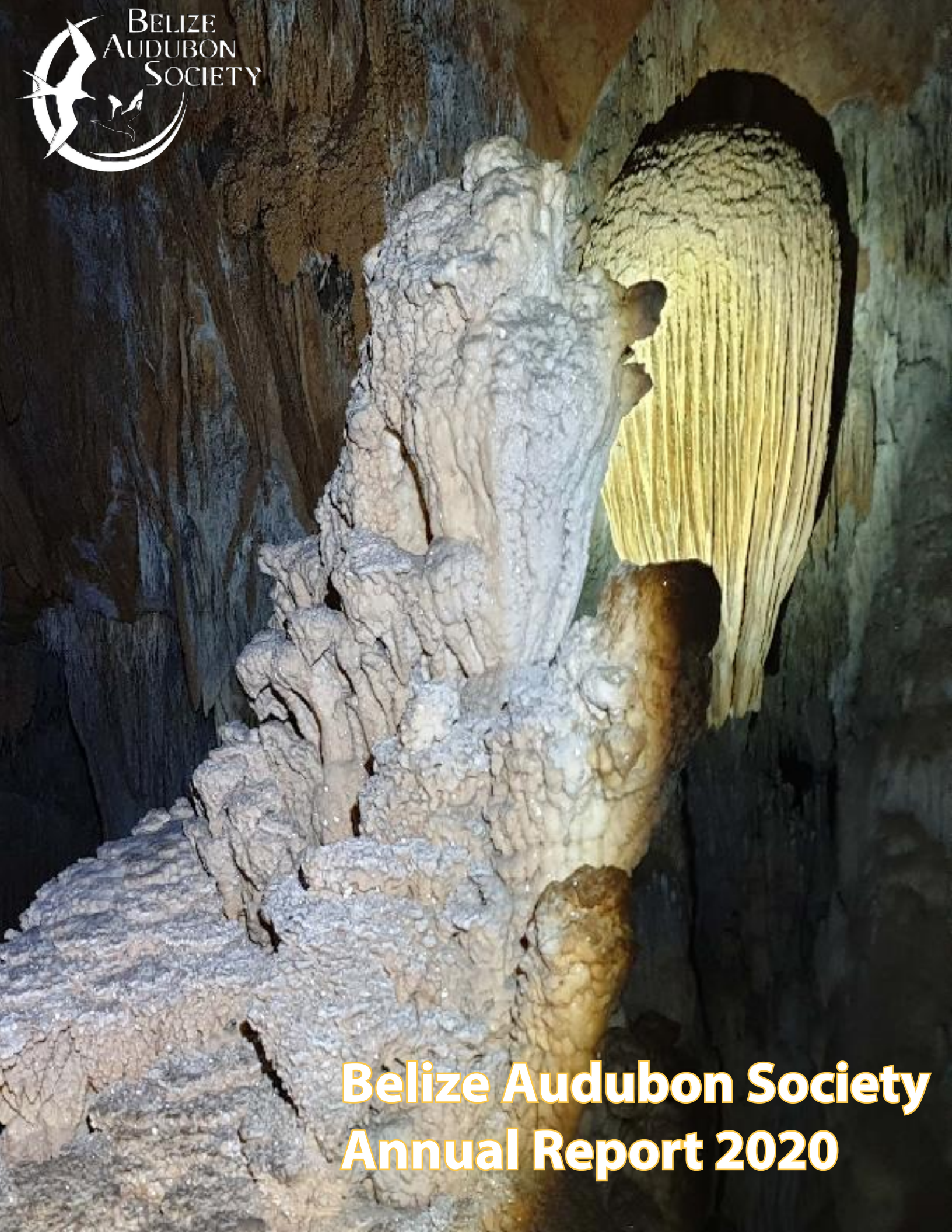


Belize Audubon Society Annual Report 2020

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Our Vision

The Belize Audubon Society (BAS) is a national conservation leader and development partner that inspires people to live in harmony with and benefit from the environment.

Our Mission

The Belize Audubon Society is a non-governmental membership organization dedicated to the sustainable management of our natural resources through leadership and strategic partnerships with stakeholders for the benefit of people and the environment.

Our History

The Society was formed in 1969 as a foreign chapter of the Florida Audubon Society and in 1973, became a completely independent Belizean organization.

BAS is the longest standing conservation NGO in Belize charged with co-managing seven of Belize's most biologically and topographically diverse protected areas. BAS helped establish Belize's first protected area at Half Moon Caye, and now co-manages seven protected areas in partnership with the Government of Belize.

BAS is a membership organization with an elected Board of Directors. It is a registered NGO under the Non-Governmental Organizations Act of Belize 2000, and is a member of several international organizations and local allies.

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PROUD MEMBER OF:

BirdLife INTERNATIONAL

IUCN

APAMO
The Voice of Belize's Protected Areas

Message from Board & Staff of BAS

"The oak fought the wind and was broken, the willow bent when it must and survived"
Robert Jordan, The Fires of Heaven.

Resiliency was key for the survival of Belize Audubon Society in 2020. The year started in drought; we were fighting fires by April, inundated by heavy rains in June, followed by a Hurricane in September, and ending the year with floodwaters. All of these while a global pandemic was occurring. Needless to say, 2020 was one of the most challenging years in the past decade for Belize Audubon Society.

The pandemic blew in like a hurricane shutting down our source of income, our parks, and our country in a matter of days. None of us expected it; none of us could have planned for it. From peak tourism season March 2020 to absolutely no guest for several months. BUT the work never stopped even though our gates were closed. We continued to conduct biodiversity monitoring and had to restratigize our environmental education outreach. The most affected activities were membership and citizen science (Urban Birdwatch, Global Big Day and Christmas Bird Count) and face-to-face environmental education activities. At the protected areas staff continued to maintain the trails and patrols, and to work behind the closed gates improving and preparing the sites to better serve our visitors.

We bent and contorted to the winds of COVID and we are here to tell the story. We can proudly say that at 52 years young, BAS is a strong institution. Our plans, our programs, our staff, our partners and donors joined together to allow us to weather one of the hardest years for not only us at BAS, but Belize our country. This year is a testament to our resiliency.

Kindly read through the 2020 annual report to get more details on all that we accomplished during these challenging times. The protected areas are now open and Gold Standard approved for visitation.

We invite everyone to experience and learn more about the work that goes into co-managing these seven protected areas and conservation in Belize.

And most of all we thank you, for supporting us!

BELIZE AUDUBON SOCIETY

Board of Directors

PRESIDENT
Ernest Raymond Sr.

FIRST VICE PRESIDENT
Mike Heusner

SECOND VICE PRESIDENT

FIRST SECRETARY
Rasine Gillett

TREASURER
Simon Reardon-Smith

DIRECTORS
Randal Taylor
Kevin Geban
Mariana Ancona
Janelle Chanona
Francis Canto Jr.
Lascelle Tillett
Virginia Burns-Perez

IMMEDIATE PAST PRESIDENT
Earl Green

Administrative Staff

EXECUTIVE DIRECTOR
Amanda Acosta

FINANCE DIRECTOR
Jose Luis Lopez

FINANCE COORDINATOR
Eric Swan

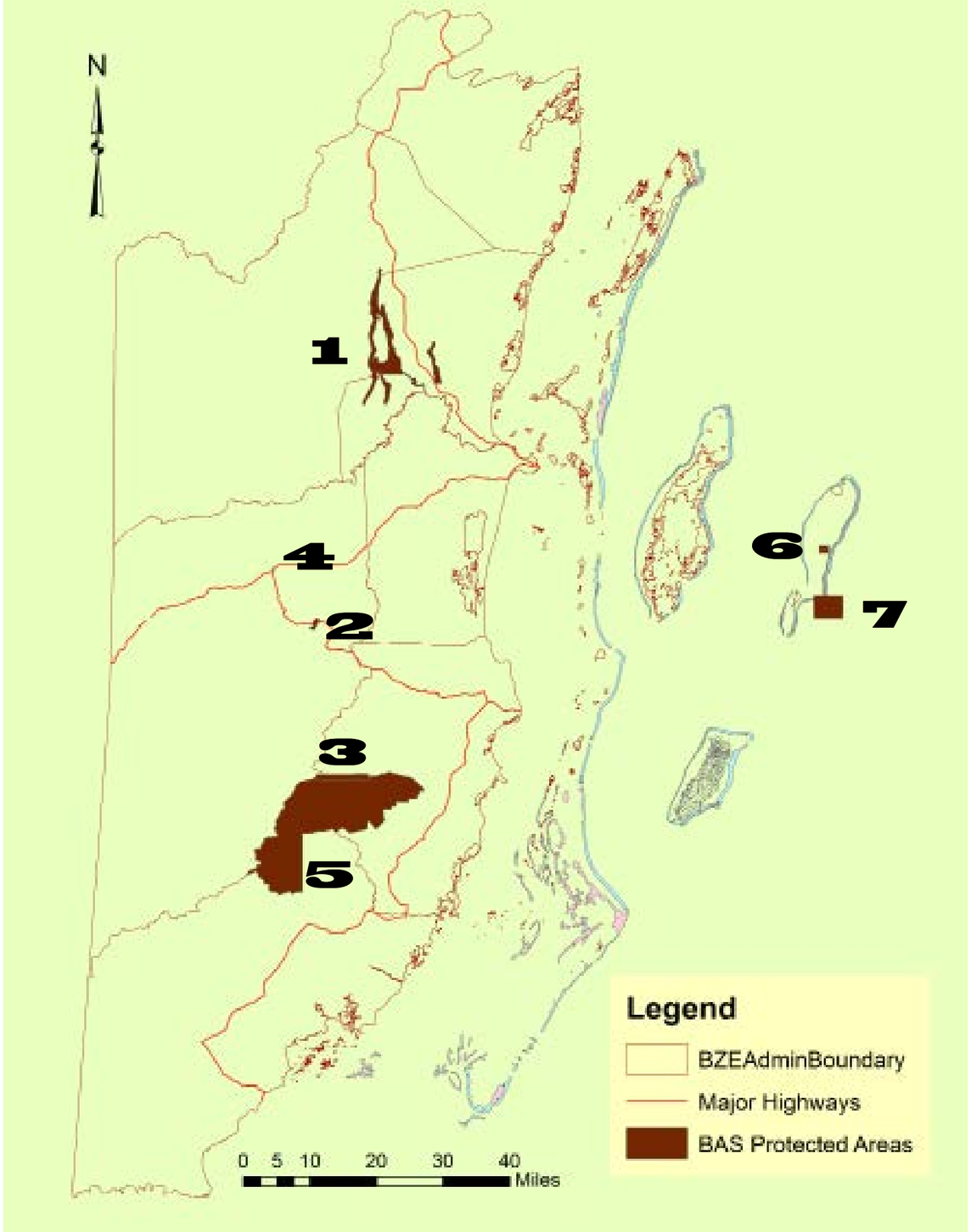
HUMAN RESOURCES COORDINATOR
Yael Perera-Bowen

MEMBERSHIP SERVICE MANAGER
Vacant

RESERVATIONS & GIFT SHOP COORDINATOR
Delia Noble

OFFICE ASSISTANT
Ryan Chan

Volunteer
Natalie Blachford



The BELIZE AUDUBON SOCIETY co-manages the following seven protected areas:

1



CROOKED TREE Wildlife Sanctuary

4



GUANACASTE National Park

2



ST. HERMAN'S BLUE HOLE National Park

5



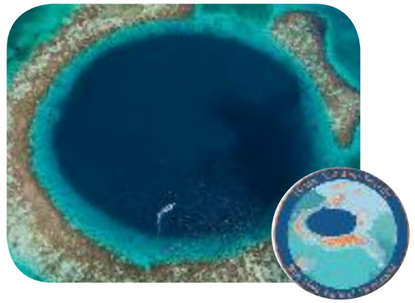
COCKSCOMB BASIN Wildlife Sanctuary

3



VICTORIA PEAK Natural Monument

6



BLUE HOLE Natural Monument

7



HALF MOON CAYE Natural Monument

MEET THE STAFF

TERRESTRIAL

Arvin Coc, Terrestrial Protected Areas Manager

Guanacaste National Park:
Steven Coc, Assistant Site Manager
Joshua Richards, Park Ranger
Michael Sabal, Park Ranger

St. Herman's Blue Hole National Park
Roberto Rivero, Albert Augustine Site Manager
Karyme Cabrera, Miguel Sho Assistant Site Manager
Abner Milian, Park Ranger
Transito Jimenez, Park Ranger
Edgar Batz, Park Ranger
Alfonso Baptist, Park Ranger

Cockscomb Basin Wildlife Sanctuary
Nicacio Coc, Site Manager
Lucas Coc, Assistant Site Manager
Albert Shol, Community Outreach Officer/Park Ranger
Emmanuel Saqui, Assistant BRM Officer/ Park Ranger
Mario Bolon, Park Ranger
Leonardo Chiac, Park Ranger
Salustino Peck, Park Ranger
Angel Pop, Park Ranger
Cayetano Pop, Park Ranger
Marcel Teul, Park Ranger
Martha Sho, Housekeeping

MARINE

Shane Young, Marine Protected Areas Manager

Half Moon Caye Natural Monument
Blue Hole Natural Monuments
Ramon Aguilar, Site Manager
Reinaldo Caal, Assistant Site Manager
Toby Moreira, Park Ranger
Gerian Garcia, Park Ranger
Glenford Usher, Park Ranger

Crooked Tree Wildlife Sanctuary
Derick Hendy, Site Manager
Steve Tillett, Park Ranger
Walter Perriott, Park Ranger

Biodiversity Research & Monitoring

Dominique Lizama, Conservation Programme Director
Tanya Barona, BRM Officer, Marine
Chang-Hong Tsao, BRM Officer, Terrestrial

Education & Communications

Dareece Chuc, Environmental Education & Communications Director
Justine Myvette, Roberto Rivero, (July 2020) Environmental Education Officer
Lucito Ayuso, Community Liaison Manager



Getting COVID-19 Ready!



The year 2020 was quite challenging due to the Covid-19 pandemic. The approach in executing site duties, implementing work plans and our outreach work all had to be adjusted due to the impacts of the pandemic. The team sprung into action to develop standard operating procedures (SOPs) to mitigate and prevent the spread of Covid-19 both at our main office and in the field.

New safety measures were put in place at these sites as required by the Government. These included, wash basin at entry points of each protected area, wearing of mask, and placing of signage to inform guests of the new safety requirements.



Wash hand basins placed at each site



Signage to inform visitors of COVID-19 control and prevention measures on site.

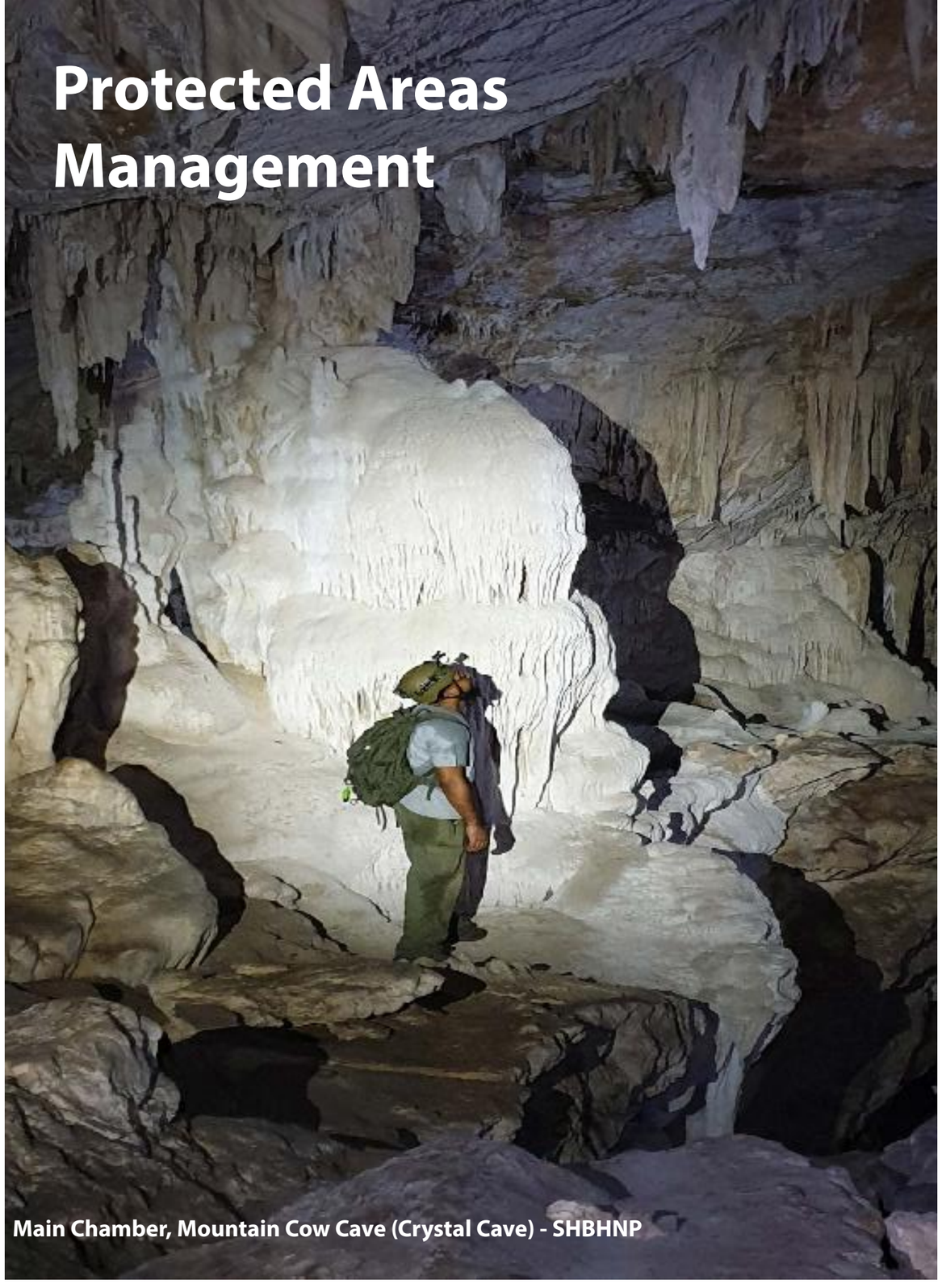
Park staff were trained on how to implement the SOP developed to control spreading of the virus among staff and as well when interacting with visitors.



The largest impact of COVID-19 was the closure of the parks and later very low visitation to these sites. In October, we were able to complete the requirements by Belize Tourism Board (BTB) for health and safety for the prevention and control of COVID-19 at all BAS sites. This resulted in our parks being officially, **Gold Standard Certified**.



Protected Areas Management



Main Chamber, Mountain Cow Cave (Crystal Cave) - SHBHNP

CO-MANAGEMENT DUTIES



ENFORCEMENT OBJECTIVES

1. **Maintain** presence around known hotspots for illegal activity.
2. **Scrutinize** hotspots and other signs of activity.
3. **Identify** hunter/fisher camps & other hotspots w/in site boundaries.
4. **Arrest** & prosecute individuals in illegal activities within sites.
5. **Maintain** presence and control of tourism activities at each PA.

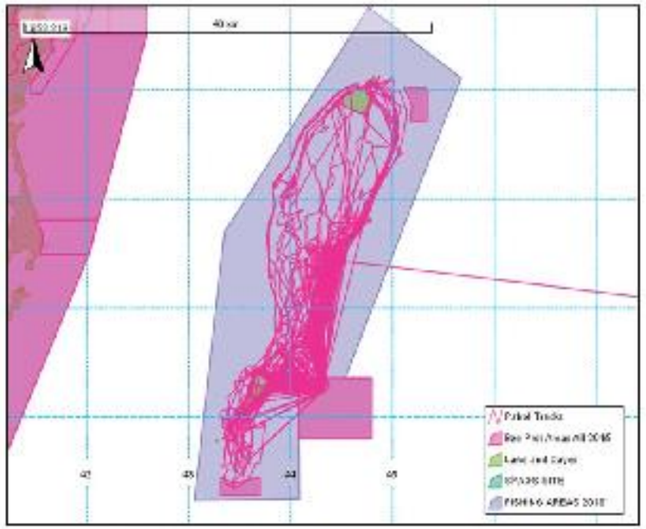
UPKEEP OBJECTIVES

1. **Maintain** trails and boundary lines within each protected area.
2. **Protection** of natural resources.
3. **Enhance** visitor experience by improving facilities and other infrastructures on site.

ENFORCEMENT: MARINE

HALF MOON CAYE & BLUE HOLE NATURAL MONUMENTS (HMCNM/BHNM)

This year was one filled with adversity however the commitment of BAS and its partners collectively worked to maintain the integrity of biodiversity of both Natural Monuments and the greater Lighthouse Reef Atoll. There was a significant decline in visitation to the two Natural Monuments in 2020; however during this time staff continued to conduct active patrols and boarding vessels for surveillance. Other tasks included, upgrading infastructure, assisting with reaseach and monitoring and the Reef Protectors internship (open water dive certification).



Map of LHRA showing patrol location and routes taken during 2020.



Ranger and Coast Guard on routine check of fishing vessel at LHRA

265
patrols conducted

ENFORCEMENT: MARINE



Staff conducting routine vessel boarding

Outcome of Surveillance and enforcement patrols

January 2020: A minor (under the age of 18) was issued a warning for engaging in commercial fishing without a valid fisher folk's licence

February 2020: Five persons were arrested for illegal fishing within Blue Hole Natural Monument – this matter is before the Court

August 2020 : One person arrested for illegal entry, illegal fishing within a natural monument, and possession of lobsters with tar spots – this matter has concluded before the Court; totals fines amounted to $5 ,140

September 2020 : Two persons were arrested for possession of conch during the closed season -this matter has concluded before the Court; total fine was $4,420

ENFORCEMENT: TERRESTRIAL

ST. HERMAN'S BLUE HOLE NATIONAL PARK (SHBHNP)

Staff conducted several patrols each month monitoring activities on park trails. During the year, several incidents of illegal activities which included illegal hunting, logging, and theft of camera traps on trails were reported. It was observed that these illegal entries was as a result of the pressures from Covid-19 where it is believed many of buffer communities residents suffered unemployment. Staff continued to monitor hot spots and known illegal entry points to mitigate illegal activities. As a result, rangers were able to detain and arrest two individuals who were caught within the protected area and suspected to be conducting illegal hunting. They were in possession of a firearm. Both individuals were taken to the Belmopan Police Station where they were charged for illegal entry and hunting within a National Park.

This year due to COVID 19 and park closure, limited joint patrols were conducted with Tourism Police Unit. However, one patrol was conducted with Special Patrol Unit (SPU) in December where it was noted that several Mahogany trees were cut and taken out from the park. Throughout the year they assisted the BR&M team in collecting bird data.



Remains of illegal logging of Mahogany trees at SHBHNP





43

Patrols conducted by staff & 1 joint with SPU

ENFORCEMENT: TERRESTRIAL

GUANACASTE NATIONAL PARK (GNP)

At GNP staff consistently conducted patrols within the protected area primarily for visitor safety and control. Police from the Roaring Creek Station continue to conduct their routine mobile patrols at GNP and assist staff to monitor the GNP trails. Limited joint patrols were conducted with Tourism Police Unit due to Covid-19 limitations and unavailability of police from the Tourism Unit. A total of 24 patrols were conducted with the use of SMART device. The most recorded infraction was the creation of illegal trails presumed for fishing followed by illegal trespassing. Throughout the year they assisted the BR&M team in collecting water level readings and bird data.



24

Patrols conducted

COCKSCOMB BASIN WILDLIFE SANCTUARY (CBWS)



Regular patrols continued through the year as part of the organization's mandate to maintain the integrity of CBWS. Most notable was one encounter where six individuals were found illegally hunting and fishing. They were arrested and charged for hunting and fishing offences; upon conclusion of the matter, they were fined $6,000.00 each. Total number of patrols conducted this year was 32. The most recorded infraction observed was illegal hunting followed by fishing.Throughout the year they assisted the BR&M team in collecting bird data.

6

charged with illegal hunting

32

Patrols conducted

MANAGEMENT: CTWS

CROOKED TREE WILDLIFE SANCTUARY (CTWS)

34

Patrols



Recognizing the recommendation provided by the stakeholders in the CTWS Management Plan, we continue to limit our enforcement activities to surveillance, recording and reporting.

Thirty four patrols were done within the CTWS. Coverage areas include: Crooked Tree Lagoon, Big Swamp, Nancy Bite, Black Creek, Mexico Lagoon, Jones Lagoon, Southern Lagoon, Spanish Creek, Western Lagoon, Calabash Pond, Alligator Pond, Western causeway, Northern lagoon, Eastern causeway, and the Chau Hiix Mayan Site.

Prevalent issues of logging, fishing, cattle roaming, and bush fire continue to be a challenge.



The staff at CTWS continue to provide visitor information and awarenes of the site. They also worked consitantly for the first 3 months of the year conducting environmental presenations to four buffer zone schools, Biscayne Government School, Crooked Tree, Carmelita and Hope Christian Academy of Rhaburn Ridge. Throughout the year they assisted the BR&M team in collecting water level readings and bird data.

STAFF TRAININGS

Although the pandemic limited the implementation of our normal and routine work, BAS was able to accomplish several activities particularly in the area of staff capacity building. These trainings are essential for improved management of our protected areas.



1. First Aid
2. Search and Rescue
3. Stress Management
4. Conflict resolution, team building, and budgeting
5. Bird Banding and PROALAS Methodology
6. Mammal Monitoring & Identification
7. Spational Monotoring and Reporting Tool (SMART)
8. Marine monitoring methodologies for commericial species (Caribbean spiny lobster and queen conch)
9. Open water dive certification (HMC rangers)
10. Effective communication for visitor managment





INFRASTRUCTURE & MAINTENANCE

Key improvements:

1. Repaired boardwalk on Limpkin Trail (CTWS)
2. Constrcution of strairs to improve river access (GNP)
3. Cleaning of river deck (GNP)
4. Cleaning of swim platform at Blue Hole (SHBHNP)
5. Installation of COVID-19 safety signs (all sites)
6. Clearing of Victoria Peak trail (CBWS & VPNM)
7. Construction of new bridges on the Antelope trail (CBWS)
8. Construction of bridge on plane wreck trail (CBWS)
9. Engine Repair (HMC)
10. Repair of 100 feet length of pier (HMC)
11. Repainting of bird obervation tower (HMC)
12. Repair of water tower (HMC)





Repairing to pier and water pipes at HMC



Repainting of Bird observation tower HMC

INFRASTRUCTURE & MAINTENANCE

Boardwalk repair (CTWS)



Engine Repair (HMC)





Bridge construction CBWS



Construction of stairs to river



Repair of water tower HMC



Cleaning of swiming platform SHBHNP

WEATHER EVENTS: FLOODING & HURRICANE



Flooding at GNP- November



Flooding at CBWS



Flooding at SHBHNP

Two flooding events as a result of tropical storms impacted four of our sites in 2020. The first flood occured in June and the second in November which later caused the extended flooding of the Crooked Tree Wetlands up until the end of the year. In September 2020, hurricane Nana winds caused fallen trees to disrupt travel in and out of CBWS. Park rangers and staff from all sites came together to clear the debris. After two days of hard work, the access road to CBWS was fully cleared and access was restored to the site. No significant damage to infastructure was reported.



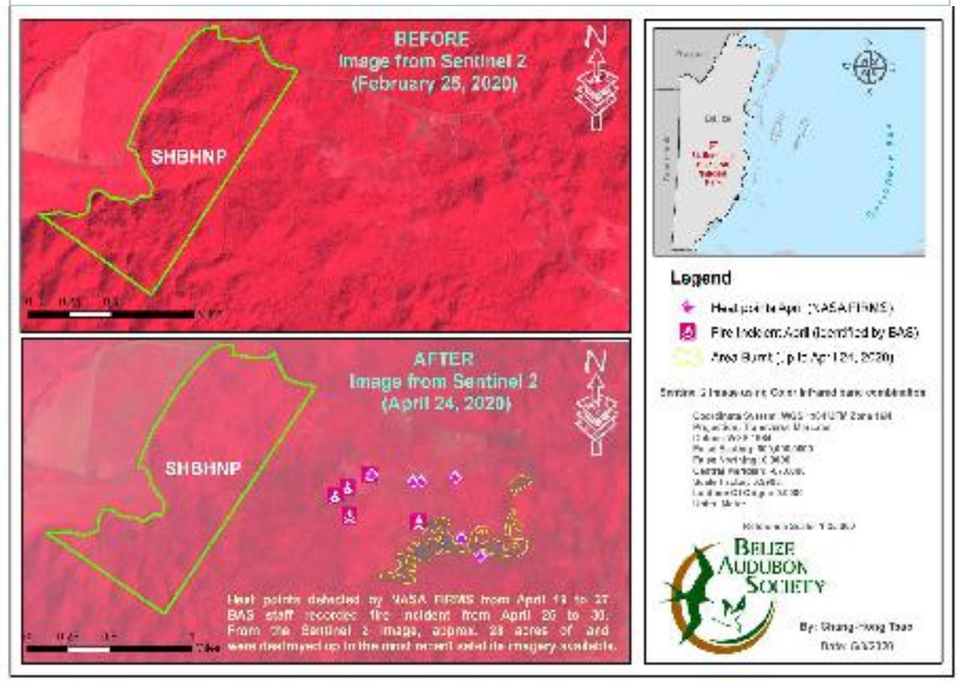
CBWS access road

FIRE THREAT



Forest fires have been a major challenge locally and regionally to both residential and protected areas throughout 2020. Locally in Belize, we did not escape this threat; our forest in various parts of the country primarily in central and the south had severe forest smoldering. In the Cayo District, there were consistent reports of forest fires which affected many private landowners and protected areas within this area. Staff at SHBHNP reported incidents of forest fire in private lands adjacent the south east boundary line of the park. Over a period of two weeks from the 21st of April leading into the first week in May six rangers worked tirelessly along with four private landowners to out these forest fires. The fires were finally controlled in early May 2020; this was complemented with some rains that suppressed the fires in this area. The BAS extends great gratitude to rangers who responded promptly to suppress these fires. With the training staff received and proper fire equipment, they were able to achieve this .

Map showing fires near SHBHNP in 2020





BIODIVERSITY RESEARCH & MONITORING

2020 was a year filled with the most uncertainty, having unprecedented societal, economic and environmental challenges due to COVID-19. Nevertheless, our programme efforts continued across our co-managed sites as well as other national areas of focus outside of our protected areas as biodiversity and ecosystem monitoring are conservation tools used to inform protected areas management. Highlighted here are the key research and monitoring activities.

We received zero scientific proposals from researchers interested in conducting research within the sites BAS co-managed sites due to national and international travel and health restrictions.

Marine Monitoring

Queen Conch Monitoring

The Queen Conch (*Aliger gigas*) continues to thrive within the boundaries of LHRA which is a prime nursery ground; however, this Convention on International Trade in Endangered Species (CITES) listed species remains as a highly sought-after marine product across its range. A harvesting season exists and runs for 9 months from 1st October to June 30th of the following year. However, the high demand often results in the illegal extraction of juveniles and the black-market trade which continues to threaten regional populations. 2020 marked the second year in a row the conch season was closed early, and the three extra months produced positive results in the fishery. The expected trend is for the number of conch to decrease when the season is open, but increase again when the season is closed. This cycle should continue to repeat itself yearly if fishing is sustainable. This was evident where the average densities as well as shell lengths up to the end of the closed season increased in both the General Use and Restricted zones of the LHRA.

The result is positive for the species, but not same for the fishery. The mean shell length was less than the legal-size limit of 178mm (7in.). Similarly, the lip thickness also increased by 1mm in both zones when compared to previous years; however, the average of all failed to meet the lip thickness maturity size limit of 12 mm for females and 9mm for males. This is an indication of a juvenile population. The 2020 post and pre-season surveys in the Atoll showed the preferred conch habitat was sparse seagrass, specifically in the Restricted Zones.



Sea Turtle Nesting

Turtles continue to nest on the beaches within the LHRA. Along the HMC south east beach, nesting activity was recorded during the nesting season for the three turtle species. Majority of the nests were found on this side of the island compared to the west (sunset beach). This year, there were no significant changes to impact nesting activity. Of the 21 nests recorded, full nesting data was only noted for 12 as the species for 9 nests were unknown.

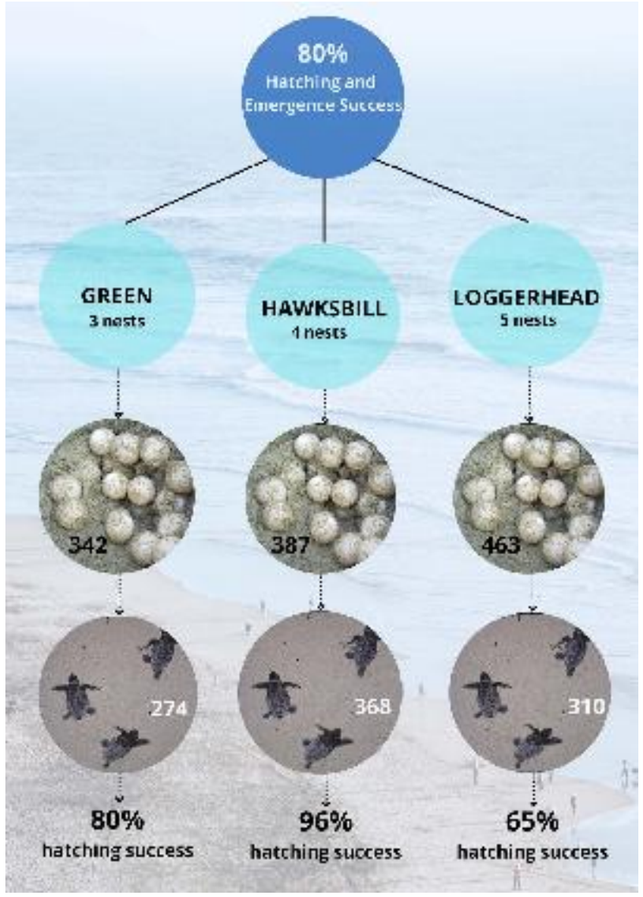


The highest total number of eggs was laid by the Loggerhead species however, the Hawksbill had the highest total number of eggs hatched, thus having the highest hatching and emergence success at 95.54%. Historically, this has not been the case; this species often exhibits the lowest success rate.

952
Total eggs hatched

21
Nests recorded during May - November

1192
Total eggs laid



Coral Disease



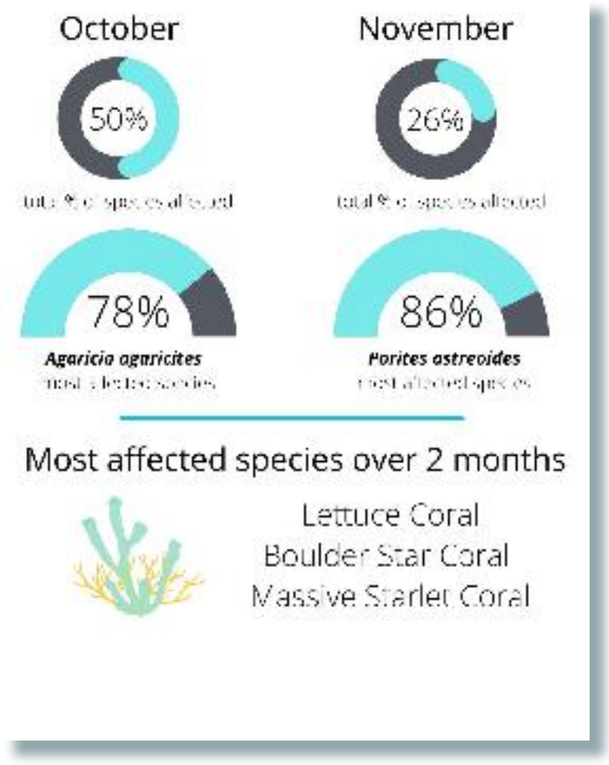
The lethal Stony Coral Tissue Loss Disease (SCTLD) was confirmed at LHRA September 2020 at the northern most tip just outside of the atoll. By the end of December, it had spread ~600m east of the "ground zero" site, but not significantly and remained outside the atoll. Coral bleaching sites were also assessed for species susceptible to SCTLD. Sites with the highest concentration of susceptible species are north, west and south of the atoll. This disease spreads quickly causing high coral mortality within 1 week to 2 months. In some instances, 60% mortality has been recorded in less than a month. The BR&M team will continue monitoring in 2021. For a full view of all affected sites in the region and Belize, visit agrra.org.

Coral Bleaching

Coral Reefs face many threats/stressors and coral bleaching, is just one. The zooxanthellae algae is expelled in response to stress and in the case of coral bleaching, it is often as a result of extreme heat.



At LHRA the most severe bleaching year to date is 2017 with 40% of all corals surveyed exhibiting either partial or whole bleaching. This year, only 19% of corals surveyed were affected in the same way. Monitoring was conducted October and November and it was noted that sampling sites on the north-west and west side of the atoll had the most affected corals than the east with the least affected species.

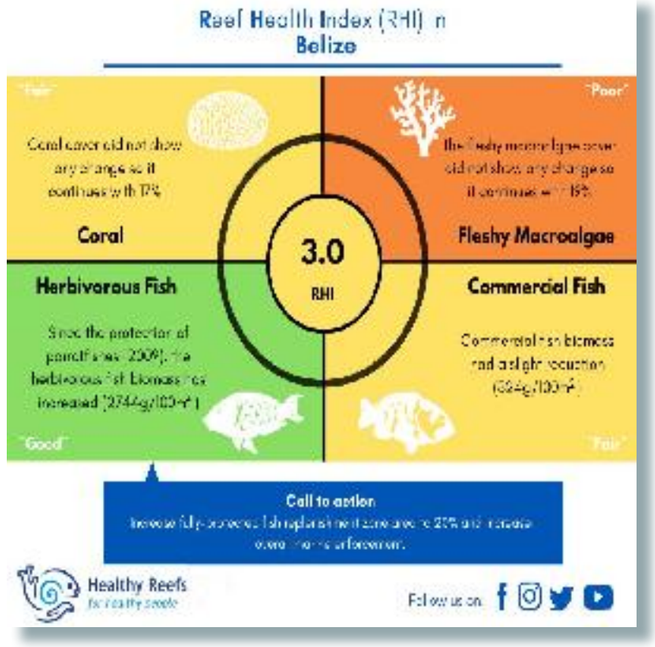


Results for October showed that areas with the most affected species, the percentage was generally greater than 50%, and *Agaricia agaricites* (lettuce coral) being the most affected primarily at the Aquarium site. In November, the percentage decreased at most sites with only 26% of corals being affected, except for those sites where *Porites astreoides* (mustard hill coral) was the dominant species and resulted in an adverse effect ranging from 62% to 86% of species being affected. Notably, Aquarium still showed a high occurrence of bleaching in November when compared to other sites.

In October 19 species were affected, but in November it rose to 23; however, only 3 species were severely impacted overall. In addition to these species, 3 species of brain corals (reef building spp.) were affected, but only 5% of sample size. Brain coral species are highly susceptible to SCTLD.

Coral Reef Health

Long-term reef monitoring also includes observations of the benthic composition and the reef fish diversity and abundance. Of the 10 sites monitored at the LHRA, 9 were surveyed this year. The 2020 Reef Health Index for Belize was 3.0 and LHRA achieved the same score landing the atoll in "fair" health. This is a steady increase from "poor" with a 2.3 score in 2015.



Benthic composition

Data collected focused on benthic species composition (diversity), condition, abundance, size-structure, and distribution of these communities. The mean coverage for each category was noted for each reef type. Of note, Crustose coralline algae is important for coral recruitment. The reef type with the highest live coral cover, crustose coralline algae, macroalgae and aggressive invertebrates was the fore reef, but recorded the lowest for biofilms/cyanobacteria & turfs.

	Reef Type			
Benthos	Fore Reef (%)	Back Reef (%)	Patch Reef (%)	Mean (%)
Live coral	23	19	13	18
Crustose Coralline Algae	15	8	10	12
Other Macroalgae	24	5	21	20
Aggressive Invertebrates	7	4	2	4
Other Invertebrates	3	4	4	4
Biofilms/cyanobacteria & turfs	17	37	22	21
Non-living	12	24	28	21

Reef fish diversity

A total of 3,679 fish were recorded during the 2020 survey. Summary results note that:

- Patch reef recorded the overall highest for fish abundance while the fore reef recorded the highest for species richness.

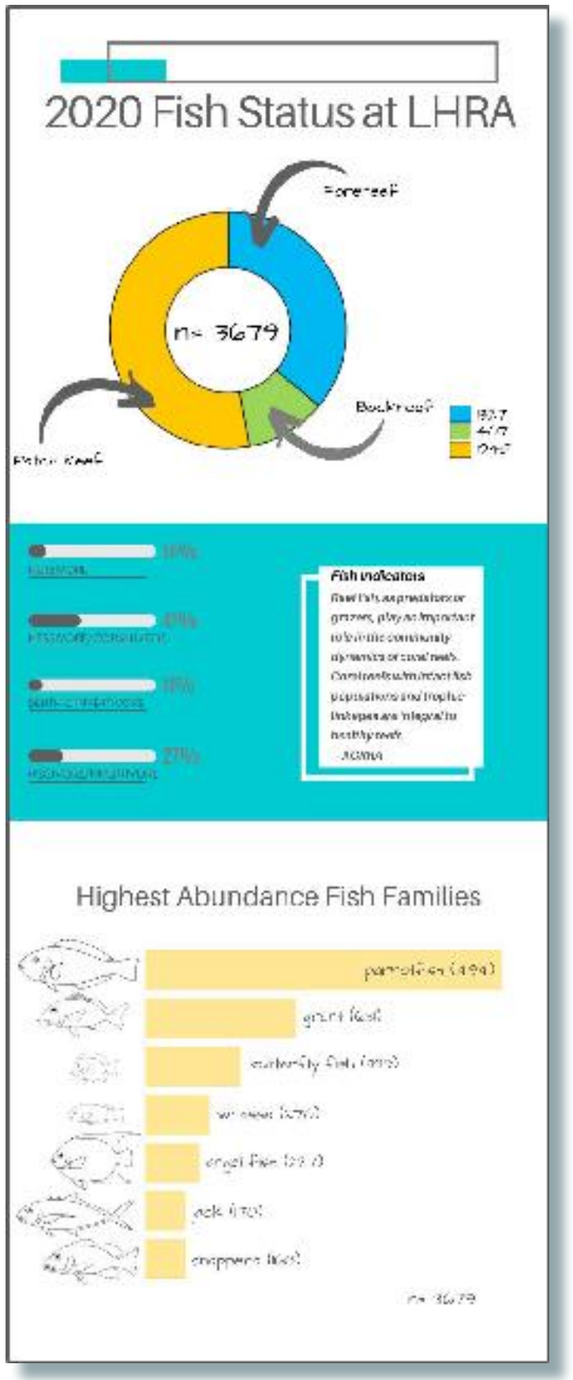
- The dominant size category (6-10 cm) was evident in all reef types with fish in the fore reef being the highest.

- Majority of fish documented were less than 20 cm in length. In the fore reef this represented 87%; 93% in the back reef and 94% in the patch reef.

- Very few fish over 40 cm were recorded in the back and patch reefs and less than 50 individuals being recorded on the fore reef.

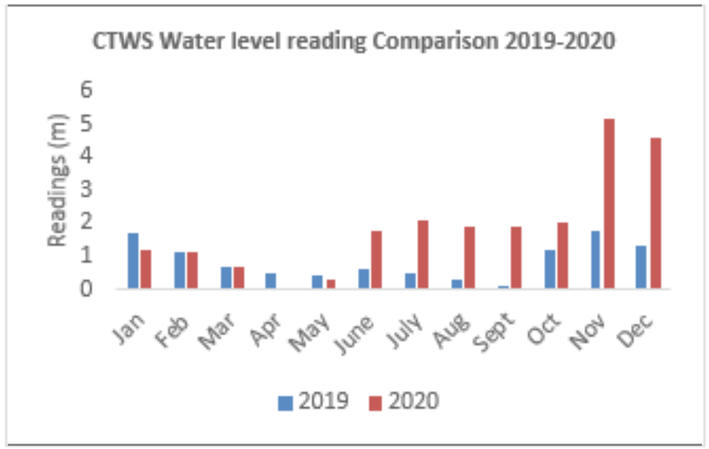
- Herbivores/corallivores (parrotfishes) showed the highest densities per hectare in the patch reef followed by back reef and fore reef.

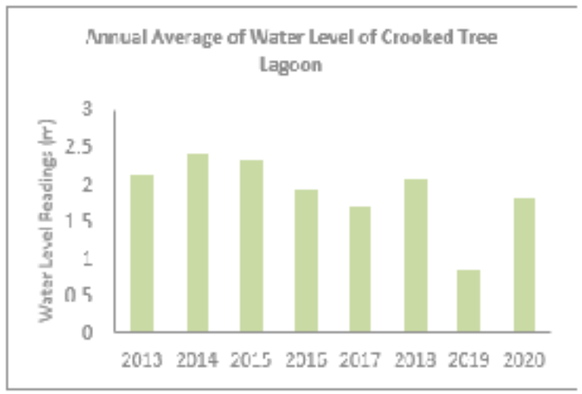




TERRESTRIAL MONITORING

CTWS Water Level Reading





In general, monitoring water levels can have numerous environmental benefits and particularly so for the Crooked Tree Wildlife Sanctuary, which serves as sponge for excess water overflowing from the Belize River during flood events. In addition, the fact that Crooked Tree Village sits on an island surrounded by the lagoon, makes it even more important for the Meterology Office and BAS to monitor the water levels as severe flooding events affect people and wildlife.

The first graph shows the comparison of 2019 and 2020 which corresponds with 2019 being a drought year and 2020 being one that experienced severe flooding in the last quarter. All readings starting from Jan 2019 fell below the 2m mark, particularly for months during the rainy season which normally ranges from 2m and above, while November and December recorded levels up to 5m. The second graph compares average water levels across eight years, again showing many of the years above the 2m mark and reiterating that 2019 was an unusually dry year.

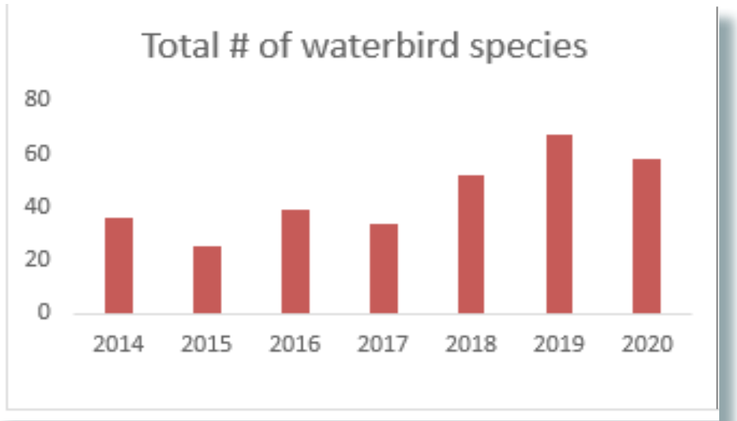




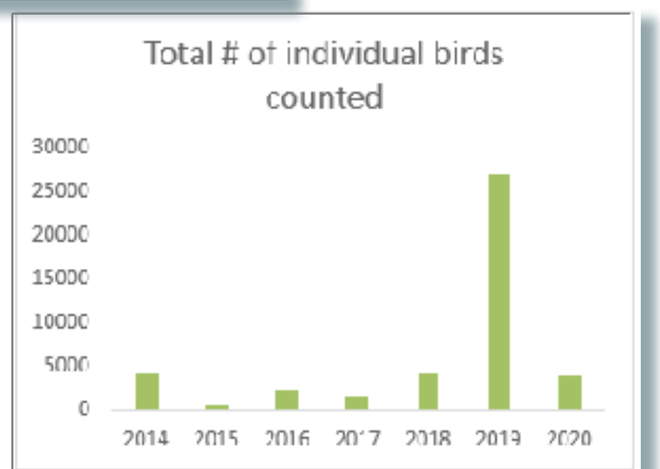
Bird Monitoring: Central American Waterbird Census (CAWC)



In 2011, the Waterbird Conservation Council, in coordination with Wetlands International and BirdLife International, launched the CAWC. The Belize Audubon Society as the BirdLife partner for Belize and co-manager of CTWS, participates in collecting the data in Belize. There are now four (4) general locations across three (3) main regions (north, central and south) in the country. Focusing just on Crooked Tree Wildlife Sanctuary-**central**, and looking at February being the month with the most consistent data across the years, 2020 fell below the 2019 record with only a total of 1,361 individuals from 32 species.



Results for the other locations yielded **north**-24 species & 728 individuals and **south** 39 species & 1769 individuals. 8 people assisted (BAS staff, staff of Sarteneja Alliance for Conservation and Development and expert birders).



Bird Monitoring: Monitoreo de Sobrevivencia Invernal (MoSI)

As a safe haven for migrating birds during their winter migration from North American to Central and South America, Belize is well poised as a winter destination! The MoSI season lasted from Nov 2019 to March 2020. This monitoring effort continues to be led by the University of Belize-Environmental Research Institute and supported by its partners like us for the different MoSI stations (Black Rock Lodge, Runaway Creek Private Reserve, Freshwater Creek Forest Reserve and Cockscomb Basin Wildlife Sanctuary). The Assistant Terrestrial Research and Monitoring Officer is a key member of the team based at CBWS.







Bird Monitoring: Point Count Methodology

The importance of birds in our environment and thus to humans, cannot be overstated. Birds serve as key indicators of environmental health and for BAS, it's an indication of the health of our protected areas—the forest, wetlands and waterways. Monthly point count monitoring within BAS's terrestrial protected have been ongoing for the last 5 years.



Geographic Information System (GIS) & Spatial Monitoring and Reporting Tool (SMART)

An important tool for monitoring biodiversity is a GIS. Our Terrestrial Research and Monitoring Officer doubles as our GIS technician. At BAS we use GIS for both marine and terrestrial components of the BR&M Programme and to support the Protected Areas and Environmental Education Programmes in producing maps and statistical reports. In 2020, he had the opportunity to attend many virtual trainings in GIS hosted by several partners. Two major outputs that would benefit us in optimizing our management effectiveness are the estimation of land use change and the classification of forest fire severity. BAS would be able to compare current data with historical data and adjust our management implementation to suit our needs based on our findings.

The trainings he participated in to enhance his skills in GIS and GIS related tools were:

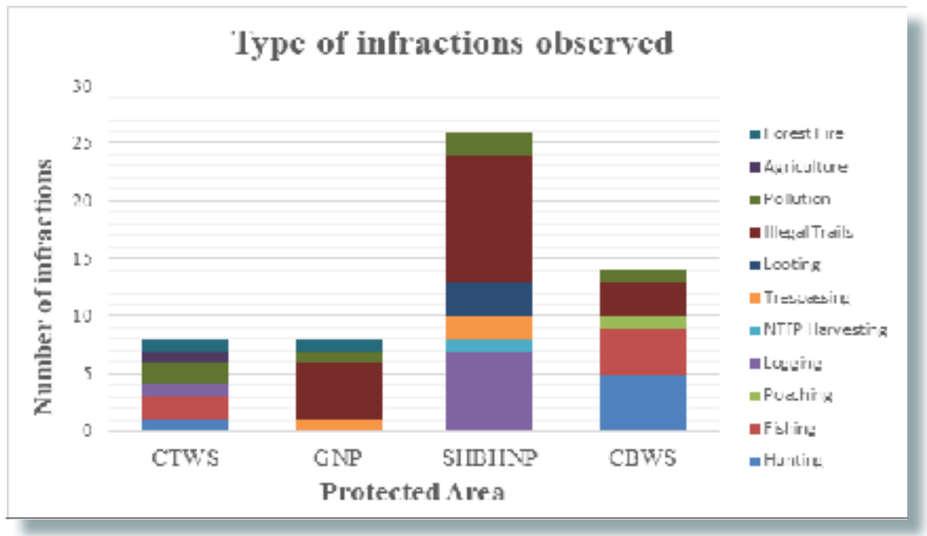
(1) Remote sensing in mangrove detection,
(2) Drone imagery analysis,
(3) Remote sensing technology to generate land use and land cover map integrating GIS and GPS tools,
(4) Belize Collect Earth desktop land use/land cover as sessment,
(5) Ecosystem monitoring using Collect Earth, and
(6) Fire burn scar classification and mapping.



As technology advances with SMART for natural resources management and biodiversity monitoring, we continue to set systems in place to become more proficient in the use of the SMART devices and generating reports. This year we focused on training for our Terrestrial Research and Monitoring Officer to be the Administrator/Data Analyst for the SMART data collected from the BAS protected areas as well as creating the data model for the terrestrial protected areas. Training was facilitated by Wildlife Conservation Society through funding from the GIZ Selva Maya project. SMART devices were donated as part of the training.

The protected areas programme uses SMART for surveillance and enforcement within its terrestrial co-managed protected areas. In 2021, the BR&M Programme will commence the use of the SMART device to enter biodiversity monitoring data. The below graph provide information derived from patrols carried out at BAS terrestrial sites using the SMART device in 2020.

Patrol data derived from SMART

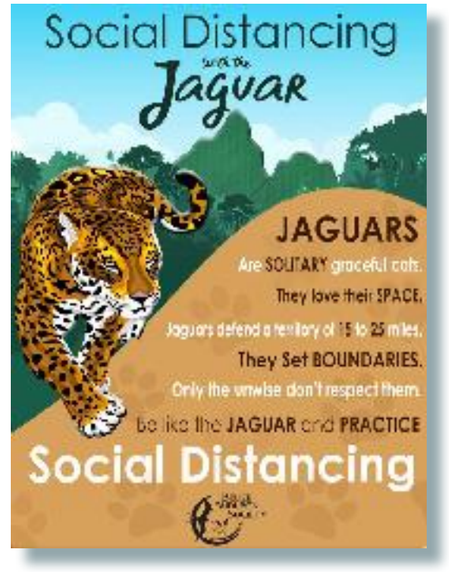




Environmental Education Programmme

ENVIRONMENTAL EDUCATION

Over the course of this year, our school outreach and all other face to face environmental education activities were suspended due to the closure of schools and safety regulations. We had to examine our outreach methods to restratigize environmental education activities.



In September we reached out to our buffer community schools (via teachers and principals) to get a better understanding their new distance learning apprach and to detion activity sheets. All ten schools we ususally engage for school programs responded positively, showing willingness to help BAS disseminate environmental education information to their students. They however indicated that school package pick-up rate was low, and that parents and students were less likely to use voice over internet tools such as Zoom Meetings for awareness, due to limited and unstable internet access.



With this information, the EE team focused on designing interactive lessons for dissemination to those schools. We started with the revision of our nature in the classroom curriculum and our Junior Birder student booklet.

During this period we used our in-house graphic design skills to create social media content and COVID-19 awareness signage for five protected areas in preparation for reopening.

OUTREACH & ENVIRONMENTAL EDUCATION PRESENATIONS

Between January to March , park rangers and staff continued with regular monthly school outreach.



Some of our classroom visits took us to Copper Bank primary school to talk about plastic pollution and marine ecosystems.

Armenia Governemnt school to present on protected areas in Belize (bottom left).

We also kept commitments with Centro Escolar Mexico Junior College, a school that has consistently partnered with us for marine ecology sesssions and for their annual field trip to HMC.

This year in November the Environemntal Education Officer and Biodiversity Research and Monitoring Officer (marine) went virtually into their marine ecology class to talk about marine ecosytems and the interconnectivity between them.



Junior bird club meetings continued with 9 buffer schools up to March of this year reaching over 200 primary school children.



OUR NATURE SCHOOL PROGRAM

It was a given that our nature school program would look different this year. Schools were closed and this particular program was specifically created for primary school aged children who visit five of our parks via structured school trips. As we consider the low number of nature school visiors for 2020, we remain grateful knowing that 1168 children who visited between January and March had a full-filling nature experience. We remain optimistic that the program will return to its full vigor post pandemic restrictions.



The noisy chatter and excitement brought on by school children was missed by the team of rangers at our protected areas who normally welcome over 6000 children annually.

PROTECTED AREAS OPEN DAY







In March a protected areas open day was organized by BAS' Community Outreach Officer (COO), enagaging teachers and students of United Community Primary School located in Santa Rosa and San Roman villages (buffer communities of CBWS). The idea for the open day came from the standard III students whom the COO was regualry visiting for educational sessions about the value of protected areas.

The entire open day was lead by students . They created models of the different types of protected areas in Belize which they used to teach the other students at their school about protected areas. A total of 32 standard III students were actively engaged through the open day and another 80-100 students who visited the booth.

REEF PROTECTORS (RP)

The limitations caused by COVID-19 slowed our very interactive Reef Protectors Program in the second half of the year. Still we managed to put safety measures in place and successfully completed our planned activities. We hope you enjoy the highlights below.

Program Goal: Raising awareness on marine protected areas through the implementation of a conservation-based, out-of-school educational program for youths.

Donor: Belize Marine Fund (of the MAR Fund)

Objectives:

1. Improve local awareness and stewardship of Belize's reef ecosystem
2. Introduce and provide practical experience in marine research and monitoring methodologies
3. Expose participants to career options alternate to fishing

MEETINGS & WORKSHOPS

The group of fifteen RP were kept engaged via Zoom Meetings over the months of April and May and in June they were officially awarded certificates for successfully completing one year of the program.



In late June, a workshop was held to reinforce lessons previously covered such as marine reseach and monitoring and climate change (with guest speakers from MarAlliance). The BAS environmental education and BR&M team jointly conducted the workshop for the RP.



FIELD TRIP





Over the weekend of March 9th 2020, our RP explored two of BAS'protected areas, SHBHNP and CBWS to learn on site about terrestrial reseach and monitoring; met up with local conservationist Monique Veron in Placencia to be inspired by her creative garbage bin project and visted Laughingbird Caye National Park to explore Fragments of Hope's coral nurseries while learning about marine conservation in action.

DIVE CERTIFICATION



Following the completion of the program in June, six of our reef protectors and 2 staff had the oportunity to gain their PADI open water dive certification at HMC.

INTERNSHIP



Two of this year's graduating RP were chosen for a two month emersive internship at HMC. Both Yahir Teck and Jason Awayo are sons of fishermen from Copper Bank village who fish at LHRA. During their internship, the young men enhanced their diving skills, and were introducted to conch data monitoring and reef health surveys. They also shadowed park rangers and assisted with some routine ranger duties such as cleaning of trails and beaches.

WORLD WETLANDS DAY



World Wetlands Day
2 February 2020

Wetlands and biodiversity

An educational fair was organized at the CTWS to bring together 4 buffer community schools to enjoy interactive educational booths on wetlands biodiveristy, ecosystem services and best practices to reduce single- use plastics from entering our precious waterways. Participants spent the day exploring the wetlands through a nature walk before ending this global celebration with a tree- planting activity of Logwood trees along the lagoon.

Seven school presenations were conducted in celebration of WWD 2020 to raise awareness on waterbirds and wetlands at schools around the CTWS, SHBHNP and CBWS and the Hopkins wetland and the Gra Gra Lagoon in Dangriga Town.

141 children & 13 teachers
Attended the event

BAS' Great Backyard Bird Count

The Great Backyard Bird Count (GBBC) is an annual citizen science activity for birders of all ages and experiences!

Between February 14-17th, we went out birding with 8 junior bird clubs and 2 Scout troops.
After learning birding basics, the children enjoyed 1 hour of observing and recording a checklist of birds seen. The checklists were submitted to birdcount.org. Each checklist helps researchers at the Cornell Lab of Ornithology learn more about how birds are doing and how to protect them and their habitat.





"Greening Across Belize- Earth Day"

Greening Across Belize is a BAS-initiated green movement to plant trees across Belize in commemoration of Earth Day on April 22nd of each year. This year due to the COVID-19 pandemic and social gathering restrictions, our annual community tree planting activities were cancelled. Nonetheless, the trees were distributed in the month of July at SHBHNP and GNP.

To show our commitment to good environmental stewardship, this year a special video was created with the assistance of park rangers sending Earth Day messages across our social media platfoms (Facebook, Instagram and Youtube). This video was especially important to demonstrate that park rangers continued to work and be of service to country during the State of Emergency.

400
Mahogany Trees distributed to the Public







Community Outreach & Development

COMMUNITY OUTREACH & DEVELOPMENT

Even through the unprecedented challenges of the COVID 19 global pandemic BAS continued to empower, mobilize and mentor local communities and other stakeholders to promote stewardship and garner support for its conservation work through sustainable resource use at the seascape and landscape level.



PROJECT

Project:
"Restoring Fisheries in the Mesoamerican Barrier Reef System."

Donor:
The European Union (EU)

Project beneficiaries: BHNM/ HMCNM stakeholders -- *Chunox*

HIGHLIGHTS:

1	278
Fisher Forums	Fisherfolk Engaged

23

Fisherfolk, women and youth trainned in financial management

SUMMARY OF RESULTS

The Boat to Boat (B2B) outreach targeting fisherfolk of LHRA raised awareness on the importance of managed access and fisheries regulations, as well as sharing information of fisheries data. The B2B continues to prove successfull for improved communication and intelligence gathering.

The Community Liaison Manager (CLM) and Marine Protected Areas Manager (MPAM) also collected data on the impact of COVID -19 on fisherfolk. The results indicated that most fishers experienced substantial financial loss during the months of April to June and only a few had access to the Government Aid.

Fisherfolk, women and youth benefited from a financial managemnt training to improve their capacities in business management skills to prepare them for future engagement in income diversification opportunities.



PROJECT

SUMMARY OF RESULTS

Project:

Improving communication and awareness with targeted stakeholder groups of CBWS.

Project Beneficiaries: CBWS stakeholders -- *Maya Center women's group & other buffer communities*

31 women targeted & 200 community members reached

Through the joint collaboration with UB-ERI, BAS and Maya Center Womens Group community consultations were implemented to initiate the process of developing a draft Memorandum of Understanding (MOU).

1.) A draft MOU was finalized charting a way forward between BAS and MCWG for improved communication and benefit sharing.

2.) House to house chats and school outreach were also conducted in Santa Rosa & San Roman and Santa Cuz to create awareness on the importance of CBWS and protected areas regulations.

ELEMENTS:







PROJECT

SUMMARY OF RESULTS

Project: ***"Developing organisational capacity for ecosystem stewardfish and livelihoods in Caribbean small scale fisheries (StewardFish)***

Donor: ***CANARI***

The **goal** of the Stewardship project is to empower fisherfolk organizations through fisheries value chains to engage in resource management, decision making and sustainable livelihoods.

Project Beneficiaries: NFO -- *Belize Fisheries Cooperative Association (BFCA)*

Through the project the BAS' CLM strengthened his capacity in mentoring and communication. He provided support and assisted with capacity building in key areas of organizational development to Belize Fisheries Cooperative Association the National fisheries organization (NFO) in Belize.

Key Results:

- An institutional assessment that identified the strengths, weaknesses and opportunities was conducted for further institutional strengthening of the NFO.
- A video depicting the challenges in small scale fisheries at LHRA was developed in preparation for an action plan that would promote stewardship for ecosystem services in Marine Protected Areas.

ELEMENTS:









Membership



James A. Waight Award 2020

Every year, Belize Audubon Society proudly presents the James A. Waight Award for conservation in Belize to a deserving individual or organization. Named after one of BAS' founding members and our first President, James A. Waight (1907-1999), the award recognizes positive work towards the protection and enhancement of Belize's natural environment.

As is tradition, the 2020 award was presented on 16 February, the birthday of James A. Waight. We are delighted to extend our congratulations to the 34th winner of the award, Ms. Ella Baron!

Ella is a stalwart in the conservation of Belize's flora and fauna, carrying our research to contribute towards public education, before creating the Caves Branch Botanical Gardens in 2008. Specializing in native epiphytes specifically, the Gardens now host the country's largest collection of orchids and bromeliads.





Acting as both an advocate and teacher, Ella has built a team 'from the ground up' who conducts environmental education in the local communities, creating gardening clubs at several elementary schools through the country with over 3,000 trees donated, and on-going workshops for their sustainable use.

Another of Ella's passions is the Tamandua of Belize – our anteaters. Ella is the only Tamandua rehabilitator in the country, where her home has been modified to house the injured animals until re-release. Ella founded the National Tamandua Rescue and Rehabilitation Center, managed and located at Caves Branch Jungle Lodge. To date, 17 tamanduas have been rehabilitated.

As a trainer, teacher, advocate of sustainable tourism, researcher, rehabilitator, and much more, Ella is a highly deserving winner of this year's James A. Waight Award. Congratulations from all at BAS!

51st ANNUAL GENERAL MEETING

Due to the global COVID-19 pandemic and the Government of Belize implementing State of Emergency measures to restrict gatherings to a maximum of 10 persons, Belize Audubon Society held its 51 st Annual General Meeting in September 2020 in a virtual format.



Through a scheduled series of email communications to the membership database (with 336 members in good standing as of the voting deadline), BAS was able to conduct all of the key elements of its AGM business as per its Articles of Association.

Members were first presented with the opportunity to put forward nominations for the seven vacant positions on BAS' Board of Directors, with online nominations open throughout August. None of the seven seats were contested, so the new slate was presented to members on Monday 7th September, along with the Society's 2019 Annual Report and 2019 Fiscal Report, for endorsement. With more than 70 members participating, the Society was able to exceed its quorum of 30.

The virtual AGM was concluded with an email to members to confirm the results with a breakdown of the votes, and a press release announcing the results published via BAS' social media accounts and sent to local media outlets.



Membership Stats

At the start of 2020 there weere a total of 296 memberships (in good standing). Throughout the year, there has been less of a focus on membership than pervious years due to limited financial resources, vacant membership service manager post and the COVID-19 pandemic preventing some of the usual in person events and activities from taking place. The active membership currently stands at 161. See table below for stats as of December 2020.

Membership statistics 2020

Active Members 01 January 2020	296
Active Members 01 December 2020	161
Increase/Decrease in Membership	-45%
Total Expired Members Jan Dec 2020	289
Expired & Not Renewed Jan Dec 2020	178
Renewals Jan-Dec 2020	111
New Members Jan-Dec 2020	41
Renewal Rate Jan-Dec 2020	38.4%

E-Communications

Staying connected through the pandemic was key!

Throughout the course of the year we relied heavily on the use of social media (Facebook, Instagram, Youtube, linkedIn) and mass email (using Constant Contact) to inform, engage and provide updates to our members, stakeholders and general public.









As of March, work was done to cleanse and update the membership database, hosted locally in an Excel format and updated to Constant Contact prior to any new email campaigns being sent out.

The membership email process has been documented and implemented, so there is now a regular schedule of renewal reminders and welcome emails, in addition to quarterly e-newsletters, the BAS Bulletin, and any other special announcements.



PUBLICITY





Feature article in the Belize Gold Book magazine



HMC used for APAMO ad

Exploring HMC & Blue Hole Natural Monuments

With a little window given due to more relaxed COVID-19 resitrictions, we were pleased to offer two one day trips to HMC & BH on July 19th and 25th, respectively. Both trips were sold out and gave visitors the opportunity to enjoy a part of the Belize Barrier Reef World Heritage Site.

140
guests enjoyed field trips to HMC & BHNP





PROJECT: European Commission

Project Title:
'Restoring fisheries in the Mesoamerican Barrier Reef System."

Donor:
European Commission

Partners:
Belize Fisheries Department, Toledo Institute for Development and the Environment, and Southern Environmental Association

Project Beneficiaries: Fisherfolk of **BHNM/HMCNM** fisherfolk

Activities for the Year:

1. Fishers forums
2. Boat-to-Boat sessions at Lighthouse Reef Atoll
3. Conduct patrols at Lighthouse Reef Atoll
4. Financial management training for fisherfolk

Continuation of fisher outreach via Boat-to-Boat sessions to promote the importance of Managed Access, gathering intelligence, raised awareness of fisheries regulations during open seasons.



Marine protected areas manager in discussion with fishers during Boat to Boat outreach at LHRA

HIGHLIGHTS:

ELEMENTS:

278 Fisherfolk Engaged

36 vessels encountered



PROJECT: BIOPAMA

Project Title: Improved Management Models at Four of Belize's Highest Priority Protected Areas

Donor:
Biodiversity and Protected Areas Management Program (BIOPAMA)

Activities for the Year:

1. Marine biodiversity monitoring
2. Partrols within HMC/BHNM and CBWS/ VPNM
3. Initiated data management system set-up
4. Development of communication plans
5. Project sensitisation

In July of 2020 we began to implement the BIOPAMA funded project. This project will build BAS's capacity to provide landscape and seascape models for effective management and serves as learning centers for other protected areas management organizations in Belize and the region. There will be a particular focus on improving management areas identified for strengthening through sharing of BAS experiences, successes and lessons learnt.

Biodiversity Monitoring: Marine monitoring activities completed between July to December were coral bleaching, assessment of sites for Stony Coral Tissue Loss Disease, conch surveys, and reef health. Terrestrial monitoring completed between November 2019 to March 2020 was the MoSI bird monitoring at CBWS.

Landscape and Seascape Enforcement: The goal of enforcement and surveillance is to mitigate illegal activity within CBWS/VP and HMC/BH . This is done through jungle and marine patrols as part of visitation management and control.

Communication plans and Local Advisory Committees (LAC): Work begun in 2020 on the review of literature and outreach/communication activities to determine the best approach to communication with targeted buffer communities of CBWS and HMC/BHNM. The resulting communication plans will identify stakeholder groups, their interests, most effective ways of communicating with them and establish structured LACs to ensure communication plans are being implemented.

Marketing package: A five minute video featuring a day trip to CBWS was produced and used for a virtual tour of southern Belize featuring CBWS as a destination. The video will be further imporved and used as one of the products for a marketing package for tour operators .

PROJECT: PROTECTED AREAS CONSERVATION TRUST

Project Title: Improving the management of BAS co-managed protected areas.

Donor:
Protected Areas Conservation Trust (PACT)

Partners: Forest Department & National Biodiversity Office (NBIO)

Activities for the Year:

1. Community engagement and investment strategy plans completed for SHBHNP and CBWS
2. Socio economic survey completed for CBWS and SHBHNP
3. Research and monitoring plan & training manuals completed for both marine and terrestrial sites
4. Trainings in research and monitoring methodologies conducted for staff and key stakeholders
5. Signs were developed for SHBHNP
6. Kitchen and conference room architectural designs were developed
7. Tourism officer hired







PROJECT: Vulcan Materials Company

Project Title: Vulcan Materials Company Environmental Assessment

Donor:
Vulcan Materials Company

Partners: University of Belize Envrionmental Research Institute (UBERI) & Southern Environmental Association (SEA)

Activities for the Year:

BAS was hired as in-country project manager for Vulcan Materials Company and to lead or assist in carrying out envionmental assessments with our partners.

1. Under **SEA's** consultancy our BR&M staff led the beach profile assessment.

Data collection was conducted Feb to July (except April) onthe beach along the White Ridge Farm Property.

Across all sites, the general profile exhibited a berm dominated by beach grass in the backshore region. This area remained relatively stable from one month to the next, with constant elevations; however, shifts in its length were observed.

Areas along the beach had evidence of erosion, barriers (boulders and rocks), vegetation clearing and other areas had sufficient berm for the 3 endangered sea turtle species, particularly Hawksbill turtle that nest there.

Recommendations were made to the company focusing on awareness campaign, replanting, funding sea turtle monitoring, continue beach profiling studies, best practices for coastal development in respect to sea turtles, and considering cumulative impacts dredging can have on the entire marine ecosystem, as well as beaches and to ensure implementing mitigative measures before, during and after dredging activity.

2. Under **UBERI's** consultancy our staff assisted as bird experts.

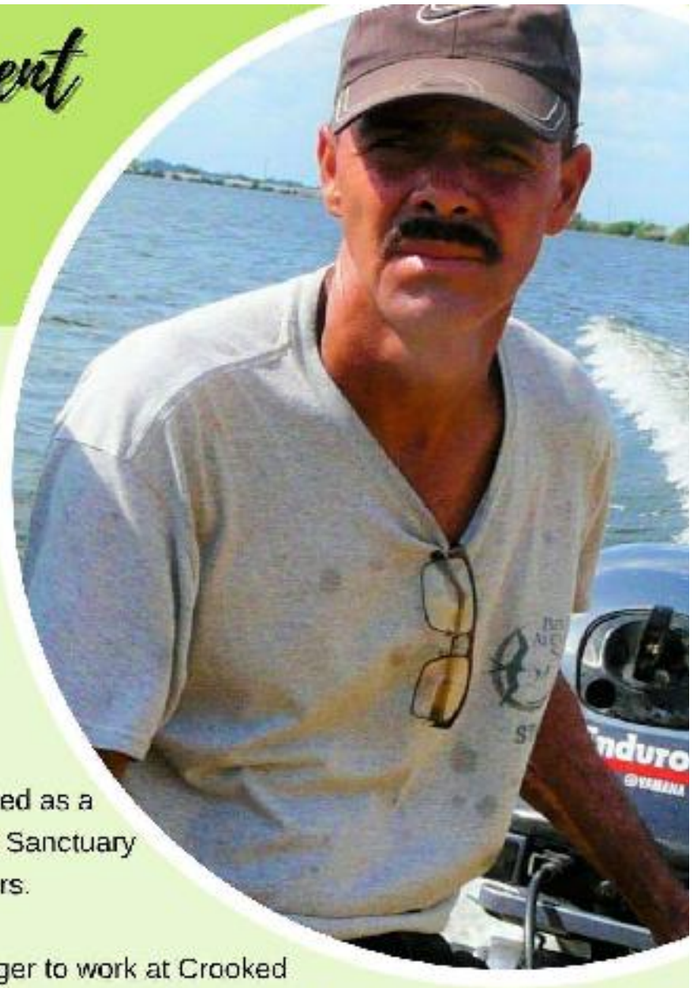
Data collection was conducted Feb, May and Sept at Sugar Hill and the Western Hills.

Preliminary Results :

- Opportunistic birding= 219 bird species across 52 bird families
- PROALAS protocol=119 species across 36 families
- The team also did an expedition in the rugged hills of the area
- Savanna habitat type produced the highest diversity/richness of species and families
- The Sugar Hill was highlighted to be important for migrants when compared to other sites, but further studies need to be conducted to be definitive
- Western Hills was highlighted as important for resident birds
- Field efforts were hindered due to several incidences of inclement weather, thus monitoring will resume in dry season of 2021.

Happy Retirement

BAS' LONGEST SERVING RANGER



"I will only truly retire from BAS when I meet my maker."

Steve

This year, Belize Audubon Society says goodbye to not only the longest-serving member of its staff, but the longest serving park ranger Belize has ever had!

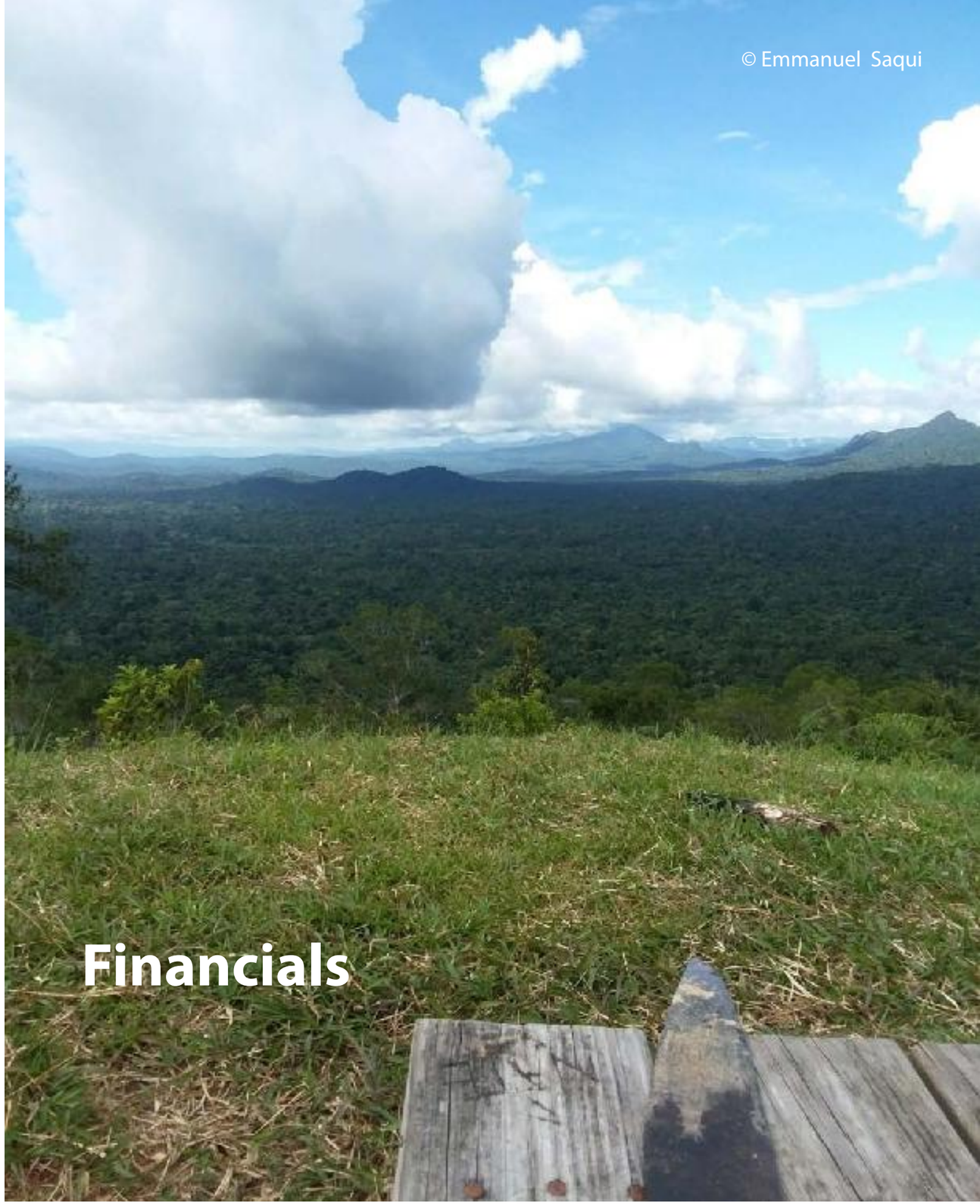
In 1987 Mr. Steve Tillett was appointed as a park ranger at Crooked Tree Wildlife Sanctuary where he worked for the past 33 years.

When BAS first needed to hire a ranger to work at Crooked Tree, our founding members spoke to the village leaders to find someone who would be well-suited to the job - Steve was recommended as the villager with the most knowledge of local plants, animals and the forest.

Over the years, his work has included community outreach as well as patrols and enforcement of wildlife laws. He was passionate about educating and inspiring visitors from all around the world to fall in love with nature and the wetlands.

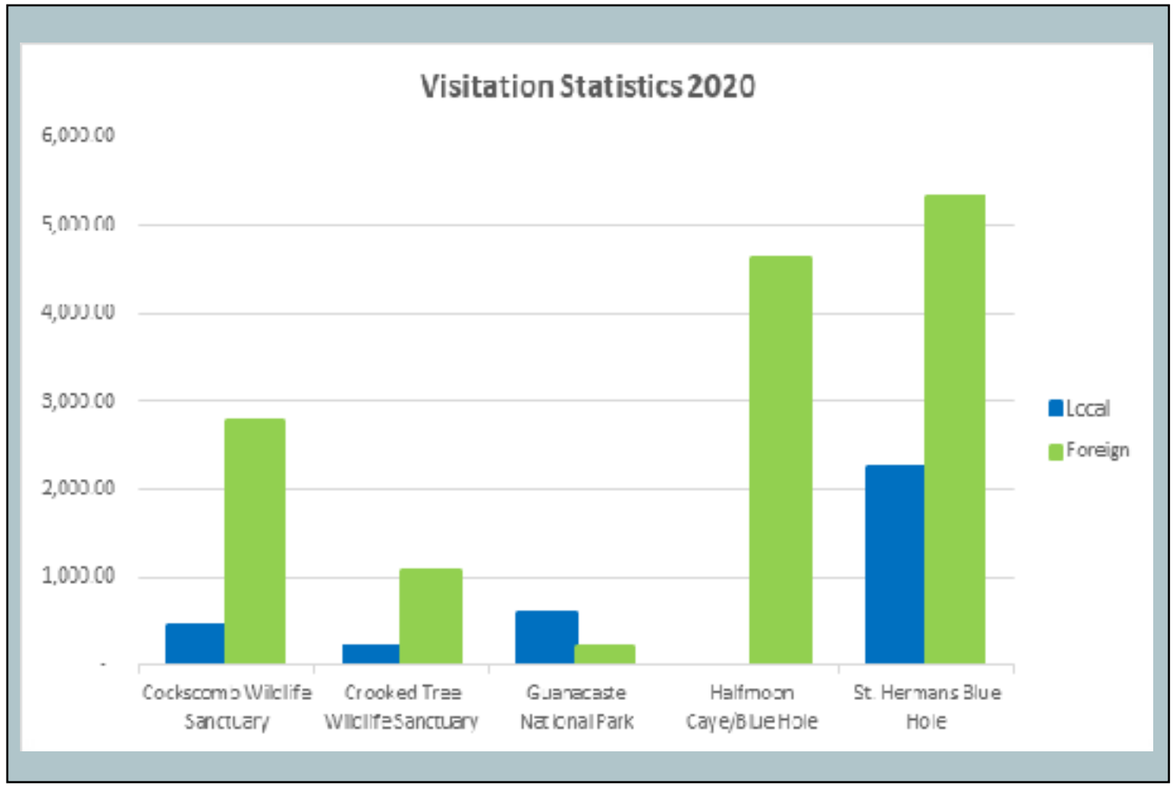
Steve is loved by everyone at BAS and will be remembered for his dedication to conservation.

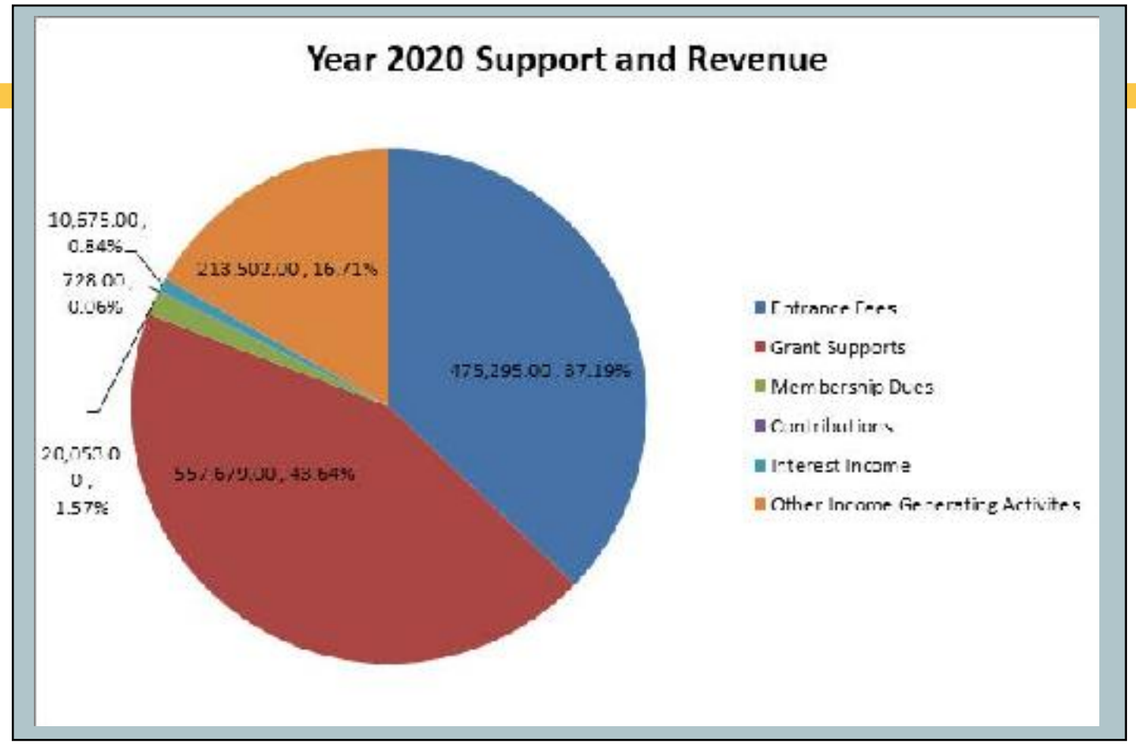
See you around Steve!

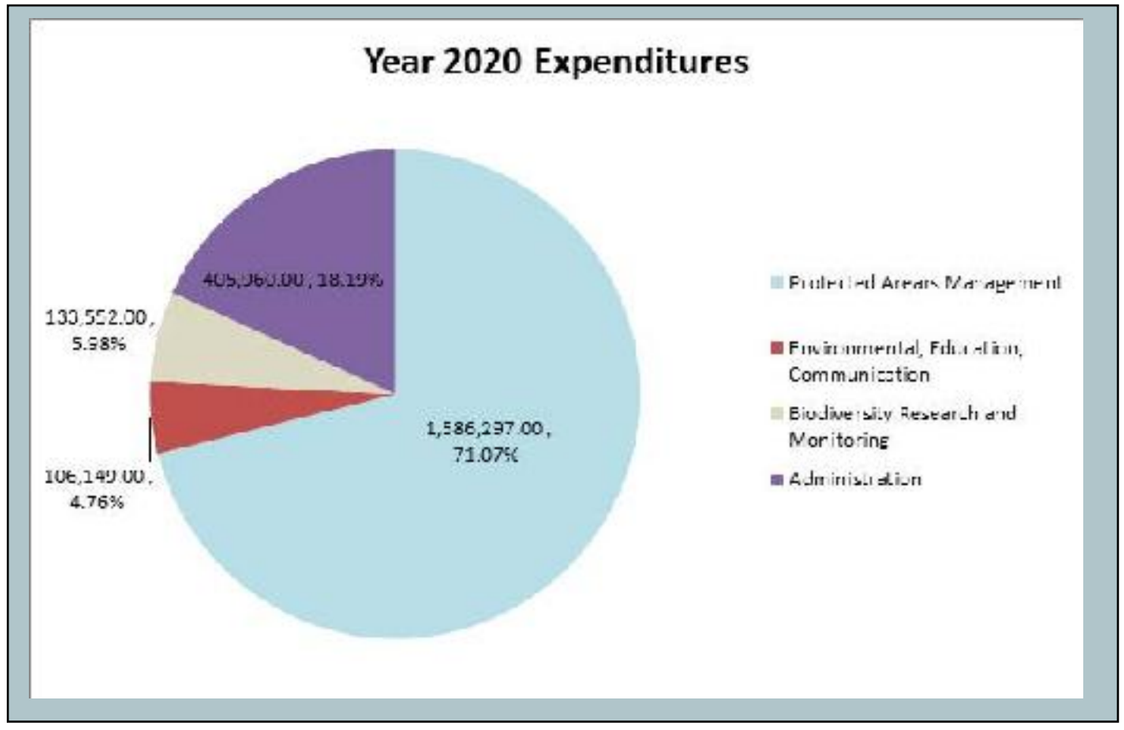


Financials

The auditing firm has given their unqualified opinion stating no major issues were flagged within the auditing process thus indicating that we were financially stable as of December 31st, 2020. The charts presented below are a summary of visitation statistics; and income and expenditures. Visitation numbers are reflected because entrance fees are traditionally the largest income source for the Belize Audubon Society.









Donors & Partners

We take this opportunity to acknowledge the entities whose support allowed us to accomplish all that we did in 2020.

Networking Entities

Association of Protected Areas Management Organizations (APAMO)
Belize World Heritage Advisory Committee
Belize Sea Turtle Conservation Network
Belize Coalition to Save our Natural Heritage
Belize Network of NGOs (BNN)
Debt for Nature Swap Oversight Committee
Glovers Reef Advisory Committee
National Coral Reef Monitoring Network
Managed Access Committee for Lighthouse Reef Atoll
Spawning Aggregation Working Group

Our Partners

Belize Bird Rescue
Belize Defense Force (BDF)
Belize Fisheries Department
Belize Forest Department
Belize Hotel Association (BHA)
Belize National Coast Guard
Belize National Fire Service
Belize Port Authority
Belize Tourism Board (BTB)
Belize Tourism Industry Association (BTIA)
Belize Police Department (Special Patrol and Tourism Police Units)
Black Rock Lodge
Buffer Communities of BAS protected areas
Chunox Fishermen Association
Caribbean Culture + Lifestyle (CCL)
Copper Bank Fishermen Association
Corozal Sustainable Future Initiative (CSFI)
Department of Environment (DOE)
MarAlliance
National Biodiversity Office (NBIO)
Panthera
Scouts Association of Belize
Sarteneja Alliance for Conservation and Development (SACD)
Toledo Institute for Development and Environment (TIDE)
University of Belize--Environmental Research Institute (UB-ERI)
Ya'axche Conservation Trust

Our Donors

Belize Marine Fund
Debt for Nature Swap (Tropical Forest Conservation Agreement)
European Union (EU)
Gulf and Caribbean Fisheries Institute (GCFI--NOAA)
Manomet
Mesoamerican Reef Fund-Belize (MARFund)
National Audubon Society – Audubon's International Alliances Program
Protected Areas Conservation Trust (PACT)
San Diego Zoo Global

Photography

All other photos not captioned, ©Belize Audubon Society

Front Cover: Main Chamber, Mountain Cow Cave, St Herman's Blue Hole National Park
Back Cover: Maurice Eldridge, Green Turtle, Half Moon Caye

Belize Audubon Society

2020

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