

Corozal Bay Watch

Quarterly Report on SACD Activities Q3 | 2020

Inside this Issue

2

About SACD
Our mission, vision, goal, and how we got started.

3

Corozal Bay Wildlife Sanctuary Conservation targets: how we protect CBWS.

5

News and Events
Highlights of current activities and events we are undertaking.

8

Patrol boat perspective
Q3's summary of patrol reports.



About SACD

Vision

A healthy, biodiverse Corozal Bay Wildlife Sanctuary, in the larger northern seascape, that supports and nurtures communities and sustainable livelihoods.

Mission

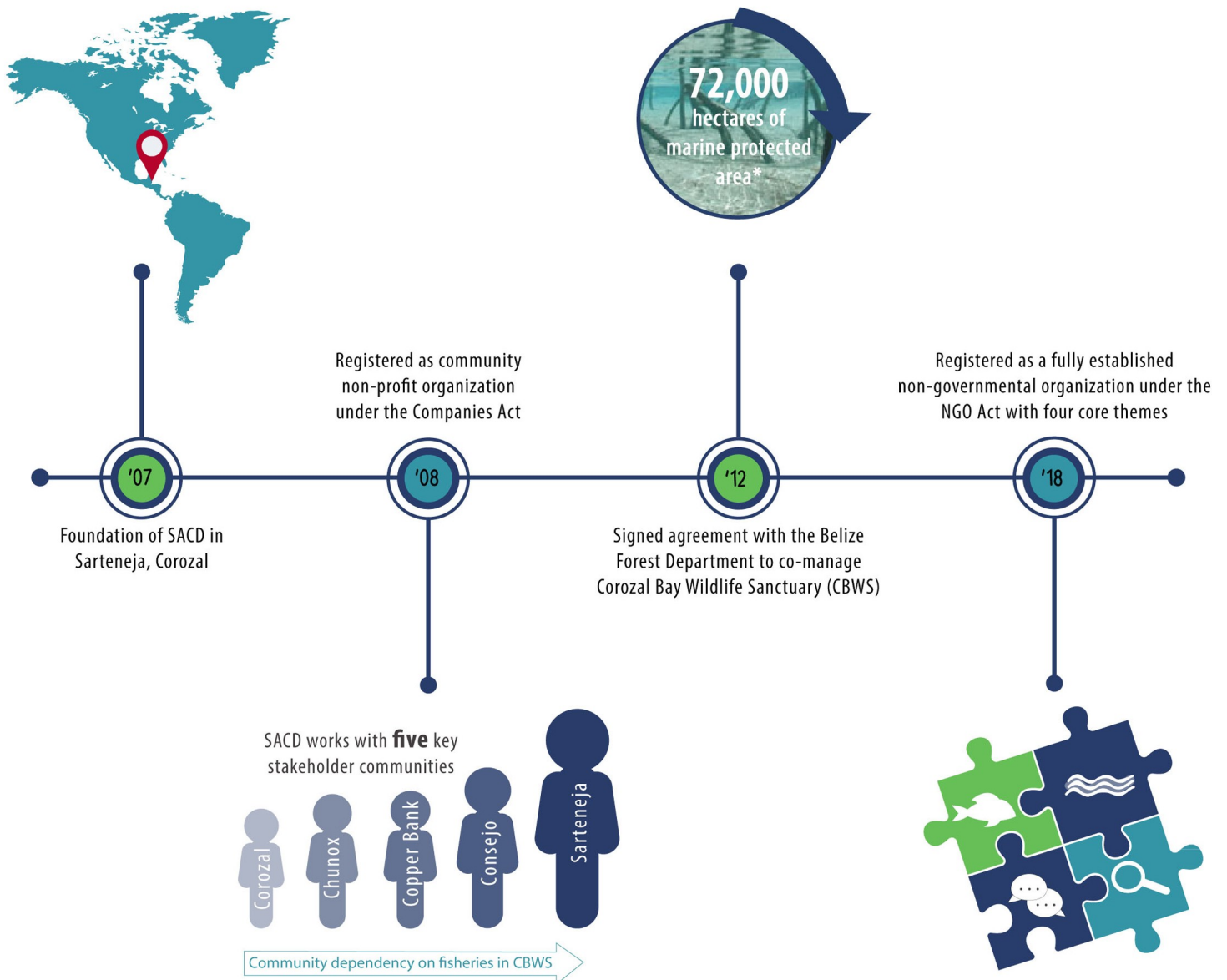
SACD, as a community orientated NGO, is dedicated to ensuring effective management and good stewardship of Corozal Bay Wildlife Sanctuary, in the larger northern seascape, in partnership with its stakeholder communities.

Goal

Promoting conservation actions that benefit biodiversity and people.



History



Corozal Bay Wildlife Sanctuary





Why is it important?

CBWS lies within the Northern Belize Coastal Complex (NBCC) seascape. Together with the Sanctuario Del Manati in Bahia de Chetumal, Quintana Roo, Mexico, it forms a highly biodiverse transboundary system. CBWS is part of an interconnected system that connects rivers to reefs and the ecosystems in between (mangroves, seagrass beds, and estuaries). The shallow waters provide critical habitats for the endangered Antillean manatee, as well as the bottlenose dolphin, both of whom use the area for feeding, mating, and calving. CBWS is the only recorded bull shark pupping site in Belize, also providing a pupping site for the bonnethead shark, and was once home to the smalltooth sawfish, now considered nationally extinct.






The surrounding coastline consists of mangroves and shallow lagoons which provide nursery habitats for a number of important fish species. Mangrove canopies create nesting and foraging habitats for numerous bird species, including several species of Egret and Heron. The mangrove coastline also plays an essential role in protecting the stakeholder communities of CBWS from storms and other extreme weather events.

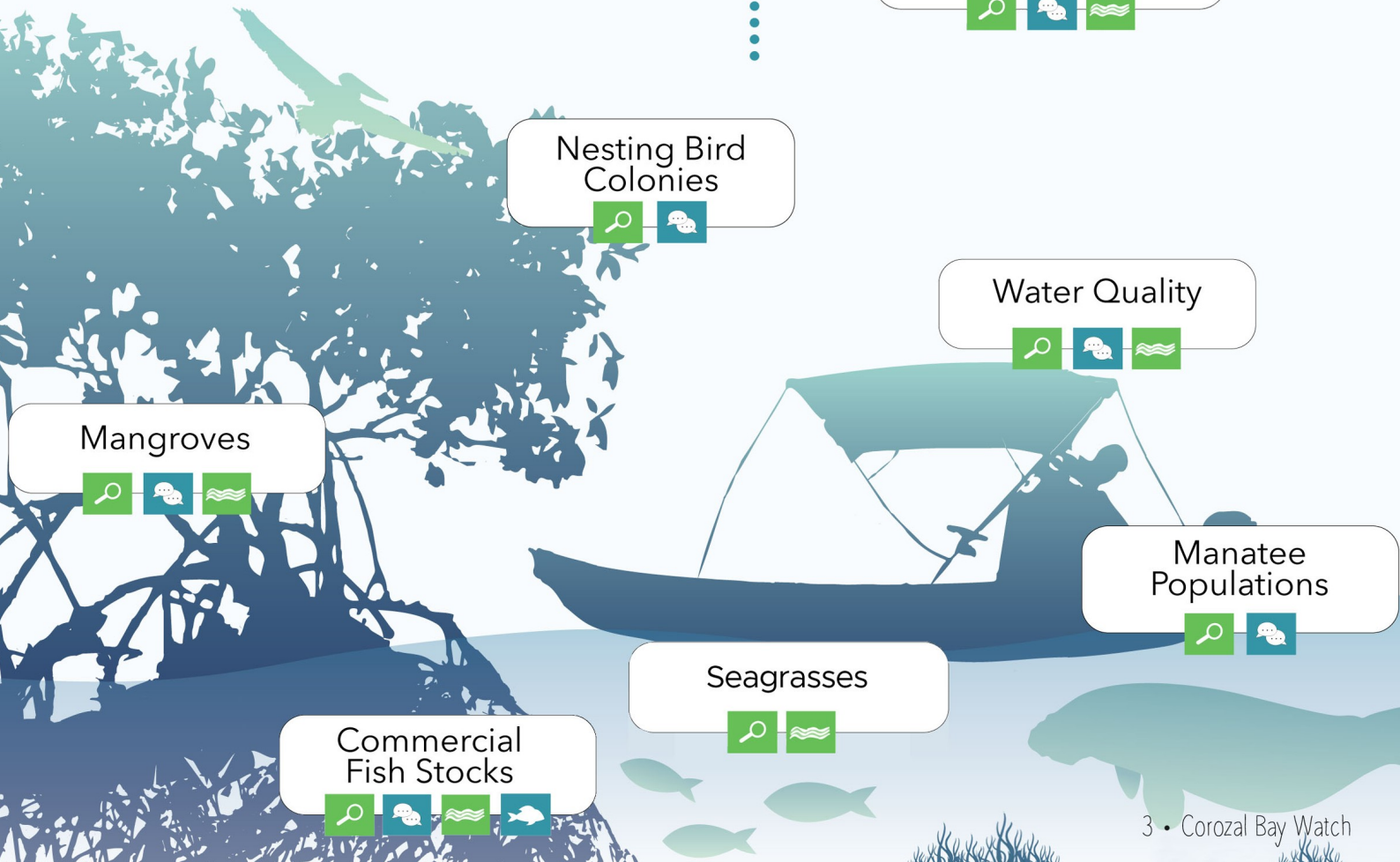
SACD has outlines four key themes to achieve conservation success through eight defined conservation targets - six of which are now fully or partially managed.

SACD Programme Themes

 Research & Monitoring	 Community Engagement & Stewardship
 The River to Reef Seascape	 Natural Resource Management



Future Conservation Targets

Sharks and Rays  
Stromatolites   





Nesting Bird Colonies
 

Water Quality
  

Mangroves
  

Manatee Populations
 

Seagrasses
 

Commercial Fish Stocks
   



Mangroves

Mangroves provide vital ecosystem services in Corozal Bay, as part of the larger river to reef seascape, through water filtration, protection of land from erosion, and creation of critical habitats.



Antillean Manatee

(*Trichechus manatus manatus*)

Corozal Bay Wildlife Sanctuary was established in 1998 for the protection of the Antillean manatee and has one of the most stable manatee populations in Belize.

SACD Internships

Our SACD Internship for 2020 was delayed by four months due to the COVID pandemic. However, SACD received 33 applications during the one-month that the advertisement/application process was open which ended on June 30th, 2020. This year we measured the number of people who applied for this position and we had a total of 17 males and 16 females who applied for the opportunity as an intern. Applicants interested in this opportunity were from all the districts of Belize - from Corozal to Toledo.

Ms. Mariani Verde, the first of four interns SACD intends to engage during 2020 and a resident of Sarteneja Village, attends Muffles Junior College and is completing her Associate Degree in Accounting. She was selected for the opportunity based on her qualifications and availability. She was involved in a one-month internship service under the Outreach/Communication Program assisting with the day to day planning and coordination. In addition, she improved her skills in customer services, presentations, and

event organizing. Her time and skills were also beneficial to SACD during these times of pandemic. SACD wishes Ms. Mariani the best in her future studies and hopes she continues with a positive future. We also thank Protected Areas Conservation Trust (PACT) for their great support towards the internship program, 2020. Look out for more about SACD interns in future editions of this newsletter!



Mariani Verde, "Being part of SACD has been of a great source for me to get along learning new things. I appreciate SACD for making me part of them in this short month."

SACD Summer Camp

During this COVID pandemic, we have had many challenges undergoing education and outreach activities; schools have been closed and large gatherings are not allowed for health and safety reasons. However, with all the necessary precautions, we were able to complete a successful three-day summer camp in Sarteneja.

There were 19 students that participated in the summer camp and were all from Sarteneja - the largest stakeholder community of Corozal Bay Wildlife Sanctuary. Students ranged from 8-14 years old in age and there were 5 females and 14 males. They all learned and enjoyed educational activities related to conservation.

Topics were tied to the students' school curriculum including: SACD, CBWS, mangrove ecology and ecosystems, identifying the three types of mangroves in Corozal bay, bird identification, and habitat disturbance & pollution including a garbage

collection. The need for this to be embedded in our new generation is important, especially for users of Corozal Bay Wildlife Sanctuary. At the end of the program each student was awarded a certificate of participation and a summer camp T-shirt for 2020. We had support from two community researchers and one intern that helped in organizing and implementing activities during the three days. The environmental summer camp was supported by the Protected Areas Conservation Trust (PACT) under its three years project with SACD.



Students from SACD's summer camp receive their certificates of participation.

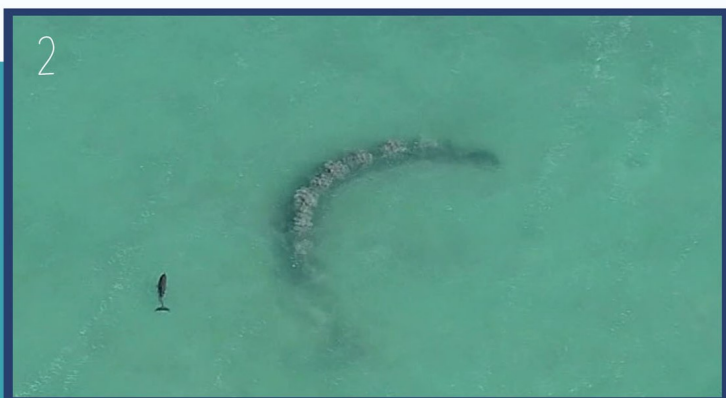
Lord of the (Mud) Rings!

The common bottlenose dolphin (*Tursiops truncatus*) is a gracefully powerful aquatic mammal. Intelligence and power combined have created one of the world's most successful predators, hunting around the world in all but its coldest waters. Using tools and different techniques to achieve success, it can hunt in warm or cold water, open ocean or shallow bays for a range of squid, fish, and crustaceans, adapting to whatever environment it calls home.



Mud ring feeding (MRF): the hunt begins as the mother bottlenose dolphin moves away from the calf and towards the school of fish.

One particularly resourceful technique used by bottlenose dolphins in Florida, USA has been termed 'mud ring feeding'. This is a hunting technique used by individual dolphins hunting for fish where the tail (or flukes) of the dolphin stirs up muddy substrate on the bottom of shallow bays and estuaries to create a 'mud ring' around schools of fish in the water. The thick wall of encircling mud causes the fish to panic.



Mud ring feeding (MRF): the mother begins to make the 'mud ring' while the calf watches and learns this complex behaviour.

Breaking ranks from the group, they flee in the only way they know how - throwing themselves over the impenetrable wall of mud into the air, and ultimately, into the jaws of the waiting predator and their doom!



Mud ring feeding (MRF): as the 'mud ring' closes the mother and calf start to dive in and out of the ring to capture prey.

Such a staggering display of intelligence was once thought to be isolated to this small population of Dolphins in the US. However, new research, thanks to our drone and aerial monitoring of Corozal Bay Wildlife Sanctuary (CBWS), has revealed that the dolphin population here is doing a remarkably similar thing. Has this technique been adopted in isolation to the Floridian dolphin population? Are observed differences more primitive or an evolution of the technique?



Mud ring feeding (MRF): dinner time is over and the mother and calf move away from the now collapsed 'mud ring'.

More research and time will hopefully reveal more, but for now we can all agree - we have some utterly amazing dolphins living in our bay!

Fishing: Then and Now

- how fishing in CBWS has changed (or not) over the last 1000 years!

In Corozal Bay, evidence of a well-established Pre-Hispanic coastal Maya settlement exists: Cerros Maya Archaeological site. The site is located in the Lowry's Bight area near Copper Bank Village in Corozal District. Cerros was known to be a port with monumental architecture from the Late Preclassic period that served as a trading post on the trade route between coastal and inland Maya settlements¹. Today, evidence of the traditional fishing techniques used by the Maya are still present in Corozal Bay, with a description of the J-shaped remnants of the stone beach traps.

These stone trap structures can be seen from above as outlines in the benthic sediment of the Bay. The Pre-Hispanic Maya stone traps display a "J" shape from which the traps are named. The J-shaped traps are constructed perpendicular to the shore with a stone wall that provides a fence guiding fish into an enclosure. It is composed of a tail that would start from the beach and would end in an enclosure, measuring approximately 300m in length. The diameter of the enclosures differed, measuring between 15m and 17m. An entrance is left between the intersection of the tail and the enclosure, designed in a way that fish could easily enter but would find it difficult to exit. The J-shaped Maya traps are thought to have been active and working between the Protoclassic and the Pre-Classical periods².

The J-shaped Maya traps are found southeast of Cerros, in the vicinity of Chunox and Copper Bank villages, with beach traps identified along the stretch of coast between Punta Alegre to Cerros Beach. A total of twelve (12) stone traps were identified and documented through images captured with a DJI Phantom Pro drone during the survey, with the closest situated approximately three miles from Cerros and the farthest at 14 miles near the tip of Punta Alegre. Currently these traps are non-functional, buried under the loose sediment and covered by the rising sea level.

Fishers from Sarteneja Village continue to use beach traps in Corozal Bay, similar in design to those of the Pre-Hispanic Maya, though made with modern materials and are now referred to as "Heart-shaped" traps. Local fishermen in the area are not aware of the origin of the heart-shaped beach trap but there is evidence suggesting that the trap was introduced to Belize in the 1930s by a Canadian on the islands of Ambergris Caye, Caye Caulker, and Caye Chapel and is referred to as the heart wired trap³. Another theory of the origin of the heart-shaped beach traps have been traced back to the Pre-Hispanic Maya period. Elders tell stories about early settlers discovering large mounds of rocks set as barriers for catching fish along the area of Lowry's Bight. The arrangement and structure of these barriers were supposedly copied using more modern materials by the early settlers. When the J-shaped Maya trap and the modern Heart-shaped trap are compared, there are remarkable similarities in architecture, construction, and fishing concept. It is these similarities, and discrepancy between historical accounts, that make the origins of heart-shaped beach traps in CBWS so difficult to identify.

¹ Freidel, D.A., 1986. The monumental architecture. *Archaeology at Cerros, Belize, Central America: An Interim Report*, 1, pp.1-22.

² Tísoc, M., Emiliano, R. and Andrieu, C., 2015. El intercambio del jade en las Tierras Bajas Mayas desde una perspectiva tecnológica. In *XXIX Simposio de Investigaciones Arqueológicas en Guatemala* (pp.1065-1076).

³ Craig, A.K., 1966. *Geography of fishing in British Honduras and adjacent coastal areas*. Louisiana State Univ., Coastal Studies Inst. Tech. Rept. 28: 1-143. Baton Rouge, Louisiana.



"...remarkable similarities in architecture construction and fishing concept" can be seen between the archeological Mayan "J" shaped beach trap (above) and the modern "heart" shaped beach trap (right) that is currently in use in Corozal Bay.

Working through a pandemic



Samuel Barrett -
Product and
Marketing Officer

“What should you expect when you immigrate abroad for work? While most people, I imagine, could predict having a dodgy stomach from the water or a touch of culture shock when moving 6000 miles across the world, not many could have predicted a global pandemic that would bring the world to a stand-still for most of the year!

As the Product and Marketing Officer, my role at SACD has been to promote tourism within the stakeholder communities of CBWS. This has been a new experience for me, being able to work in a creative role, having focused for so many years on pursuing science-based careers. It has certainly allowed me to grow and develop new skills I never would have considered myself to have any kind of natural ability for prior to this year. During these uncertain times, words cannot express how happy and lucky I have been to have been able to keep my job where so many have lost theirs. However, there have certainly been some ‘unforeseen challenges’ along the way: the dark spectre of COVID-19 that hovers over us all...

But there can be no bravery without fear, no triumph without adversity! Together - as a team, as a community - we will build something amazing.

Something that benefits everyone and protects all that is beautiful. Perhaps 2020 is not the year for tourism but the time will come, and when it does – we will be ready!”

Patrol Boat Perspective

- A summary of patrol reports

From July to September 2020, despite weather conditions, limited recourse, and the COVID-19 pandemic, the patrol team conducted a total of 43 patrols in Corozal Bay Wildlife Sanctuary (CBWS). As a result of the patrols, a total of 23 vessels were sighted and boarded with one (1) infraction encountered for prohibited or restricted gear (gillnet). Two (2) illegal gillnets were removed and confiscated for failure to register gill nets. The patrol team is working hard to maintain a strong presence in Corozal Bay Wildlife Sanctuary to ensure the protection of the protected area. Let us all protect and conserve our natural resources as many families benefit from the health of the Bay. Let us do it for us, let us do it for future generations, let us do it for Belize.



Can you help support SACD’s vision?

Visit our website to subscribe and find out more about the work SACD has undertaken over the last decade.
(www.sacdbelize.org)