Wildlife Conservation Society Progress Reports provide you, our generous supporters, with updates and insights on core conservation activities. Together, we are securing a future for wildlife and wild places.

WCS saves wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature.

WCS envisions a world where wildlife thrives in healthy lands and seas, valued by societies that embrace and benefit from the diversity and integrity of life on earth.
Sea Turtles Rebound in Nicaragua

The Wildlife Conservation Society is thrilled to report a dramatic increase in the nesting of Critically Endangered hawksbill sea turtles on the Caribbean coast of Nicaragua. We are now seeing the highest nest counts on record since WCS’s conservation project began in the Pearl Cays 15 years ago. The project’s efforts with local communities have seen poaching rates decrease by 75–90 percent in the areas monitored, depending on the year. The total nest count for hawksbill turtles in the project area has increased by an astounding 200 percent (from 154 clutches in 2000 to 475 in 2014). As a result, in 2014 nearly 43,000 hatchlings made it to sea.

The Hawksbill Conservation Project—initiated by WCS in 2000—reduces poaching and raises awareness of threats to the species, which is one of the world’s most endangered sea turtles. Before the project began, a preliminary study of the Pearl Cays showed that almost 100 percent of nests laid were poached and most eggs were removed for human consumption. Following the project’s inception, WCS began collecting formal data, deploying conservation interventions, and launching outreach and education activities to improve the awareness and perceptions of the hawksbill sea turtles in the area. In 2010, the Nicaraguan government declared the Pearl Cays a wildlife refuge. WCS played a vital role in the approval process for this designation and is currently pursuing implementation of a community-driven management plan. The Pearl Cays are now recognized as the largest remaining hawksbill rookery in the west-central Caribbean.

Our team in Nicaragua has also collaborated with local fishermen to develop an alternative livelihoods project; Kabu Tours, a community-based eco-tourism operation, was created to help the fishermen transition from participating in turtle harvesting to working in sustainable tourism jobs. Kabu Tours is now a government-registered cooperative to which WCS provides guidance and resources, with steadily growing tour attendance each year.

Since 2000, WCS Nicaragua has demonstrated remarkable conservation successes on the Caribbean coast. WCS has become the primary conservation NGO that local communities and government leaders turn to for advice and input on issues relating to sea turtles and the marine environment. The key marine habitats of the Pearl Cays and Nicaragua’s Caribbean coastal areas—corals, seagrass beds, mangroves, beaches, wetlands, and uplands—are in need of attention, care, and conservation action. WCS plans to scale up our marine conservation efforts in Nicaragua to bolster livelihoods, improve fisheries, protect corals, and secure marine protected areas. WCS
WCS Embarks on Global Marine Expeditions

WCS has a storied tradition of leading groundbreaking expeditions to the world’s most remote and wild places. These valuable missions uncover important scientific information about rare and intact ecosystems and their biodiversity.

As land creatures, humans have traversed our terrestrial surroundings for many thousands of years, leaving our oceans largely unexplored. WCS is currently undertaking marine expeditions around the globe to increase our understanding of these environments and inform how to best protect them.
Exploring Indonesia’s Forgotten Islands

WCS scientists recently set sail for Indonesia’s Forgotten Islands to study the area’s coral reefs and associated fisheries. Researchers were impressed and encouraged to find that the region was full of vast expanses of near-pristine reef conditions and a rich diversity of hard and soft corals.

Preliminary survey findings showed extremely healthy coral reefs, as well as the highest abundance of reef fishes recorded in Indonesia. Over 460 species of reef fishes and reef-associated species, including sharks, trevallies, and mackerels, were observed. The islands are teeming with economically valuable grouper and snapper species and the highly threatened Napoleon wrasse and bumpheaded parrotfish. This suggests the Forgotten Island reefs may be some of the best preserved and most resilient coral reefs in the Coral Triangle, an ocean region with the highest levels of coral and fish diversity in the world.

“The Forgotten Island reefs may be some of the best preserved and most resilient coral reefs.”

Collecting data from this expedition is the first step toward developing conservation strategies for the region, such as locally managed marine protected areas and fisheries.

Diving on Andaman Sea Reefs

WCS is excited to announce the upcoming launch of a new marine conservation program in Myanmar. The initiative will capitalize on WCS’s longstanding partnerships with government agencies; relationships with experienced Myanmar conservation staff; and global expertise in fisheries co-management, spatial planning, and engaging the oil and gas sector. We will work with government, the private sector, and NGO partners to transform management of Myanmar’s marine environment.

Earlier this year, WCS participated in a preparatory research expedition to the Andaman Sea, where WCS team members and partners had a chance to meet with some of the future leaders of marine conservation in Myanmar. The research team dove on reefs in Myanmar and nearby Thailand, observing marine species that we will monitor, study, and protect through the conservation collaborations to come.
Searching for Tanzania’s Whales and Dolphins

In late February, WCS scientists embarked upon a first-time assessment of dolphins and whales in Tanzania’s coastal waters. Led by Dr. Gillian Braulik, a team of 7 biologists explored a 3,000-kilometer charted course, including the islands of Unguja, Pemba, and Mafia. The crew spent six weeks aboard a research vessel recording all sightings of cetaceans (a species group including whales, dolphins, and porpoises). Species observed included spinner, spotted, humpback, and Risso’s dolphins, as well as the rare dugong (a relative of the manatee).

Tanzania is host to some of the world’s highest cetacean diversity, yet very limited research has been conducted to document the breadth of species, their activities, population sizes, or the threats they face. This WCS expedition is part of a comprehensive national census of whales and dolphins within Tanzania, with a goal of generating robust, quantitative baseline data of the country’s marine mammal communities.

A research team explores the Andaman Sea’s marine life (above). Biologists scout marine mammals aboard the Tanzanian research vessel (left).
Science has demonstrated that for overfished coral reef systems, restoring fish populations can repair critical ecological functions. This can aid in short-term reef recovery as well as in building resiliency to long-term threats like warming seas. However, it has long proven difficult to concretely define the precise densities of fish populations needed to support conservation strategies. Now, WCS scientists have helped identify a baseline for the fish population density needed to restore and maintain healthy coral reef ecosystems.

In a paper recently released in the scientific journal *Nature*, WCS researchers and partners determined that reefs with a fish biomass of at least 500 kilograms per hectare can maintain their ecological services, while also supporting carefully managed local fisheries. This quantity represents approximately half the amount of fish that would be expected on a pristine reef. The conservationists assessed fish populations from more than 800 coral reefs worldwide, including reefs within a number of WCS sites, and used these measurements to estimate recovery periods for both lightly fished and overfished reefs. Based on the data collected, scientific models predict that a moderately fished coral reef system can recover within approximately 35 years, while the most depleted reefs may take as long as 59 years, even with adequate protection.

Today only 27 percent of the world’s coral reefs are contained within marine protected areas. In the face of overfishing, pollution, coastal development, and climate change, establishing protected areas is a WCS priority worldwide, but this approach is not viable in all locations. This new study highlights the benefits of alternative fishery restrictions, including bans on specific fishing gear such as small-mesh nets and limits on herbivorous fish species. The analysis included comprehensive evidence that these methods, which balance reef recovery with local fishing needs, help maintain vital fish populations. WCS

Fish are the Answer to Reef Recovery
Whales are mysterious and iconic creatures that are among the most intelligent and social on the planet. They migrate great distances across oceans; one glimpse of the world’s largest animals inspires awe. Though strong, immense, and powerful, these giants remain vulnerable. While commercial whaling was banned in the 1980s, whales continue to face threats to their recovery such as ocean noise, ship strikes, coastal development, and the potential effects of climate change.

WCS is actively studying global whale populations and searching for conservation solutions to mitigate the many pressures they face. Science plays a key role. The first step toward creating comprehensive protection plans is for conservationists to understand the differences between whale groups and determine what areas, particularly breeding and feeding grounds, are most important for protecting the species. The WCS Ocean Giants Program is a recognized leader in these efforts and recently participated in four informative whale population studies that have deepened our understanding of these extraordinary marine mammals. The findings are providing essential science at a time when whales face growing threats from human activities.
Unique Humpbacks Found in the Arabian Sea

Scientists have made a striking discovery about the world’s most endangered humpback whale population living in the Arabian Sea. This small subset has been identified as the most genetically distinct of the species, and could also be the world’s most isolated whale population. The unique behavioral characteristics of this group also intrigued researchers. While humpback whales are renowned for completing the longest migration of any animal, these particular humpbacks are surprisingly non-migratory. Scientists also observed that the Arabian humpbacks have fewer barnacle scars and an absence of cookie-cutter shark bites, which are common on humpbacks found south of the equator. WCS experts hope the studies on this group may shed light on the environmental factors that shape cetacean populations worldwide.

To assess the origins of the enigmatic Arabian Sea humpback, the research team examined the DNA of tissue samples taken from 47 individual whales and compared these results to existing data from humpbacks in the Southern Hemisphere and North Pacific. The genetic results and divergence patterns indicate that the group likely originated in the Southern Indian Ocean, but has been isolated for approximately 70,000 years. This separation is likely reinforced by asynchronous breeding cycles, as Arabian humpbacks breed on a Northern Hemisphere cycle, while a neighboring humpback population located in the southwestern Indian Ocean breeds during a different season. The study also revealed that this group has low genetic diversity compared to other humpback populations.

The best current estimate of the Arabian Sea humpback population is that there are fewer than 100 individuals. With such a small population, threats like ship strikes and fishing net entanglements can potentially have a devastating effect. This research helps justify the IUCN’s listing of the population as Endangered and encourages further international recognition as an at-risk species.

Gray Whales Returning to the Atlantic

The tide of climate change effects is rising, and scientists are now seeing shifts in the migratory patterns of many species. This environmental response could be shifting the range of the North Pacific gray whale in an intriguing way. Conservationists believe climbing sea temperatures that clear ice-blocked areas may enable gray whales to re-enter Atlantic waters, where they have been absent for hundreds of years. Melting Arctic Sea ice is now creating paths through the Arctic, allowing these whales to enter into the Atlantic Ocean. Two recent sightings of gray whales in the Atlantic signify that this movement may already be underway.

To understand the origin of gray whale populations in the Atlantic, WCS scientists and colleagues conducted DNA research on ancient whale specimens. The collaborative study, released in early 2015, concluded that these animals once migrated between the Atlantic and Pacific Oceans during warmer periods of history in the late Pleistocene and Holocene epochs. These results offer a unique opportunity for scientists to discover how a species reacted to climate change in the past and to predict this behavior in the future.

Predictive habitat modeling used during the study indicates that with a continually warmer planet, gray whale habitat in the Atlantic could be available, but we do not yet know whether gray whales would return to the Atlantic in significant numbers.

Blue Whale Populations Defined

As part of blue whale recovery efforts, whale experts have long been interested in understanding how many blue whale populations exist in the Southern Hemisphere, including the waters of the southeastern Pacific. Recognizing how blue whales in Chilean waters interact with other populations of the same or related subspecies helps conservationists
and regulatory authorities devise more effective strategies for the protection of these unique ocean giants.

To investigate the genetic identity of these whales, the research team sequenced the DNA of 60 animals using biopsies collected from live whales between 2003 and 2009. The samples were then compared to existing data sets of whales in the eastern tropical Pacific, northern coastal Chile, and Antarctica.

The molecular analysis performed by WCS and conservation partners indicates that there are two distinct populations of whales. One population resides primarily in the waters of southern Chile and has a similar genetic composition to the blue whales of the eastern tropical Pacific and northern Chile. The other Antarctic blue whales were more distantly related. The Chilean populations are composed of pygmy-type blue whales, a subspecies slightly smaller than the Antarctic blue whales.

This study gives scientists critical insight into the population structure of blue whales in Chilean waters and will inform further research and conservation efforts. Long-term goals include establishing a network of marine protected areas to save blue whales, the world's largest animal.

Solving the Southern Right Whale Mystery

In October 2014, WCS participated in the first multi-institutional, international effort to track southern right whales off of Península Valdés, Argentina. The study was designed to locate the whales’ unidentified feeding grounds and determine whether these areas, or the migration routes to these areas, can be linked to the unusually high mortality within the species.

Over the last decade, southern right whales have died in unprecedented numbers in their breeding and nursing grounds near Península Valdés. Sadly, the majority of the deaths are calves younger than three months. Scientists have estimated that a third of all southern right whales in the Southern Hemisphere breed and calve in the protected bays of Península Valdés, yet the activities of the species outside this important nursery area remain unknown.

As part of the effort to assess threats to the whales, scientists affixed five whales with satellite tags to evaluate their movement patterns. The tags of two of the whales remained affixed and active for longer durations than any existing records for this monitoring. One of the whales now holds the longest known tag duration of a southern right whale mother, while a juvenile, Papillón, broke the
record of tag duration for any southern right whale. The information collected from the satellite tags has provided first-time data on the migratory routes and feeding ground locations of these whales in the southwestern Atlantic Ocean.

Preliminary results showed considerable individual variation in movement patterns that may be related to age, sex, and reproductive conditions of the whales. Some animals moved through a wide portion of the South Atlantic and visited multiple foraging grounds in search of various prey species. wcs will continue to tag additional whales in the coming years. The tagging data will be compared with southern right whale tissue samples to explore the correlation between genetic, behavioral, and environmental factors that may be causing the unusually high deaths within the southern right whale population.

Teaming Up to Protect Whales in the NY Bight
Starting in summer 2015, wcs will deploy new whale detection equipment in the New York Bight to identify and protect endangered whales and their marine habitats in the metropolitan area. wcs has partnered with the Woods Hole Oceanographic Institution on a joint venture to protect whales using new real-time monitoring technology.

The newly developed technology includes a digital acoustic monitoring buoy and wave glider (an autonomous underwater vehicle), allowing scientists to listen for and report whale calls to on-shore computer systems. The data collected will establish important baselines for whales, informing scientists and resource managers from New York State where they can find whales in order to study and better protect them. Eventually, wcs plans to integrate this information at the New York Aquarium’s exhibits and share it through digital engagement.

While there is considerable excitement about whales being observed seasonally in local waters, much remains unknown about their behavior in the New York Bight, an area of water that spans from Cape May, NJ, to Montauk, NY. Whales found in this area are potentially affected by ongoing and increasing human activities—some harmful, such as ship strikes and underwater noise from shipping and prospective energy development. Implementing new monitoring systems will advance our understanding of whale abundance, habitat use, and interactions with the diverse human activities occurring in New York waters. wcs
New York Aquarium Transformation Sees Major Progress

The dramatic transformation of the New York Aquarium is well underway. Since the 2014 groundbreaking, we are seeing exciting progress with major milestones in the construction of the new Ocean Wonders: Sharks! building.

Over the past few months, the Ocean Wonders building—the centerpiece of the transformation—has emerged and become a reality. All of the structure’s major exhibits are taking shape with their major components “roughed in.” The significant progress includes installation of three immense acrylic windows, which are important design elements of key exhibits: the Coral Reef Tunnel (shown above), Discover New York Waters, and Canyon’s Edge. These immersive galleries will bring to life WCS’s commitment to marine conservation around the globe and in New York. Construction has already begun on the third floor of the building which will house a state-of-the-art learning laboratory, and where visitors will find an ocean overlook with the best view in all of Coney Island.

The new Animal Care Facility is now complete. This 6,700-square-foot health center contains a 30-foot diameter pool and includes life support systems, seawater pretreatment facilities, as well as mechanical systems to support a full range of environmental conditions and water qualities. The facility’s life support systems are fully operational and ready to receive and treat animals. The significant technical improvements of the Animal Care Facility strengthen the Aquarium’s capacity to care for an even greater and more diverse collection of marine life, and to support the operations of Ocean Wonders.

As construction continues, the New York Aquarium is now growing its shark collection in preparation for the completion of Ocean Wonders. So far this year the Aquarium has acquired 17 new sharks: 6 sand tiger sharks and 11 brown sharks. These sharks are currently in the Aquarium’s renovated holding pools. They are becoming acclimated in these holding pools where they will be on exhibit until the grand opening of Ocean Wonders.

WCS continues to work with federal, state, and city agencies to rebuild those portions of the facility lost in Hurricane Sandy. We are moving forward with new exhibit interpretation which will feature climate change, resilient design, and marine field projects around the world. The Aquarium’s new learning environment will inspire a lifelong love of marine wildlife through play. WCS
Upcoming Events

Whale Watching Cruise
Tuesday, September 1, 12:00–4:00 p.m.
Rockaway, Queens

Unbeknownst to many New Yorkers, the waters surrounding the city are among the world’s most diverse and vibrant marine environments. An amazing abundance of wildlife and a fascinating geography lie just off New York’s shoreline.

On September 1, WCS is organizing a family whale watching cruise into New York Bight. This trip offers a unique chance to explore the NY Seascape and witness its impressive aquatic inhabitants, while learning from top WCS marine conservation experts.

Sip for the Sea
Wednesday, September 16
Central Park Zoo

On Wednesday, September 16, WCS will host the third annual Sip for the Sea to celebrate a commitment to marine conservation in New York and around the globe.

Sip for the Sea, a signature event supporting the New York Aquarium, is a celebration of marine stewardship, pairing sustainable wine and seafood offerings from some of New York’s top restaurants. This evening will provide an occasion to sustain the Aquarium and gather in appreciation of the wonders of the ocean.

For more information on these events, please email nyacampaign@wcs.org

Leading Global Shark Conservation

As apex predators, sharks play an important role in maintaining the balance of ocean ecosystems, but globally, a quarter of all shark species and their close relatives, skates and rays, are threatened with extinction. WCS is a leader in the conservation of sharks and rays in the New York Bight. The NY Seascape Program, based at the Aquarium, conducts extensive research on local shark species. Using acoustic and satellite telemetry, we are improving our understanding of sharks’ migratory pathways, site fidelity, and the potential importance of New York waters as nursery, foraging, and migratory habitat for these vulnerable and depleted species. Based on these studies we have recently identified possible nursery grounds of juvenile sand tiger sharks within Great South Bay, Long Island.

Public awareness and engagement is critical to efforts to improve the conservation status of sharks and rays. The new shark and local conservation-themed exhibits in the transformed New York Aquarium will reach a broad audience and inspire stewardship on behalf of sharks and rays locally and globally.
The Government of Madagascar has passed proactive legislation to protect the country’s rich ocean resources and the communities that rely upon them. In February 2015, the nation established its first shark sanctuary in Antongil Bay. The sanctuary is home to 19 species of sharks, a third of which have become severely threatened by unregulated fishing. These species include the great hammerhead shark and zebra shark. In an effort to reduce pressures on the fishery, international commercial boats are now restricted from fishing in the bay. The new law that established the sanctuary also legally empowers communities to safeguard their natural resources by granting them the exclusive use and management rights of local fishing areas. Already, communities have established 25 locally managed marine areas in Madagascar with wcs support.

wcs’s decades-long field presence in Madagascar has helped build the long-term strategic alliances, conservation projects, and scientific research that were essential to this successful legislation. The wcs Madagascar Program is eager to continue its work with the government to conserve Antongil Bay. Ambroise Brenier, Marine Technical Director of wcs’s Madagascar Program, said: “This pilot initiative will reduce coral reef degradation, improve abundance of endangered species of sharks, and sustain fisheries yields with long-term livelihoods and food security benefits thanks to restored fish stocks potentially reaching 100,000 coastal inhabitants living around Antongil Bay.”

Further strengthening its commitment to marine conservation, Madagascar later followed its earlier legislative action with the establishment of additional protected areas, doubling the size of the nation’s marine protected area network. On April 21, the Malagasy government granted permanent protection to 27 protected areas, including the country’s first 3 community-led protected areas: Soariake Marine Park in the island nation’s southwest, and Ankaarea and Ankivonjy Marine Parks in the northwest. The three marine parks are located along the west coast of Madagascar in what is known as the Mozambique Channel, home to the world’s second-most diverse coral population. Beyond protecting valuable coral reefs, the parks shelter vital nesting sites for marine turtles and critical habitats for endangered cetacean populations. Together with the government and local communities, wcs has worked in these three sites over the last five years to develop and establish a new model for marine protected areas in Madagascar using a community-driven approach grounded in scientific research.
As the world’s conservationists gathered in Sydney, Australia, at the end of 2014 for the IUCN World Parks Congress, the Government of Gabon announced the decision to create a marine protected area network in the country. These new marine parks will cover more than 18,000 square miles, or about 23 percent of Gabon’s territorial waters and the adjacent Exclusive Economic Zone.

This is a significant increase from the one percent of marine area previously protected by Gabon and will safeguard whales, sea turtles, and the other marine wildlife inhabiting the country’s coastal and offshore ecosystems. The new parks will prohibit any commercial fishing, except for within the Exclusive Economic Zone, which will be divided into community fishing zones, commercial fishing zones, and oil exclusion zones, where industrial fishing is not allowed close to strategic infrastructure.

The new network will protect more than 20 species of whales and dolphins, including humpback whales and Atlantic humpback dolphins. It will also safeguard four species of marine turtles, including the world’s largest breeding leatherback turtle population, and the Atlantic Ocean’s largest breeding olive ridley turtle population. Gabon’s waters are also home to more than 20 species of sharks and rays, many of which are threatened, including great hammerhead sharks, manta rays, whale sharks, and tiger sharks.

Gabon is the first central African nation to protect its marine resources with the establishment of a marine protected area network. The network will protect the country’s marine wildlife by curtailing unregulated and unsustainable fishing from the international fleets that exploit much of Africa’s coastal waters. It will also secure the livelihoods of the people of Gabon by ensuring fisheries are sustained for future generations.

In the days leading up to the World Parks Congress, the Government of Bangladesh also demonstrated great international leadership when it announced the creation of the country’s first marine protected area. Spanning approximately 672 square miles with a depth of almost 3,000 feet, the Swatch of No Ground Marine Protected Area (SONG MPA) safeguards many local marine species, including aggregations of Irrawaddy dolphins, finless porpoises, Pacific humpback dolphins, Indo-Pacific bottlenose dolphins, pantropical spotted dolphins, spinner dolphins, and Bryde’s whales. The creation of the SONG MPA—which borders the territorial waters of India—will promote discussions with Bangladesh’s neighbor on a potential transboundary protected area, which could help protect a greater number of species from threats such as entanglement in fishing gear and climate change.