



<b>Name of park/office/program</b>	Biscayne National Park, Division of Natural Resource Management, Habitat Restoration Program
<b>Internship duty location address</b>	9700 SW 328 STREET
<b>Position Title</b>	Coral Restoration Intern
<b>Position Type</b>	LHIP Internship (Public Land Corps)
<b>What is the PRIMARY NPS field of this internship project?</b>	Resource Management
<b>Position Description</b>	<p>The coral restoration internship will focus on coral restoration actions in Biscayne National Park (BISC). Specifically, the intern will be a key participant in two field initiatives: large-scale outplanting of nursery-propagated corals with park conservation partners, and treating diseased corals affected by Stony Coral Tissue Loss Disease. The intern will also monitor outplanted corals and disease treatments.</p> <p>Park needs: An extensive and thriving coral reef ecosystem was a key factor in the creation of the park. Fifty years later, reef health in the park mirrors regional and global patterns of demise. Coral reefs are in severe global decline due to multiple factors including thermal stress, disease, and ocean acidification linked to climate change, overfishing, coastal development, and more. Within the past decade, several species of stony corals have been listed under the Endangered Species Act. Coral populations in the park have been hit particularly hard in the past few years by back-to-back bleaching events, followed by Hurricane Irma in 2017.</p> <p>Adding insult to injury, the Florida Reef Tract is under siege by an ongoing and unprecedented coral disease outbreak. The “Stony Coral Tissue Loss Disease” (SCTLD) outbreak has spread across the entire reef tract, and is now racing through reefs in the Caribbean. The disease presents as rapid tissue loss that usually results in whole-colony mortality. A suite of coral species is disproportionately affected. The disease was first observed near Miami in 2014 and in BISC in 2015. The outbreak now stretches from Martin County to Key West. Park coral populations are at a historical low. Resource trustees view the SCTLD outbreak as an ecological catastrophe.</p> <p>The park embraces active measures to conserve its precious coral reef resources, by implementing the best available coral disease intervention methods, in an attempt to halt or slow mortality, and by re-creating large and genetically diverse coral populations that can ultimately, through broadcast spawning, increase coral cover on park reefs. The goal of coral restoration is to support coral populations until abatement of regional and global stressors enables recreation of ecosystems in which coral reefs can thrive. The intern will directly contribute to two active restoration fronts: coral disease intervention,</p>



and rebuilding dwindling coral populations.

**Project goals:**

The intern will spend approximately 50% of the internship treating diseased corals with an antibiotic ointment, while embedded in various dive park operations. The intern will be responsible for preparing and administering the treatment ointment, and documenting treatment applications (noting coral species, size, treatment methods, site coordinates; installing marker tags; and photographing treatments). Park staff, affiliated researchers, and other partners frequently conduct dive operations in the park. Allowing the intern to "piggy-back" on multiple dive operations will enable broad coverage of park reefs for disease treatment, and will also provide the intern the opportunity to learn firsthand about the wide variety of resource management and research initiatives ongoing in the park.

The intern will spend approximately 25% of the internship working directly with coral nursery partners and park staff outplanting corals to multiple reef areas. The park is a designated outplanting site for two major coral nursery partners: the University of Miami's Rosenstien School for Marine and Atmospheric Science and the Mote Marine Laboratory. Large scale (~5,000 corals) outplanting of nursery reared corals is planned for 2020, and the intern will be a critical participant in these outplanting efforts (May-June 2020). The intern will be responsible for helping the partners transport and stage corals at outplanting sites, install site markers, prepare outplanting sites, prepare reattachment materials (e.g. epoxy, cement, nails, cable ties), and physically outplant the corals.

The remaining time in the internship will be spent monitoring treatment efficacy on diseased corals, and monitoring the status of newly outplanted nursery corals. Monitoring activities will be conducted alongside the supervisor and/or coworkers, following established protocols. The intern will spend a small portion of time helping coworkers on other natural resource management projects such as sea turtle nest monitoring, marine debris removal, lionfish management, and fish and lobster creel surveys. Across all field efforts, daily work requires substantial advance and day-of planning, adherence to safety protocols, assembly of dive and field equipment, boat operation, problem solving, equipment cleanup and breakdown, and summary documentation.

**Deliverables and work products:** The intern will be responsible for thoroughly documenting the disease treatments that s/he implements, using existing datasheets, and ensuring that all treatment data collected during the internship are entered in an existing MS Access database. The intern will also create two brief summary reports, one each for disease intervention (quantifying corals treated, species, locations, treatment methods, treatment efficacy) and outplanting efforts (noting outplanted species, quantities, methods, sites, and initial monitoring results).



<p><b>Qualifications</b></p>	<p>Applicants must have completed advanced coursework towards a bachelor's degree in biology, ecology, marine science or a related field. Graduate students in the aforementioned disciplines are encouraged to apply.</p> <p>Required qualifications:  SCUBA certification  Active scientific diver status through an AAUS organization  A minimum of 10 scientific dives  Experience with underwater data collection  Knowledge of coral reef ecology  Software proficiency: MS Word, MS Excel, MS Access, ESRI ArcGIS  Willingness to work with and take direction from a variety of coworkers  Willingness to withstand long field days with exposure to high temperatures, extended sun exposure, rough seas, chilling associated with long hours in the water, biting insects, and hazardous marine life  Willingness to spend extended periods of time performing tedious office tasks (e.g. data entry and processing)</p> <p>Preferred qualifications:  Previous experience with small boat operations  DOI Motorboat Operator Certification Course (MOCC)  Coral restoration experience  Experience with scientific data entry</p>
<p><b>Start date</b></p>	<p>Internships will begin in May, with some flexibility depending on park and applicant schedules.</p>
<p><b>Physical Environment</b></p>	<p>Biscayne National Park (<a href="http://www.nps.gov/bisc">http://www.nps.gov/bisc</a>) is one of the largest marine parks in the National Park System - 95 percent of its 173,000 acres is covered by water. The park is located in Homestead, FL in Miami-Dade County. The park is known for its coral reef and seagrass communities, exceedingly clear water, and keys with hardwood hammocks, mangrove forests, sandy beaches and rocky intertidal areas. The park preserves a unique, sensitive marine environment that is an important component of the south Florida ecosystem and economy. The Atlantic Ocean and Biscayne Bay provide unique opportunities for great swimming, windsurfing, canoeing, kayaking, fishing, boating, snorkeling and scuba diving on the coral reefs. The climate is subtropical.</p> <p>The park headquarters at Convoy Point is located nine miles east of Homestead, a small city with medical and dental facilities (including a hospital), banking, groceries, educational and other amenities. Neighboring Miami, thirty miles to the north, provides all of the educational, medical, sporting, and cultural features of a thriving multi-ethnic metropolitan area. The park headquarters is located approximately 35 miles from the Miami International Airport. Homestead, Miami, and other adjacent communities support large Latino populations and neighborhoods.</p>
<p><b>Work environment</b></p>	<p>The intern will work a full-time schedule that will be heavily field oriented. Once appropriate training levels are achieved, it is anticipated that the majority of work days will be spent as dive days, of course leaving appropriate time for recovery, rest, and other responsibilities. Long hours are spent on boats and in the water, snorkeling and/or diving. Heavy lifting is required (e.g. SCUBA tanks). The internship involves frequent exposure to heat and sun, as well as to hazardous marine life. The park frequently hosts multiple interns throughout the year.</p>



<b>Vehicle/driver's license required</b>	A valid license is required as the intern may occasionally drive park vehicles. A personal vehicle is required to commute between the park and the local communities (for shopping, banking, entertainment, etc.) and/or to a residence if the intern does not live at the park.
<b>Park or Program Website</b>	<a href="http://www.nps.gov/bisc">www.nps.gov/bisc</a>



