



2021 Cooperative Summer Internship Program

USGS Project Scientist	Kristen Hart
Project start date	3/1/2021
Duration	six months
Location	Davie Florida
Type of Intern	ESA
Title of Project	Sea turtle movements and habitat-use, and American crocodile nest monitoring
Background	<p>Our U.S. National Parks and protected areas harbor key benthic habitats that are important for endangered marine species, including federally-protected marine turtles. Threatened loggerheads (<i>Caretta caretta</i>) forage in hard bottom areas on spiny lobsters and crabs; endangered hawksbills (<i>Eretmochelys imbricata</i>) forage on reefs and consume sponges; and endangered green turtles (<i>Chelonia mydas</i>) graze on seagrasses and marine algae. In addition, the sandy beaches of several south Florida/Caribbean parks provide suitable nesting habitat for all three turtle species. We have several on-going sea turtle projects in which we are characterizing the populations of these three sea turtle species and quantifying the proportion of time individuals of each species spent within and outside of protected areas. We use both in-water and land-based turtle capture techniques, and several types of telemetry to monitor turtle movements and decipher habitat-use patterns. In Florida, most of the remaining suitable habitat for the American crocodile (<i>Crocodylus acutus</i>) are within US National Parks and protected areas. These areas are currently undergoing ecosystem restoration and the crocodile has been flagged as an indicator of ecosystem health. To monitor the progress of restoration and recovery of this once federally endangered species, we monitor nesting effort and success, and attempt to mark all hatchlings possible. From recaptures of known animals in the future we can evaluate crocodile growth, survival and dispersal.</p>
Objectives	<p>In each of our on-going sea turtle projects (Dry Tortugas, Everglades and Biscayne National Parks, Florida), we conduct sea turtle captures both in the water and on land. In all projects, we conduct standard turtle workups to collect morphometric measurements and biological samples and outfit each turtle with several types of tags (a combination of internal PIT tags, external flipper tags, external satellite tags, external acoustic tags, and external data-logging tags that are capable of measuring fine-scale activity patterns). We have databases for each project and online satellite tracking. In our crocodile nest monitoring project (Everglades National Park, Florida), we conduct monitoring of crocodile nests and make attempts to capture and mark as many hatchlings as possible. We conduct standard workups to collect morphometric measurements and mark each crocodile with a unique identifier.</p>

Intern Tasks	<p>The intern(s) will assist with prepping equipment for fieldwork and maintaining equipment during the field season, conducting both night-time and daytime captures of sea turtles with supervision from project PI, assisting with working up turtles and collecting biological samples, and entering data collected into established databases. Travel to field sites will be necessary, as will relatively long periods (i.e., up to 2 weeks) in remote locations. For crocodile nest monitoring, interns will perform night-time and daytime monitoring of known nests and assist with capture and work up of hatchling crocodiles, and collection of environmental data with supervision. Travel to field sites will mostly involve day trips (with few overnight stays in the field). The intern(s) will be responsible for updating the online text/history for each satellite tagged individual, drafting short written synopses of field activities for reports, online summaries (available to the public), and other USGS and NPS outlets (e.g., Soundwaves, see http://soundwaves.usgs.gov/2008/12/).</p>
Expected Results and Benefits to the Intern	<p>The intern(s) will gain hands-on experience working directly with threatened and endangered sea turtles, endangered crocodiles and exposure to analyses of data collected on the projects. The intern(s) may be involved with data manipulation for summary reports.</p>
Skills and Interests of Candidates	<p>The ideal candidate(s) must be responsible and capable of working independently but as part of a larger team and must be able to function independently in remote and sometimes harsh field conditions. Experience with boats and trailering would be ideal, as would dive experience (NAUI or PADI certification). The intern(s) must be comfortable working in the water and on a boat offshore. Candidate(s) must have a valid US driver's license and be capable of using hand-held and boat-mounted GPS devices. Proficiency with MS Office applications is a must, and a working knowledge of GIS is desired.</p>
Project Type	<p>Field Work;Lab Work;Office Work;</p>
Project Discipline	<p>Ecology;Wildlife Biology;</p>