective and as authorized by state and territorial permits.

## When should you apply?

We recommend that you apply by **May 15, 2024,** if you will be conducting:

* Emergency response or restoration activities, or
* Activities planned or ongoing in Fall or Winter 2024 that would require a permit (see above).

We want to avoid a scenario where pillar coral is listed as endangered and activities that cause take are prohibited, but you don’t have permit coverage to continue your projects.

If you cannot meet this deadline or have questions, please contact us at [nmfs.pr1.apps@noaa.gov](mailto:nmfs.pr1.apps@noaa.gov).

## What is the process for getting a permit?

1. Follow these instructions and contact the Permits and Conservation Division at [nmfs.pr1.apps@noaa.gov](mailto:nmfs.pr1.apps@noaa.gov) or 301-427-8401 with any questions.
2. Submit your application via email [nmfs.pr1.apps@noaa.gov](mailto:nmfs.pr1.apps@noaa.gov) for coral applications.
3. A permit analyst will review your application and contact you if additional information is needed.
4. Address any questions within 60 days or your application will be withdrawn.
5. Once we consider your application complete, we will publish a notice in the [Federal Register](https://www.federalregister.gov/), which starts a mandatory 30-day public comment period.
6. Concurrently, we will send your application to subject matter experts in partner institutions and federal and state agencies for review.
7. We are preparing to request a programmatic consultation under Section 7 of the ESA to assess impacts to ESA-listed species if pillar coral are reclassified; this consultation would be designed to cover most activities that could need a permit. We will determine whether or not your proposed research requires falls within the scope of this effort or if separate ESA Section 7 consultation would be required. The ESA consultation can take up to 6 months.
8. Address any questions received during the comment period.
9. We will draft the permit and supporting documentation (including National Environmental Policy Act analyses, responses to public comments, and documentation of ESA issuance criteria).
10. The documents will be reviewed by various NMFS offices including a legal review.
11. For individual consultations, a Biological Opinion will be issued if ESA-listed species may be taken and adversely affected to determine if the activity will jeopardize the species or adversely modify critical habitat.
12. The Office Director will decide whether to issue or deny your permit.

## What is the process for requesting a modification to a permit?

For corals: Reach out to your permit analyst for additional guidance. You’ll need to provide a description of your proposed changes and include all the necessary details for those changes, as applicable. Use these application instructions as a guide. For example, changes to your objectives will require that you discuss all the points in the Project Purpose section. Additions to personnel require Qualifications Forms and descriptions of their roles.

# Applicable Laws and Regulations

Under ESA Section 10(a)(1)(A) of the [ESA](https://www.fisheries.noaa.gov/national/endangered-species-conservation/endangered-species-act), persons may be authorized to take threatened and endangered species for purposes of scientific purposes or enhancing the survival or propagation of the species. Interested persons are required to submit an application in accordance with the ESA and the implementing regulations at 50 CFR Part 222. These instructions for applying for a research or enhancement permit are drawn from, but do not substitute for, [ESA regulations](https://www.ecfr.gov/cgi-bin/text-idx?SID=25319f6cc1f201b2e775e71f44203daa&mc=true&node=pt50.10.222&rgn=div5). Under [NEPA](https://ceq.doe.gov/), Federal agencies must assess the effects of federal actions on the environment. Under Section 7 of the ESA, Federal agencies must ensure that the permitted activities will not jeopardize the continued existence of listed species or result in adverse modification of critical habitat.

All permit documentation, including the application, permit and modifications, reports, inventory information, and any other associated documents are considered public information and as such, are subject to the [Freedom of Information Act](https://www.foia.gov/).

# Appendix A: Additional guidance for Coral Activities – Definitions, Take Table, and Sample Scenarios for Corals

**Definitions:**

Below are the options you can select for the Observe/Collect Method and Procedures columns when completing a take table (see Table 1 or [optional Excel spreadsheet](https://www.fisheries.noaa.gov/s3/2024-04/Fillable-take-table-corals.xlsx)) for corals, with a description of each option.

***Observe/Collect Method***(i.e., how will you obtain or access the coral?)

* Captive - The coral is already in a controlled setting (laboratory, aquarium or nursery) and you will be conducting activities that require a permit. Note: the continued possession, care, and propagation of live pillar coral that were in captivity at the time of up-listing to an endangered species, including any progeny produced from captive corals after the rule is finalized, does not require a permit, provided you are not conducting an activity that results in take (e.g., research, field planting).
* Collect – Collection of colonies, fragments, or samples in the wild
* Contact - Touching the coral but not removing it or its parts.
* Import/Export/Receive domestically – Obtaining coral from someone else or exporting from the United States.
* Response - Activities associated with emergencies such as vessel groundings and storms.
* Restoration – Activities associated with recovering a functioning and self-sustaining reef ecosystem.

***Procedures***(i.e., what will you do with the coral?)

* Captive research- Experiments and analyses conducted on corals in a controlled setting (lab or nurseries).
* Collect, dead parts - Collection of dead coral (e.g., skeletons).
* Collect, gametes/larvae (wild) - Collection of gametes and larvae in the wild.
* Collect, whole or part of colony (live) - Collection of samples from live coral colonies/individuals (e.g., fragments, cores)
* Export – Transporting coral (alive or dead) from the United States.
* Field research - Research on coral in the wild including introduction of chemicals, nutrients, drugs, or any other treatments when no collection is involved.
* Field Planting (outplanting) – Outplanting captive corals as part of response or restoration activities.
* Field Planting (transplant/relocate) – Transplanting or relocating corals as part of response or restoration activities.
* Import – Transporting coral (alive or dead) into the United States
* Mark or Tag - Affixing a mark (dyes/chemical markers) or tag on the coral for identification in the field.
* Other - Activities not covered by the above options (contact your permit analyst for guidance)
* Other Restoration - Includes substrate stabilization, corallivore and sediment removal, other emergency response.
* Sample, tissue – Collecting a tissue sample from a coral
* Sample, mucus swab – Collecting a mucus sample from a coral
* Receive, domestically – Receipt of coral from within the United States for permitted purposes
* Transport/Transfer, dead – Transfer or transport of dead coral (e.g., skeleton, preserved samples) to another authorized person/entity.
* Transport/Transfer, live - Transfer or transport of living samples (e.g., colonies, fragments, gametes, larvae) to another authorized person/entity including transport of living corals to or from a controlled setting.
* Treatment – Use of chemicals, nutrients, drugs, or other treatments that may affect the surrounding ecosystem, or that do not have proven efficacy in the case of things like disease treatment.

**Take Table**

Table 1 illustrates possible annual Take Table options for corals. In each column, choose one option from the drop-down list except in the case of Procedures, where you can choose multiple options. Use this table in your application to complete a take table for your annual activities. You may include additional lines as needed, see scenarios below for examples. Alternatively, you may use an [Excel spreadsheet](https://www.fisheries.noaa.gov/s3/2024-04/Fillable-take-table-corals.xlsx) to outline your take activities.

| Species | Listing Unit/Stock | Production/ Origin (can only choose one) | Life Stage | Sex | Take Action | Observe/ Collect Method (**can only choose one**) | Expected Take[[5]](#footnote-5) | Procedures (can choose more than one) | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Captive  - Wild | - Colony | N/A | Coral Activities | - Captive  - Collect  - Contact  -Import/ Export/  Receive domestically  - Restoration  - Response |  | - Captive research  - Collect, dead parts  - Collect, gametes/larvae (wild)  - Collect, whole or part of colony (live)  - Export  - Field research  - Field planting (outplanting)  - Field planting (transplant/relocate)  - Import  - Mark or tag  - Other  - Other Restoration  - Sample, tissue  - Sample, mucus swab  - Receive, domestically  - Transfer/transport, dead  - Transfer/transport, live  -Treatment | Associated with **Transport/ Transfer, live** procedure; provide details in Take Table section #11 above. | (Add clarifying information up to 255 characters) |

**Sample Scenarios for Corals**

The following are examples of Take Tables with research and enhancement activities for coral. The scenarios give a general idea of how to fill in a Take Table for specific activities. Take numbers should be entered as the number of colonies you expect to take **annually**. Please note that these are just examples. You can contact the Permits Division if you need help completing your Take Table.

**Scenario 1 (Collection):** A researcher is conducting a one-time collection of fragments from 30 different colonies. Up to three fragments will be removed from each colony. One fragment from each of the 30 colonies will be used for propagation, one fragment for lab-based acidification experiments, and one for genetic analysis.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 30 (number of colonies that will be impacted) | - Captive research  - Collect, whole or part of colony (live)  - Transfer/transport, live | Associated with Transport**/ Transfer, live** procedure; provide details in Take Table section #11 above.  – transport from the field to the lab | One time collection of 90 fragments. Up to 3 fragments from each of the 30 colonies will be removed via clippers. |

**Scenario 2a (Collection):** A researcher is going in the field six days per year to collect gametes from five colonies. The resulting larvae will be settled in the lab and used in studies of the effects of elevated temperature on survival, growth, and development. Collection would involve placing nets over the colonies. The take number is derived from only the number of colonies sampled, not the amount of gametes or larvae collected. The number of samples taken should be discussed here in the Details column and then in the Description and Effects and Mitigation sections of the application.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 5 | - Captive research  - Collect, gametes/larvae (wild)  - Transfer/transport, live | Associated with Transport**/ Transfer, live** procedure; provide details in Take Table section #11 above.  – transport from the field to the lab | 6 days in the field, collection via sample vials from nets placed over entire colony. |

**Scenario 3a (Controlled Setting):** A researcher is propagating 7 colonies in captivity by monitoring spawning and reproduction. The researcher will be collecting gametes from the spawning and settling the resulting larvae to keep in captivity. **No ESA permit is needed to propagate pillar coral in captivity, provided you are not conducting an activity that results in take (e.g., collection from the wild, research, field planting).**

**Scenario 3b (Research):** The researcher noted above is propagating these colonies to conduct research (exposing the corals to contaminants to observe survivability). A permit is not needed to propagate corals in captivity; however, **the research activities will result in take and require an ESA permit**.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Captive | - Colony | N/A | Coral Activities | - Captive | 7 | - Captive research |  | Exposing coral progeny to contaminants |

**Scenario 4a (Collect Samples):** A researcher is going in the field 4 times a year to collect samples from colonies for genetic analysis and to conduct population estimates for this species. Each trip he plans to collect samples from 6 different colonies. Thus, the annual expected take number is 24 (4 trips x 6 colonies). An ESA permit is not needed to conduct population estimates; however, **an ESA permit is needed to take core samples**.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 24 | - Sample, tissue |  | genetic samples |

**Scenario 4b (Collect Samples):** If the same researcher from Scenario 4a will not only collect the 24 genetic samples, but will also collect mucus samples from 10 different colonies over the course of the year, then they would also fill out the table with the example of row 2 (in addition to row 1, below). Because the researcher is performing a different procedure on different colonies than in Scenario 4a, a new take line (row 2) must be added. The number of takes for this row is 10.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 24 | - Sample, tissue |  | Collecting genetic samples |
| 2 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 10 | - Sample, mucus swab |  | Collecting mucus samples |

**Scenario 5 (Response):** A PI has funding to respond to 4 vessel groundings each year. Based on previous experience, a maximum of 20 colonies are reattached following each event. Therefore, the expected take is 80 (20 colonies; 4x per year).

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Response | 80 | - Field planting (transplant/relocate) |  | Reattaching colonies dislodged by vessel grounding |

**Scenario 6 (Controlled Setting/Research):** A Florida researcher receives 12 colonies that were in captivity at the time of up-listing to an endangered species from a researcher in Panama and plans to conduct experiments on their disease susceptibility. These colonies can be imported under a NMFS letter of determination (no ESA permit is required for the import, provided it is not a commercial transaction, which is prohibited); however, **an ESA permit is required for the disease experiments**.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Captive | - Colony | N/A | Coral Activities | - Captive | 12 | - Captive research |  | Lab experiments on disease susceptibility |

**Scenario 7a (Surveys):** A research team plans to conduct coral demographic monitoring off the coast of Florida. From past experience, researchers observe a maximum of 6 pillar coral colonies for every 20 transects. The team plans to monitor corals on 100 stratified random transects. **No ESA permit is needed to conduct surveys.**

**Scenario 7b (Mark & Tag):** During the above mentioned surveys (Scenario 7a), researchers want to attach plastic tags near the base of each colony for identification and monitoring. If any diseased colonies are observed, a cable tie will be placed on the colony between diseased and healthy tissue to measure disease progression rates during future surveys. No ESA permits are needed for the plastic tags that will be placed near the colony, but an ESA permit is needed for the cable ties placed on the diseased colonies. 100 total transects divided by 20 = 5 transect groupings x 6 colonies for a maximum of 30 colonies located per year for cable tie tagging.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Contact | 30 | - Mark or tag |  | Attaching cable ties to the colony to monitor disease. |

**Scenario 8 (Controlled Setting/Restoration):** An aquarium has been propagating captive corals for several years. **No ESA permit is needed for the maintenance and propagation of the corals in captivity**. The aquarium has fragments/colonies that are of outplanting size. The aquarium estimates that up to 100 fragments/colonies could be outplanted per year. The aquarium has identified 2 locations for outplanting and will evenly split the corals between the 2 sites. **An ESA permit is required to field plant into the wild**.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Captive | - Colony | N/A | Coral Activities | - Restoration | 100 | - Field planting (outplanting)  - Transfer/transport, live | Associated with Transport**/ Transfer, live** procedure; provide details in Take Table section #11 above.  – transport from the lab to the field | Field plant 50 colonies at each of 2 sites |

**Scenario 9 (Collection/Restoration):** A researcher wants to collect fragments from 10 different colonies annually. Up to three fragments will be removed from each colony. These fragments will be maintained in an ex-situ coral nursery for 3 years and then field planted. The research plans to field plant up to 10 colonies at each of 3 sites.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/ Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 10 | - Collect, whole or part of colony (live)  - Transfer/transport, live | Associated with Transport**/ Transfer, live** procedure; provide details in Take Table section #11 above.  – transport from the field to the lab | Annual collection of 30 fragments. Up to 3 fragments from each of the 10 colonies will be removed via clippers. |
| 2 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Restoration | 30 | - Field planting (outplanting)  - Transfer/transport, live | Associated with Transport**/ Transfer, live** procedure; provide details in Take Table section #11 above.  – transport from the lab to the field | Field planting of 10 colonies per 3 sites after Year 3. |

**Scenario 10 (Response):** Researchers want to treat diseased pillar coral by broadcasting an antibiotic into the water column rather than treating coral colonies or affected portions of colonies individually. This antibiotic may affect the surrounding ecosystem. There are 25 colonies within this defined space and this space will be treated twice per year. In addition, researchers will take up to up to 3 tissue samples from each colony to analyze the effectiveness of the treatment.

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/ Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Response | 25 | - Treatment |  | Use of broadcast X antibiotic twice per year. |
| 2 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Collect | 25 | - Sample, tissue |  | Collect up to 3 tissue sample from each colony twice per year. |

**Scenario 11 (Import):** An aquarium plans to collect up to 5 pillar coral fragments from 15 colonies in the territorial waters of the Bahamas each year and will import them to their facility in the United States. These coral fragments will be propagated and used in exposure experiments (temperature parameters/contaminants/new antibiotics). **Because the collection is occurring outside of United States, an ESA permit is not required. However, an ESA permit is required for importation and the captive experiments that will be conducted on the coral.**

| Row # | Species | Listing Unit/Stock | Production/ Origin | Life Stage | Sex | Take Action | Observe/Collect Method | Expected Take | Procedures | Transport | Details |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Pillar coral (*Dendrogyra cylindrus*) | - Caribbean/ Western Atlantic/Gulf of Mexico (NMFS Proposed Endangered) | - Wild | - Colony | N/A | Coral Activities | - Import/ Export/  Receive domestically | 25 | - Captive research  - Import  - Transfer/transport, live | Associated with Transport**/ Transfer, live** procedure; provide details in Take Table section #11 above.  – transport from the field to the lab | Annual collection of 75 fragments. Up to 5 fragments from each of the 15 colonies will be imported and used for captive experiments. |

1. A take under the ESA means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to do any of the preceding. [↑](#footnote-ref-1)
2. **Sterilization** destroys or eliminates all forms of microbial life and is carried out by physical or chemical methods ([CDC 2008](https://www.google.com/url?q=https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines-H.pdf&sa=D&source=hangouts&ust=1576761131517000&usg=AFQjCNEmfyVZ-Ek8lC-NiFbs-4sBdypCxw)). **Disinfection** eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects usually by liquid chemicals ([CDC 2008](https://www.google.com/url?q=https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines-H.pdf&sa=D&source=hangouts&ust=1576761131517000&usg=AFQjCNEmfyVZ-Ek8lC-NiFbs-4sBdypCxw)). [↑](#footnote-ref-2)
3. **Expertise** includes a summary of the cumulative experience of you and your personnel. **Facilities** include such things as your existing infrastructure or laboratories. **Resources** include financial (e.g., current funding and/or history of securing funding); material (e.g., sampling equipment, UAS, boats); and other resources (e.g., collaborative partnerships that can be drawn on to support your work). [↑](#footnote-ref-3)
4. Persons or institutions authorized to receive samples for analysis or curation related to the objectives of your permit are known as **Authorized Recipients**. [↑](#footnote-ref-4)
5. Expected Take = the number of colonies you would impact annually. [↑](#footnote-ref-5)