GEORGIA AQUARIUM

RESEARCH AND CONSERVATION AT GEORGIA AQUARIUM, INC.

Georgia Aquarium is committed to the research and conservation of aquatic animals around the world. As a leader in marine research, Georgia Aquarium contributes to the advancement of knowledge of our blue planet by studying animals here at the Aquarium and in their natural environments. Since opening, members of the Aquarium's research team have participated in nearly 100 funded research projects and authored more than 130 peer-reviewed publications and conference appearances. Our researchers collaborate with scientists around the world to understand our aquatic world so that we may conserve it for generations to come.

Conservation Field Station

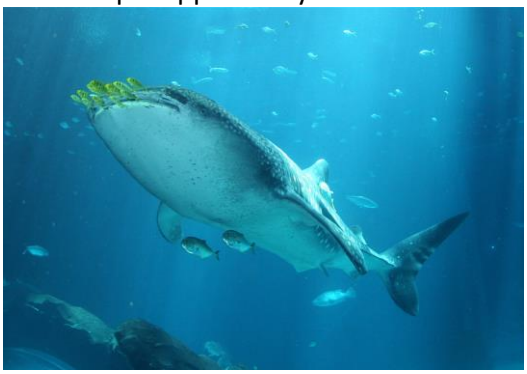
GEORGIA AQUARIUM CONSERVATION FIELD STATION

The Georgia Aquarium Conservation Field Station (GACFS) in Marineland, Fla., is dedicated to the research and rescue of dolphins and whales in northeast Florida. The GACFS team responds to marine mammal strandings and distress calls, and researchers contribute to a recurring photo identification survey that documents the resident bottlenose dolphin population in northern Florida. The GACFS is also committed to community outreach, with school outreach courses, camps and stranding awareness programs to educate the public.

ONGOING AND MILESTONE RESEARCH & CONSERVATION EFFORTS

Whale Sharks

- Georgia Aquarium is a worldwide leader in whale shark research and conservation. We've sent teams to learn more about these gentle giants off the coast of Mexico, Taiwan, the Galapagos Islands and Saint Helena, an island in the middle of the South Atlantic Ocean. In 2009, our joint studies with the Project Domino consortium led to the Mexican government's creation of the Whale Shark Biosphere Reserve, a protected area for this vulnerable species in Yucatan, Mexico.
- Georgia Aquarium is the only facility in the Western Hemisphere to exhibit whale sharks, the largest fish in the ocean. This gives our researchers a unique opportunity to study this magnificent species right here at home. Our team has completed some of the first whale shark blood draws, and our collaboration with Emory University led to the first ever fully mapped shark genome. Georgia Aquarium also collaborates with Georgia State University to study the behavior of our whale sharks.



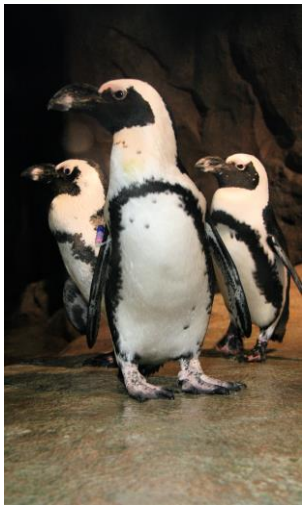
Bottlenose Dolphins

- Started in 2003, the Bottlenose Dolphin Health and Environmental Risk Assessment (HERA) project assesses dolphin health and identifies possible environmental and human stressors in two Southeast U.S. coastal regions: Charleston, S.C. and the Indian River Lagoon, Fla.
- As an apex predator, bottlenose dolphins serve as a sentinel species for monitoring the health of the environment and may provide valuable information on animal and human health. HERA has documented zoonotic diseases, contaminant issues and other factors such as antibiotic-resistant bacteria that have important human health implications.
- Recently, a key finding from HERA discovered that humans living in that specific region of Florida are at an increased risk of mercury exposure. By studying bottlenose dolphins, threats to human health can be identified and possibly prevented.
- Research conducted at Georgia Aquarium includes studies regarding growth, behavior, health and genetics of our dolphins. Studying them in a zoological setting helps us learn more about them and how to preserve them in their natural habitat. Additionally, blood samples collected from field research programs on dolphins are brought to Georgia Aquarium and its partner facilities for extensive analysis and study.

Beluga Whales

- Georgia Aquarium has been an active participant in beluga whale health assessments in Alaska. In 2008, 2011 and 2013, field work in Alaska was focused on understanding nutrition of belugas in Bristol Bay relative to the population in Cook Inlet, which was recently listed as endangered. There were also studies on hearing and spatial usage via satellite telemetry.
- Ongoing monitoring at Georgia Aquarium regarding beluga whales' biology and physiology ultimately benefit the species in its natural environment. Using safe handling techniques developed during health assessments in an aquarium setting, researchers are now better equipped to assess the health of belugas in their natural habitats.

African Penguins



- Georgia Aquarium has partnered with the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB), a leading seabird rehabilitation organization, to study the health of free-ranging African penguins. Georgia Aquarium veterinary and zoological staff has travelled to South Africa for animal care and sampling research.
- Georgia Aquarium is a participating member of the African penguin Species Survival Plan (SSP), which provides breeding pair recommendations for participating institutions by the Association of Zoos and Aquariums (AZA). The Aquarium's penguin nursery allows animal care and training teams to tend to and incubate penguin eggs in a protected environment. As a result, Georgia Aquarium has seen over 25 penguin chicks born in its four years of breeding.

Flukebook

The Flukebook project assists in the conservation of dolphins and whales by enabling international collaborations on photo identification. Through this, we can learn about individual animal health by analyzing how features such as scars from entanglements appear over the course of an animal's life.

Coral

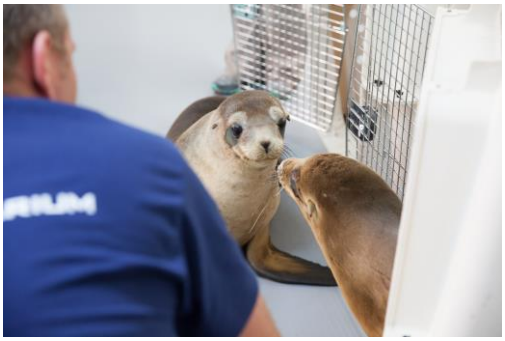
Since 2010, Georgia Aquarium has been working in partnership with the Coral Restoration Foundation (CRF) in the Upper Florida Keys to help restore staghorn and elkhorn corals using ocean-based aquaculture nurseries and transplantation methods. In 2011, two separate teams from Georgia Aquarium spent a week working with CRF to complete maintenance at its coral nurseries and plantings on Molasses Reef in the Florida Keys Marine Sanctuary. The work included propagation and maintenance at a staghorn and elkhorn coral nursery located just offshore of Tavanier, Fla. Georgia Aquarium's team also planted 60 new staghorn corals back onto a section of Molasses Reef sponsored by Georgia Aquarium.

Amazonian Manatee

Georgia Aquarium supports the Mamiraua Institute for Sustainable Development (MISD), located in the Brazilian state of Amazonas. This center is run by a small staff who work to rescue and rehabilitate manatees that are either caught in fishing nets or orphaned. The Aquarium's sponsorship will help cover staff salaries, boat costs, and food and veterinary care.

Walrus
Georgia Aquarium proudly supports the Round Island Walrus Sanctuary in southwest Alaska. State budgets have caused affected financial resources for this sanctuary and contributions from Georgia Aquarium and other environmental and wildlife organizations will be combined in a federal grant to keep Round Island operating.

Manta Ray
Georgia Aquarium's field research on the giant manta ray and the Caribbean (or Atlantic) manta ray in Florida has developed successful strategies for locating the animals, attaching satellite tags and tracking their migratory routes. The data obtained will help determine if the two manta species, which are listed as "Vulnerable" by the IUCN, have distinct biology or migratory routes throughout the region and can be used to inform management and conservation decisions in the relevant areas.



California Sea Lions
In 2015, Georgia Aquarium staff assisted stranding centers in California with the Unusual Mortality Event (UME) involving California sea lion pups. Thousands of pups were coming ashore emaciated and dehydrated due to dwindling food sources. Some of these pups from the UME stranded multiple times and were deemed non-releasable by the National Oceanic and Atmospheric Administration (NOAA); Georgia Aquarium was able to provide a home for some of these pups.

Green Sea Turtles
This project monitors the nutritional status of stranded green sea turtles throughout the rehabilitation process and develops a nutritionally complete diet that can be used for the long-term care of green turtles in human care. The researchers compare plasma biomarkers in rehabilitated animals to those in healthy free-ranging green turtles in order to make dietary modifications and develop new gel-based diets that will aid in the recovery process of green sea turtles in human care.

Coastal Georgia Manatee
Georgia Aquarium has teamed up with Sea to Shore Alliance and the Georgia Department of Natural Resources (GDNR) to conduct the first ever health and population assessment of the endangered manatees living in Georgia's Cumberland Sound. Researchers conduct aerial surveys, place satellite tracking tags on animals and perform health assessments on a small subset of individuals.

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PAST RESEARCH AND CONSERVATION EFFORTS

Sand Tiger Sharks
Georgia Aquarium researchers measured the health, stress, and nutritional status of free-ranging sand tiger sharks in Delaware Bay to gain better insight into the species' population decline over the past few decades.

Antillean Manatee
Aquarium staff members partnered with staff from the Puerto Rico Manatee Conservation Center to study diseases in stranded, endangered Antillean manatees.

Southern Sting Ray
Through research funded and organized by The Guy Harvey Research Institute, Georgia Aquarium researchers measured the health, stress, and nutritional status of southern stingrays at Sting Ray City, a series of shallow sandbars in the Cayman Islands. In 2014, researchers performed ultrasounds on female rays to detect pregnancy or ovarian activity, which was in turn, correlated with blood hormone levels.

Sea Turtle Conservation in Dominica
Georgia Aquarium has participated in a conservation program led by former conservation biologist Jake Levenson that studied leatherback and hawksbill sea turtles in Dominica. Tracking tags were used to learn about the migrations of these animals.

Sea Otter
Georgia Aquarium has worked with groups like The Alaska SeaLife Center and Monterey Bay Aquarium's Sea Otter and Research and Conservation programs to aid in the rescue of sea otter pups and provide a home in the southern sea otter exhibit in Georgia-Pacific Cold Water Quest.

Loggerhead Sea Turtle
Georgia Aquarium has worked with groups including the Georgia Department of Fish and Wildlife and the Jekyll Island Sea Turtle Center to aid in the rescue, rehabilitation and release of endangered loggerhead sea turtles off the coast of Georgia.

Right Whale
Georgia Aquarium has partnered with scientists from Woods Hole Oceanographic Institute in Massachusetts to monitor right whale populations, which migrate to Georgia's warm waters from the North Atlantic to breed.