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| Coral Bleaching | |
| Prepared by: | Bahr Marine Ecology Lab |
| Last Updated: | December 2022 |
| Prerequisite SOP: Coral Processing Protocol | |
| Safety Precautions: | |
| * Required PPE – Gloves, closed-toed shoes, ankle-length pants, lab coat * Caution – Bleach handling | |
| Purpose: | |
| * To remove all remaining biological tissue from the coral to prepare it for skeletal measurements | |
| Materials: | |
| * 10% bleach solution * Gloves * 5-gallon bucket * Bin for bleaching * Graduated Cylinder * Lab coat * Towels * Bleach toothbrush | |
| Bleaching Process | |
| * Create 10% bleach solution in a 5-gallon bucket. Use regular water.   + For example – using a 500mL graduated cylinder; add 50mL of bleach to 450mL of water.   + Create as much 10% bleach solution as needed to fill the bin completely. * Lay the corals out in a bin and pour the 10% bleach solution over them until they are completely submerged.   + Caution – ensure the bin does not move and that you have properly labeled the corals to be sure they do not get mixed up. * Let the corals sit in the bleach solution for up to 48 hours, and check progress around 24 hours.   + They can sit for longer than 48 hours; be sure to record how long they were bleached. | |
| Rinsing and Drying After Bleaching | |
| * After bleaching, rinse the coral with water. Gently scrub coral with a designated soft toothbrush to not compromise the structural integrity of the coral skeleton. * Set corals on towels to dry. Be sure to continue properly labeling the corals.   + The original bags the corals were in can be placed next to their respective coral to ensure no confusion. | |
| Quality Assurance and Control Methods | |
| Proper protocols and training must be implemented to ensure the quality of data generated in the laboratory. Quality control measures are outlined in each protocol to ensure data generated are of accurate quality. Researchers must ensure that all equipment is accurately calibrated, inspected, and maintained according to the manufacturer’s instructions. Data must be entered in Excel spreadsheets by one individual and QA-QC checked by a different individual.    ***Data Review***  All laboratory data will be reviewed for completeness and transfer errors. Data will be reviewed by a second individual after entry into Excel spreadsheets by comparing the entered, electronic data to the original records (e.g., hand-written datasheets or laboratory notebooks).  Data will be summarized as descriptive statistics and in tabular and graphical form to allow visual inspection and verification, and comparison to expected or target values.    ***Data Verification***  Data will be checked for compliance with the procedures outlined in the SOPs and OPs.  Any deviations from those procedures and the impact on the quality of the data will be assessed and discussed with Task Members. Any laboratory data outliers will be flagged.    ***Data Validation***  Once the data has been reviewed and verified, it will be assessed to determine the overall acceptability of the objectives of the project.  Blank samples, such as with water quality testing, will be used to determine any biases or instrument calibration issues during the sample collection and analysis processes.  Control samples will be used to determine the condition of the experimental test specimens in the absence of experimental treatments or exposures.  Any errors in datasets detected will be discussed with lab members and project leads to determine the impact on the data and its use for the project.  If there are any limitations to the data, they will be disclosed as part of the published literature.  ***Procedure Specific QA/QC Methods***  The 10% bleach solution will be measured out using a graduated cylinder. The appropriate portion of bleach to water will be used depending on the size of the graduated cylinder. The corals will be labeled on the outside of the bleaching bin or the top of the bin. The bin will be placed in a secure location and will not be moved while the corals are inside. | |