



Coastline newsletter

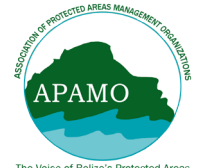
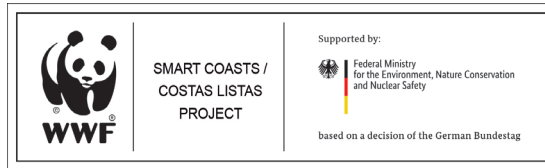
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Special Points of Interest

- Education and Outreach
- GIS Advancement
- Sportfishing
- Youth and the Environment
- Water Quality Monitoring
- Climate Change
- Community Engagement

VALIDATION SESSIONS FOR MODEL OUTPUTS GENERATED UNDER THE "CLIMATE-SMARTING MARINE PROTECTED AREAS AND COASTAL MANAGEMENT IN THE MESOAMERICAN REEF REGION" PROJECT
 BY: AZELEA GILLET, COASTAL PLANNING TECHNICIAN



The Coastal Zone Management Authority & Institute (CZMAI) and the Association of Protected Areas Management (APAMO) were subcontracted by the World Wildlife Fund (WWF) to implement the project "Climate Smarting Marine Protected Areas and Coastal Management in the Mesoamerican Reef Region" in Belize.



An aspect of the project involves generating outputs from Ecosystem Service models, such as Sediment Retention and Marine Recreation/ Tourism opportunities. This information can then be used to inform possible adaptation options in response to climate change and the need to mainstream climate smart principles into marine protected area management and coastal development policies. Workshops were held in San Pedro and Placencia to share country and MPA updates "from the field", share and give feedback on results from the climate analysis, share and give feedback on initial results for the ecosystems service analysis, identify 2 priority adaptation...

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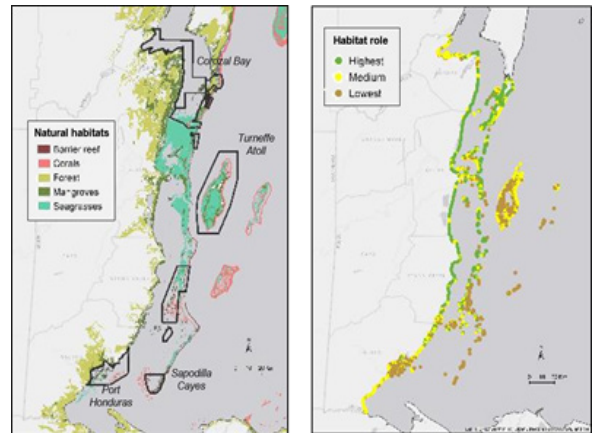


...strategies/ actions and where these are most likely to be implemented and to improve knowledge of approaches and methods for identifying and mapping ecosystem services and to practice applying basic methods and tools for participatory prioritization of climate adaptation options present the initial outputs to stakeholders and to document their feedback. Also, the project will implement a pilot adaptation project in one of the project regions. During the session, the community stakeholders were asked for practical adaptation options for implementation in their community.



CZMAI along with WWF visited Placencia Village and San Pedro Town to meet with stakeholders to present these results and gather comments from these local experts. The community members present represented various sectors including the Tourism and Fishing sector. The representatives from the Placencia community were receptive to the information and provided recommendations for practical adaptation options that could potentially be implemented in their region. At the San Pedro session, concerns were brought up about some of the preliminary outputs which were recorded and reported back to the model designers in order to ensure the models were accurate based on local knowledge. Currently, the models are being revised and the next step is to update the models. After these models are updated they will be presented once more to stakeholders to ensure the models were accurately validated, taking into consideration local knowledge. Also as part of the project, the adaptation options suggested by community members will be modeled to prioritize where and what activities are most suitable. One model output used to determine this would be the Ecosystem service model output showing where areas benefit the most from risk reduction provided by habitats such as mangrove, corals and seagrass beds. Below is an example of the draft results.

Based on the draft outputs, both communities identified mangrove restoration and coral restoration as adaptation options to be recommended for their area. These adaptation will be considered for the next set of model run which includes modelling different adaptation scenarios to prioritize which activities would be most beneficial to coastal communities. These model outputs and reports will be shared with local organizations with managerial powers to ensure that climate change resilience is being incorporated in future management plans. This will allow for the increased resilience of coastal communities to climate change impacts.



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Message from the Chief Executive Officer

Dear Partners, Colleagues, Friends:

I am pleased to share the final issue of our semi-annual Coastline Newsletter as we come close to the end of this fiscal year. Through this medium, CZMAI has the opportunity and distinct pleasure to communicate our accomplishments and opportunities for the foreseeable future.

CZMAI continues to work diligently to strengthen the Authority and Institute so that the mandate for improved coastal area management in Belize can be effectively fulfilled. CZMAI is also grateful for your continued support, interest and commitment as we continue to deliver on our mission and purpose.

As I reflect on this year's accomplishments, I would like to share a few highlights that we at CZMAI are especially proud of:

- Installation of state-of-the-art ocean acidification sensors at a strategic monitoring site in the central region of the country's barrier reef system in partnership with local and international stakeholders. Belize is one of two countries in the Caribbean region that is using this technology. The sensors enable real-time, in situ monitoring of ocean chemistry to monitor and better characterize the stresses and risks facing our fragile marine ecosystems. Additionally, the monitoring infrastructure will support Belize's reporting commitments to the UN Sustainable Development Goal 14 by providing means to monitor the impacts of ocean acidification (SDG 14.3) and nutrient pollution from land (SDG 14.1).
- Successful implementation of Coastal Awareness Week (CAW) 2019 observed under the theme "Building Coastal Resilience through Innovation". The annual observance of Coastal Awareness Week continues to serve as an engaging platform to promote awareness and outreach on management challenges and new opportunities to advance an integrated approach to coastal zone management.
- Application of drone mapping technology to capture high resolution drone imagery and monitor developmental changes along Belize's coastline.
- Conducted second phase of review of draft proposed amendments to the CZM Act and Regulations with an Ad Hoc Committee comprised of local legal and technical experts as a next step in the process towards institutional strengthening for the CZMAI.

The continued partnership and support of key partners, such as yourselves, is critically important for the successful attainment of improved coastal and marine area management in Belize. I encourage you to stay in touch with us throughout the year for other updates via our semi-annual Coastline Newsletter and by connecting with us on our website, Instagram and social media!

With very best wishes,

Chantalle Samuels (Mrs.)
Chief Executive Officer



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THE YEAR FOR SPORTFISHING

BY: VICTOR SHO, SPORTFISHING PROGRAM COORDINATOR

As we come to the end of this fiscal year, let's take this time to celebrate our accomplishments so far and look forward to the prosperous future that lies ahead. The Coastal Zone Management Authority & Institute's (CZMAI) Sport Fishing unit has made great strides in the areas of Education & Outreach, Compliance & Enforcement and Networking & Partnerships over the past fiscal year.

Under Education and Outreach we have seen the implementation of the first sport fishing summer course in San Pedro, Ambergris Caye; where seven of the ten participants were successful in completing the course. Concurrently, CZMAI was also launching its sensitization campaign which started with the installation of informative signs at all local markets across Belize, followed by media visits to increase public discussions around the issues of Belize's sport fishing sector which led to stakeholder meetings in San Pedro. We intend to keep this momentum going into the next fiscal year, where we plan to bolster our education and outreach activities and expand our stakeholder base.



This year, compliance and enforcement activities were centred around building on our working relationships with co-managers in the northern and central region of Belize. Namely, Hol Chan Marine Reserve (HCMR) and Turneffe Atoll Sustainability Association (TASA). After several meetings, we and our partners were able to negotiate a mutually beneficial Memorandum of Understanding (MOU) that will serve as the foundation for future collaborative work between our organizations. One key aspect of these MOUs is the call to enforce Belize's sport fishing regulation which calls for the protection of Bonefish, Tarpon and Permit as well as the legal requirement of a sport fishing license to engage in the activity. This marks another major step CZMAI has taken to safeguard Belize's sport fishing sector and the livelihoods of those who depend on it. This also highlights the need for continued collaborations between CZMAI, partners and stakeholders in order pool resources together to realize a mutual goal.

These MOUs are partly the fruit of another of CZMAI's labour, one focused on building strong mutually beneficial partnerships as well as expanding its network. Resource is always a limited factor in Belize; organizations are constantly faced with the reality of the work they need to do versus the work they can afford to do. Thus, it is imperative that we be more resourceful given the limited human and financial support available. Healthy partnerships are a great way to reduce resource consumption while magnifying outputs, by pooling resources to achieve mutual goals. To this end, CZMAI has worked along with partners and stakeholders to identify areas of collaboration for the next fiscal year, one that will see more concentrated efforts on research & monitoring, education & outreach and compliance & monitoring. As we look back, we are pleased with our progress; however, we are mindful of all the remaining work that needs to be done. We now turn our focus to the future, one we expect to be even more productive as we will start to reap the benefits of the strong foundation we built today.

IMPLEMENTATION OF THE COMMUNITY WARDENS PROGRAMME

By: AZELEA GILLET, COASTAL PLANNING TECHNICIAN

At the beginning of 2019, the Coastal Zone Management Authority & Institute (CZMAI) began discussions with local village councils from coastal communities in an attempt to jump start the implementation of the Community Wardens Programme. The programme is aimed at empowering community members by allowing them to have a voice against detrimental/ illegal activities that may be occurring in their community. CZMAI recognizes that having eyes and ears on the ground is essential to the efficient implementation of the recommendations in the ICZM Plan. Through the programme, community members are able to contact a CZMAI representative directly to provide evidence based reports on illegal activities occurring in their area. Thereafter, CZMAI personnel contacts the relevant authorities to address the issue. Overtime, reports will be produced for these activities and responses to log when issues were addressed and when they were not. These findings will be compiled and shared with the relevant Ministry's head in an attempt to foster better resource allocation in the respective departments.



CZMAI staff travelled to a total of 11 coastal communities across the country to introduce the programme to village council chairs and town council mayors. These community leaders were very receptive to the idea and were asked to provide a list of recommended persons for the programme. In July 2019, CZMAI visited Punta Negra and Barranco to host a training session for the potential community wardens recommended by their local leaders. At the end of the session, the programme was established in both these communities. Punta Negra and Barranco has a total of 7 community wardens each. In the following month of August, CZMAI staff travelled to Hopkins to establish the third community warden's programme. Hopkins now has a total of 6 community wardens established.



Since the establishment of the Community Wardens Programme, a total of 9 reports have reached CZMAI 4 of which were from the Hopkins community wardens concerning gill-nets, clearing of mangroves and activities related to development. At the initial meeting with the Caye Caulker village council a specific concern arose regarding a development activity occurring on the island. These reports were forwarded to the relevant departments who have given updates on the concerns thus far. CZMAI believes that this is a step towards sustainable management of our coastal resources for Belize. We are working towards establishing more community warden programmes in the coming year. CZMAI believes the programme will make a difference in Belize throughout its implementation overtime.

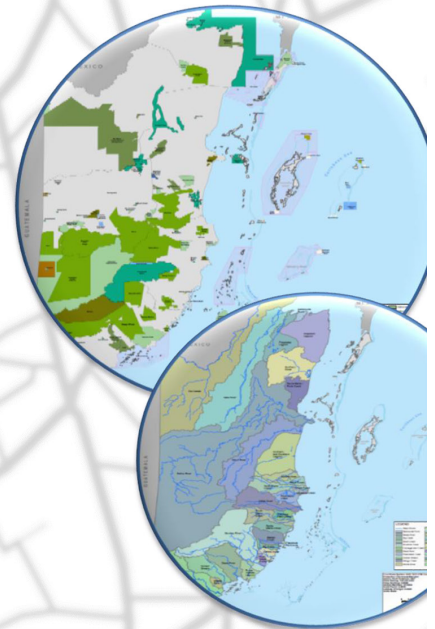


Cartographic Map

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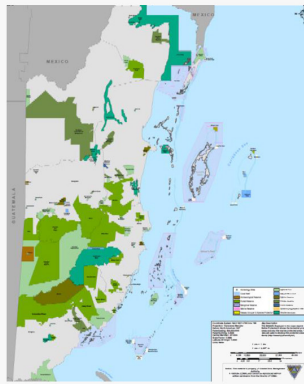
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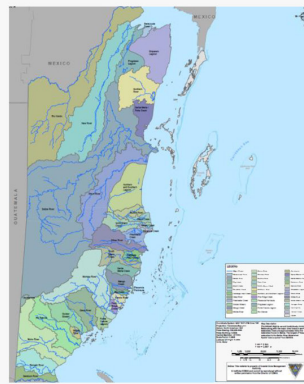
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Baseline Map of Belize



Protected Areas of Belize



Watersheds of Belize



Marine Ecosystems of Belize

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Type	Size	Area	Per Sq Inch	Total Cost (BZE)
Plain Paper	42 x 36	1512	0.04	\$60.48
	24 x 36	864	0.04	\$34.56
	36 x 48	1728	0.04	\$69.12
	20 x 30	600	0.04	\$24.00
	11x 17			\$2.50
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	24 x 36	864	0.05	\$43.20
	36 x 48	1728	0.05	\$86.40
	20 x 30	600	0.05	\$30.00

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OCEAN ACIDIFICATION MONITORING IN BELIZE

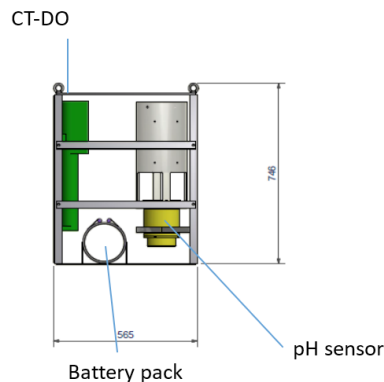
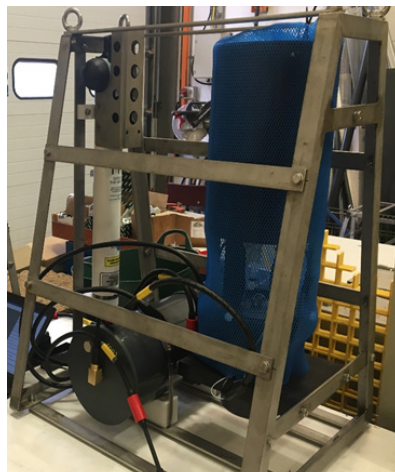
BY: GILBERT ANDREWS, ENVIRONMENTAL LAB TECHNICIAN



As Belize continues into the 21st century, the effects of climate change continues to intensify and manifest itself in several different forms that are directly and indirectly having an effect on everyday life. These direct effects such as higher sea surface temperatures, sea level rise, and increase in storm intensity are widely understood and are being monitored on a near global scale. However, the indirect effects such as ocean acidification is less understood and the global scientific community is now trying to gather the data necessary to inform policies surrounding this phenomena.

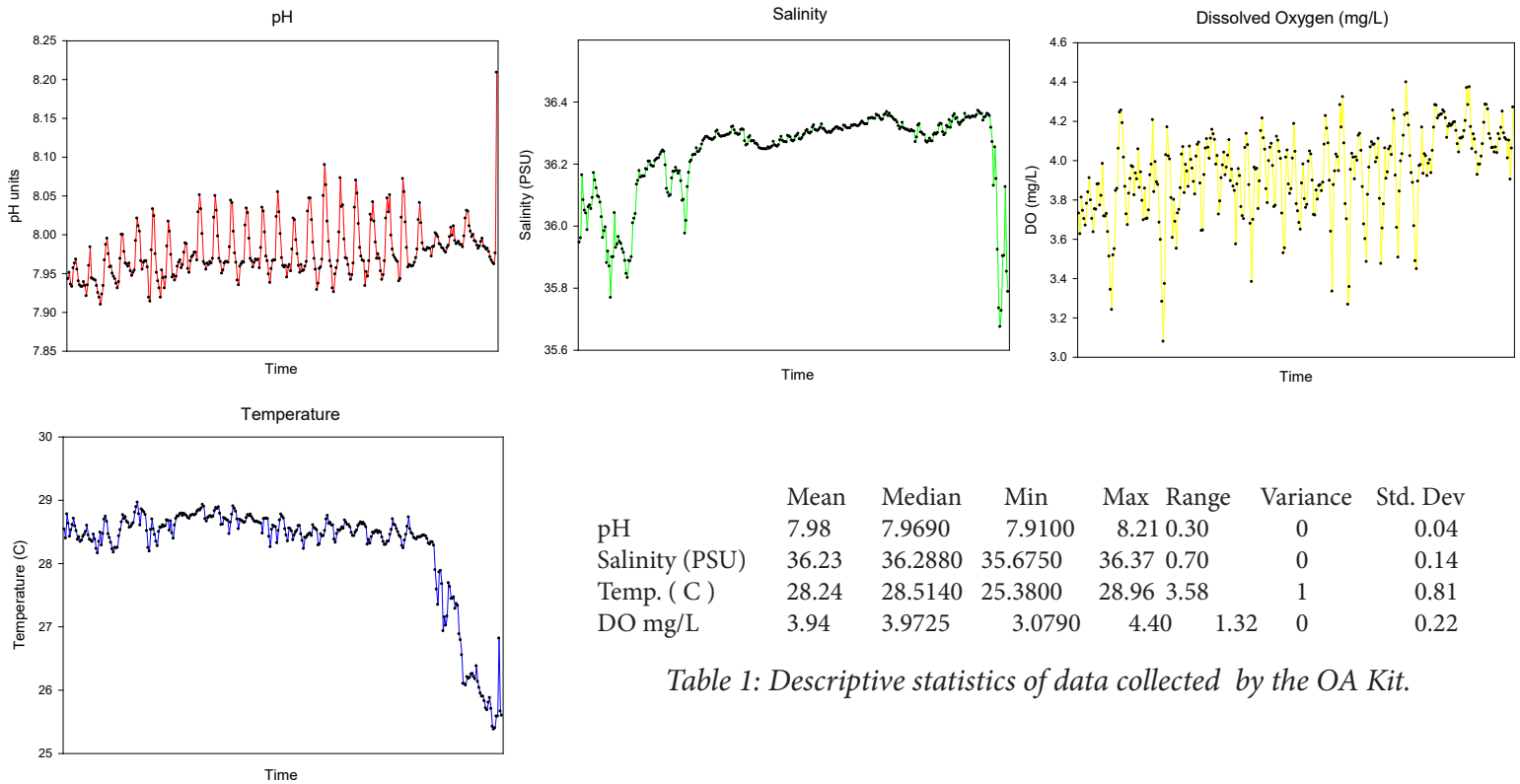
For context, the rapidly increasing levels of atmospheric CO₂ is contributing to a change in the ocean's chemistry. Studies have shown that one-fourth of the human-generated CO₂ is currently absorbed by the ocean which, in effect, is not only causing ocean temperatures to increase but are also lowering the seawater's pH. When CO₂ dissolves in seawater, it forms carbonic acid which decreases both ocean pH and the concentration of the carbonate ions, the basic building blocks of the shells and skeletons of many marine organisms. This creates a potentially serious problem for Belize's economy because many species that utilize carbonate shells and structures are intergral contributors to the GDP of Belize. This include coral reefs, conch, and lobster. The loss of which would be a severe blow to the country.

Therefore, in order to better understand the changes in ocean chemistry, attributed to Ocean Acidification, there has to be long term monitoring of pH using high accuracy instruments capable of measurements on a fine scale. To accomplish this on November 26th 2019, CZMAI and The National Oceanography Centre (NOC) UK with assistance from the Belize Port Authority, installed an Ocean acidification Kit on the sea floor near English Caye. This kit is comprised of a stainless-steel frame, containing a spectrophotometric pH sensor, a SEA-BIRD Electronics 37 SMP, ODO sensor, conductivity (and salinity) sensor, temperature sensor and dissolved oxygen sensor, a battery pack, and a communications hub. With the communication hub, data is uploaded to an online platform where data can be viewed in real time. The unit was programmed to take measurements every two hours and this in combination with the satellite uplink unit causes battery life to be about two months. Following this CZMAI and the Belize Port Authority will conduct maintenance and battery replacement.



The following is a summary of the information collected by the OA kit from November 26th - December 23rd 2020:

The data presented was that collected by the OA Kit from November 26th to December 23rd 2019. Measurements were taken every two hours over the roughly one month time period. Mean values for each parameter was calculated (Table 1) and we can see that generally the range and std deviation was relatively low, despite diurnal and nocturnal variation. Towards the end of the sample period there were a couple of cold fronts that lowered sea temperatures. As a result all other parameters changed in response since all parameters are correlated. (Table 2).



	Mean	Median	Min	Max	Range	Variance	Std. Dev
pH	7.98	7.9690	7.9100	8.21	0.30	0	0.04
Salinity (PSU)	36.23	36.2880	35.6750	36.37	0.70	0	0.14
Temp. (C)	28.24	28.5140	25.3800	28.96	3.58	1	0.81
DO mg/L	3.94	3.9725	3.0790	4.40	1.32	0	0.22

Table 1: Descriptive statistics of data collected by the OA Kit.

Variable	Correlations (Spreadsheet1)						
	Means	Std.Dev.	Timestamp	pH	Salinity (PSU)	Temperature (C)	DO *mg/L
pH	7.98	0.04	-0.015958	1.000000	0.270716	-0.139554	0.478677
Salinity (PSU)	36.23	0.14	0.186696	0.270716	1.000000	0.111531	0.185480
Temperature (C)	28.24	0.81	0.407211	-0.139554	0.111531	1.000000	-0.260385
DO *mg/L	3.94	0.22	-0.149227	0.478677	0.185480	-0.260385	1.000000

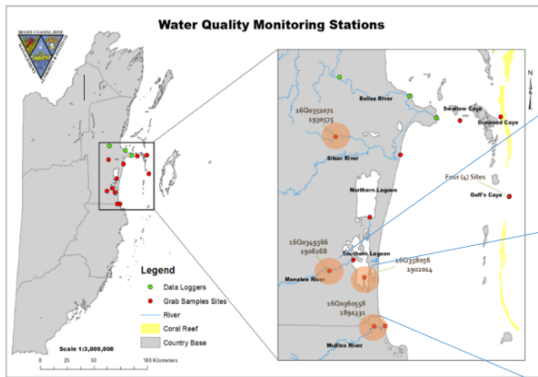
Table 2: Correlation matrix of parameters measured by the OA Kit.

The long term collection of this data will help Belize to meet national and global reporting requirements. It can also help to better contextualize the anticipated impacts on vulnerable sectors such as the fisheries and tourism, thereby giving appropriate time to determine appropriate adaptation responses. Finally, the collection of this data establishes the CZMAI and Belize as a regional resource for Ocean Acidification data. This can potentially be used as a spring board for new regional/international partnerships and collaborations.

WATER QUALITY MONITORING UPDATE

By: SAMIR ROSADO, COASTAL PLANNER

The CZMAI Water Quality Monitoring Unit (WQMU) conducted monthly water quality sampling trips in the Central Coastal Region from July to December 2019. The averages from our sample sites are as follows:



Hector Creek:
 Total Nitrogen: 0.63 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.33 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.54 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous: 0.04 mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 88.6 col./L (Excess: Above 200 col./L)

Manatee River:
 Total Nitrogen: 0.21 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.033 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.45mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.04mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 66 col./L (Excess: Above 200 col./L)

Gales Point:
 Total Nitrogen: 0.81 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.21 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.55 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.03mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 55 col./L (Excess: Above 200 col./L)

Mullins River:
 Total Nitrogen: 0.91 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.33 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.61 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.09mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 168 col./L (Excess: Above 200 col./L)

Central Coastal Region:

From July to December the averages of the parameters being measured are within the range for normal aquatic ecosystems. It was observed that sample sites near populated areas showed slightly higher averages, however none of them were over or near the threshold that would trigger eutrophication/algal bloom events. Additionally, it was noted that during this time period there was severe drought and extreme

heat in most of the country which would in turn caused nutrient levels to be higher than normal. Also, at some sample sites the heat was so severe that large portions of the sample areas were dried up or stagnant. With regard to fecal coliforms the E Coli levels averaged within range of normal systems, however, during the hottest months (July – September) bacterial loading was higher, especially in Mullins River where for these months levels were well above 200 CFU/100mL of sample. This indicates that there may be some addition of waste coming from the nearby community which seem to be exacerbated by the heat.

Central Reef Region:

The WQMU conducted water quality monitoring activities in the Central Reef region during the period of July to December. In general, nutrient levels were very low despite the presence of developments near some sample sites. There was also minimal presence of bacteria detected in most sites with the exception of Goff's Caye area where there was relatively higher numbers.

Hick's Caye Area:
 Total Nitrogen: 0.55 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.25 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.37 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous: 0.04 mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 39.5 col./L (Excess: Above 200 col./L)

St. George's Caye Area:
 Total Nitrogen: 0.31 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.045 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.23mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.05mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 44.2 col./L (Excess: Above 200 col./L)

Goff's Caye Area:
 Total Nitrogen: 0.78 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.19 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.65 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.07mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 86 col./L (Excess: Above 200 col./L)



Long Caye Area:
 Total Nitrogen: 0.69 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.27 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.39 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.08mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 66 col./L (Excess: Above 200 col./L)

Drowned Caye Area:
 Total Nitrogen: 0.63 mg/L (Norm: 1 mg/L, Excess 10 mg/L)
 Nitrite: 0.33 mg/L (Norm: 1mg/L, Excess: 10mg/L)
 Nitrate: 0.38 mg/L (Norm: 1 mg/L, Excess: 10mg/L)
 Phosphorous:0.06 mg/L (Norm:0.05mg/L, Excess: 1mg/L)
 Fecal Coliforms: 59 col./L (Excess: Above 200 col./L)

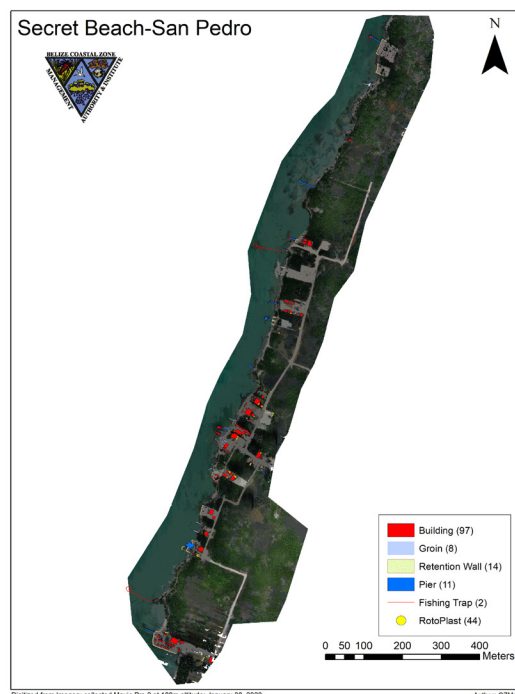
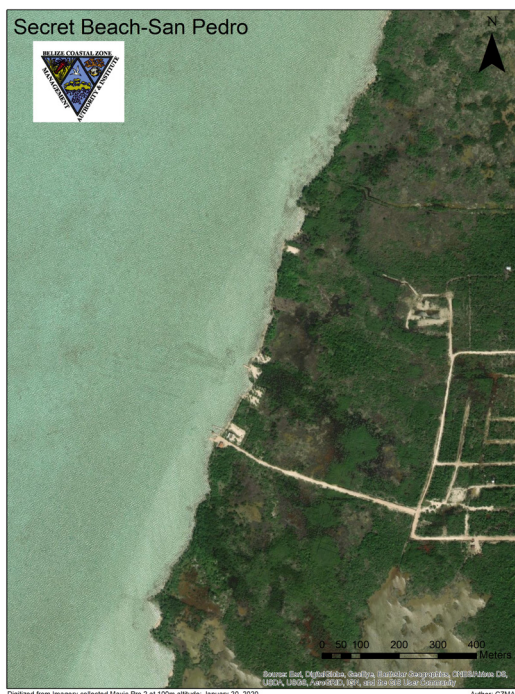
CZMAI CONDUCTS DRONE MAPPING EXERCISE AT SECRET BEACH, AMBERGRIS CAYE

By: ANDRIA ROSADO, GIS DATA MANAGER & DELWIN GUEVARA, GIS TECHNICIAN

On January 20, 2019, CZMAI's GIS Technician conducted a drone mapping exercise at Secret Beach which is a very popular tourist destination north-west of San Pedro Town, Ambergris Caye. This mapping exercise was a collaboration between CZMAI and Hol Chan Marine Reserve. Being an area of rapid development, the purpose of the visit was to collect high resolution drone images of the area in order to document a holistic view of the expansion currently occurring at Secret Beach.

In previous years, the Secret Beach area was a secluded and primarily visited by locals and few tourists. However, due to the real estate value of the area, there is now increasing tourism development activity occurring. Hotels, restaurants, and bars are continuously popping up and attracting more tourists every year. As more lots continue to be subdivided CZMAI along with Hol Chan conducted the exercise, to capture drone imagery and document the current state of coastal development on land and within the reserve. By looking at the drone imagery, approximately 8 groins, 14 retention walls, 11 piers, 44 water storage tanks and 2 fishing traps can be seen. An additional activity to highlight was the placement of several picnic tables with palapas that are being placed in the water, just a couple of feet from the coastline.

When comparing drone imagery from January 20, 2019 with imagery from 2015 ESRI basemap, there are several roads that have been cleared and several lots have been cleared. Furthermore, the area which surrounds Secret Beach is within "Zone E" of the Hol Chan Marine Reserve. CZMAI will continue to closely monitor development plans and activities in line with the ICZM Plan in order to develop management interventions to regulate the fast-paced development occurring in the area and use coordinating mechanisms such as the Coastal Advisory Council (CACs) and the National Environmental Appraisal Committee (NEAC) to better influence sustainable development decisions.



CZMAI HOSTS ANNUAL COASTAL AWARENESS WEEK 2019

By: ARIESE BRICENO, SALES AND MARKETING ASSISTANT

Coastal Awareness Week (CAW) 2019 was celebrated from October 28th to November 2nd, under the theme “Building Coastal Resilience through Innovation”. The purpose of the week of events was to highlight innovative technology techniques to protect Belize’s coastal resources. In an effort to share this information to the public in a manner that was both thought-provoking and easy to understand, the CZMAI hosted Five major activities. The events were a huge success and garnered support from both the public and private sectors. Most notably we would like to acknowledge the tremendous support from our two Coastal Champion sponsors; The Marine Conservation and Climate Adaptation Project (MCCAP) and the Ministry of Education. The following are the major highlights from the week’s events.

Coastal Awareness Week Opening Ceremony/Seminar:

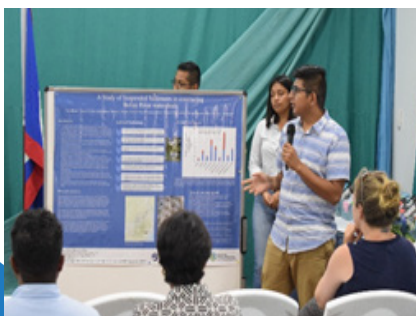


On Tuesday October 29th, the CZMAI hosted the Coastal Awareness Week Opening Ceremony/ Coastal Seminar at the Presidents Auditorium, University of Belize Campus in Belmopan City. Our host for the evening was Mr. Kyle Castillo; CZMAI’s Marketing Officer. The event served as the official opening the week of activities. During opening ceremonies recognize key sponsors were recognized for their generous contributions to making CAW 2019 a reality. Next, special guest speakers were invited to explain/ present on how their work showcased this year’s CAW theme. They explained innovative approaches that were being implementing to help their organization and their country become more resilient, sustainable and reduce risks associated with climate change. Also, what were some of the success stories, barriers and opportunities encountered in implementing some of these innovative technologies and/or management approaches. This year’s presenters are as follows:

Presentation 1: “Innovations in Data Management to support Evidence-Based Resilience Measures: Application of Drone Technology” Ms. Andria Rosado, CZMAI

Presentation 2: “Building Partnerships for Supporting Research at the National University of Belize- NOC Collaboration in Water Quality Research of the Belize River Watershed”- Dr. Abel Carrias, University of Belize

Presentation 3: University of Belize Student Poster Presentations- Mr. Ian Oliva, Ms. Esther Hernandez, Mr. Kelvin Requena and Ms. Carrisa Sabido



Presentation 4: “Improving Management Effectiveness in Belize with S.M.A.R.T. (Spatial Monitoring and Reporting Tool)” Mr. Julio Maaz, Wildlife Conservation Society

Presentation 5: “Understanding Coastal Systems: Opportunities for building resilience and creating opportunities”- Dr. Silvana Birchenough, UK Centre for Environment, Fisheries and Aquaculture Science (CEFAS)

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Presentation 6: “Prediction, Valuation, and Decision Support: Innovative Cross- Disciplinary Science Underpins Successful Planning for Resilient Coasts” -

Mr. Christopher Barry, UK Centre for Ecology and Hydrology (CEH)

Presentation 7: “Making Sense of Changing Seas”- Ms. Stacey Felgate, NOC

In gratitude for their generous Sponsorship of Coastal Awareness Week 2019 the following organizations were honoured as Top Sponsors:

- Marine Conservation and Climate Adaptation Project (MCCAP)
- Ministry of Education

Belize Coastal Awareness Trivia Challenge:

On Wednesday October 30th, CZMAI held the fifth annual Coastal Awareness Primary School Trivia Competition at the Bliss Institute for the Performing Arts. The purpose of the event was to raise awareness through knowledge building and provide a forum for primary school students to learn about the Belizean Coastal Zone in a way that is both informative and fun. This competition featured participants from 8 primary schools throughout Belize City who competed for the grand prize of \$500 and Prizes. Participating primary schools and student representatives included:



All Saints Anglican School	Daemian Williams
Belize Elementary School	Victoria Quan
Holy Redeemer R.C. School	Kimaya Charley
Queen Square Angelican School	Ashton Reid
St. Ignatius Primary School	Amera Amerie Castillo
St. Joseph R.C. Primary School	Christopher Bol
St. Luke Methodist Primary School	Kiemahr Bennett
Bernice Yorke Institute of Learning	Tamara Woodye

After the Final round was completed, points were tallied and the victorious student was Miss Kimaya Charley, who represented Holy Redeemer R.C. School. Miss Charley earned the grand prize of \$500 and a tablet. The second prize of \$300 and a tablet went to Miss Victoria Quan, from Belize Elementary School and Miss Amera Amerie Castillo of St. Ignatius Primary School took home the third prize of \$200 a gift bag. CZMAI would like to thank all the participants, teachers, parents, sponsors, and judges for helping to make the event a success. We believe that though this competition we were able to share information on major topics that relate to the sustainable use and management of Belize’s coastal zone.



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Coastal Awareness Week Video Competition:



On Tuesday, October 8th, the CZMAI released the official flyer to its Second Amateur Video Competition. Interested persons were asked to develop a 2 minute or less video on their understanding of the CAW 2019 Theme: “Building Coastal Resilience Through Innovation”. The early release on this competition was strategically set to garner awareness of the other upcoming activities for the official week. One Thursday 31st October a total of 7 submitted videos were judged using criteria developed by the CZMAI team in charge of the event.

The submissions are as listed below:

- Rolando Miron and Marvin Cus
- Edson Mendez
- Marley Nunez
- Martha Sanker
- Marcel and Xhahir Palma, Payton Cadle and Aiden Genus
- Dave Pascascio and Kenia Garbutt
- Dulcie Santos

The Video Competition Prizes were:

- First Place: Cash Prize of \$1,000.00 and a certificate for a 2-night stay for 2 at Cave Branch Jungle Lodge,
- Second Place: 1 Mini Parrot Drone

Emerging victorious as the first Place Winner was Ms. Martha Sanker and the Second-Place winner was Mr. Edson Mendez

Coastal Awareness Week Closing / Innovation Fair:

On Friday November 1st, CZMAI host an Innovation Fair. The event, which was held at the Battle Field Park in Belize City, Belize, focused on providing a platform through which, the amazing and innovative work of our diverse stakeholders and partners can be showcased. CZMAI invited tertiary level institutions, NGO’s, and government departments to its Innovation fair to educate students, teachers and the general public to engage businesses, researches, and others about the important work they do along Belize’s coast and how they can contribute or benefit from the wonderful work being done in Belize.



In order to encourage the interest of the public and students while visiting the booths at the fair CZMAI held a Booth competition where organizations were judged on the areas mentioned using criteria developed by the CZMAI team in charge of the event.

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CZMAI invited various organizations and schools to host informational booths in an attempt to disseminate information to the general public on their work. These organizations included:

- Turneffe Atoll Sustainability Association (TASA)
- Pesticide Control Board
- Belize High School
- Belize Coastal Science Alliance
- National Oceanography Centre
- Oceana
- Forest department
- World Wildlife Fund
- Belize Fisheries Department
- Center for Environment, Fisheries and Aquaculture Science (CEFAS)



The “Best Booth Display competition” Prizes were; first prize of \$300, second prize of \$200 and, Third prize of \$100. The WINNERS are as follows:

- First Place: Belize Coastal Science Alliance
- Second Place: Belize Fisheries Department
- Third Place: Belize High School

Run for the Coast:



To cap off the week CZMAI hosted the fifth annual Run for the Coast. The run took place in the wee hours of Saturday November 2nd from 5:30 am to 7:00 am. This event was done in an effort to raise awareness about the value of the Belizean coastal and marine resources. Through this short 3 mile leisure run/walk from the BTL Park to the Baron Bliss Lighthouse and back, CZMAI aims to encourage Belizeans to appreciate services that the coastal zone provides. In this case that service is the aesthetics it provides to personal well-being. Mr. Han Cards from red Dragon Karate Academy lead approximately 150 participants through an awesome warm up and thus, began the Fifth annual Run for the Coast. To conclude the last Coastal Awareness Week 2019 activity tons of awesome prizes were raffled along with refreshments for all participants were distributed.

Academy lead approximately 150 participants through an awesome warm up and thus, began the Fifth annual Run for the Coast. To conclude the last Coastal Awareness Week 2019 activity tons of awesome prizes were raffled along with refreshments for all participants were distributed.



Room Rentals

*Modern * Affordable * Convenient*

Let us make your event a reality, we are here to provide you with the most affordable and convenient venue!

Book now at: Coastal Zone Management Authority and Institute for:



Conference Room: Max 20 ppl

Meetings,
Trainings,
Wedding receptions
Parties
...and more



Training Room: 80 ppl
Depending on seating

Let us help you bring your event to life!
For more information contact us at [501-223-5739/0719](tel:501-223-5739) or email us at info@coastalzonebelize.org



March Beach Excursion

-Goffs Caye-

Saturday March 7th 2020
Boarding at Radisson's Dock at 8:30 am

TICKET INFO

ADULT	CHILD
\$35.00 BZE	\$25.00BZE

FOOD AND DRINKS ON SALE

FAMILY GAMES



Tickets can be purchased at: **Coastal Zone Management Authority & Institute's Office**
ENQUIRES | Tel: 223-5739/ 0719 | Email: marketingassistant@coastalzonebelize.org

HOW HYDROGRAPHY CAN HELP BELIZE TO DEVELOP ITS BLUE ECONOMY

By: ARLENE YOUNG, DIRECTOR

The term ‘blue economy’ is becoming more frequently heard. It is an expression used to describe the range of economic activities associated with the oceans, seas, harbours, ports, and coastal zone beyond the traditional uses such as fishing and shipping. However, hydrography is still uncommon among the public. For context, hydrography is the measurement and description of the physical features of the navigable portion of the Earth’s surface and adjoining coastal areas. So, what’s the link between both and why are these topics important?

Given the importance of the coastal and marine environment for a range of activities, livelihoods and revenue earnings, hydrography is an essential (albeit underrated) tool. In addition to maritime safety, hydrography gives sustenance to the “Blue Economy”, involving activities such as: energy, maritime transport, telecommunications, tourism, fishing, meteorology, among others.

The Coastal Zone Management Authority and Institute and the Belize Port Authority are working towards a paradigm shift in Belize to highlight the importance of hydrography in planning for the Belize’s Blue Economy. To this end, on November 11-15, 2019, CZMAI’s Director, along with representatives from the Belize Port Authority, Belize Ports Commissioner and Chief Operations and Safety Manager attended a Hydrographic Awareness Seminar in Taunton, UK at the headquarters of the UK Hydrographic Office (UKHO).



The seminar was supported through the Commonwealth Marine Economies Programme which aims to support blue and resilient economies. Key recommendations from the seminar include the development of a Hydrographic Governance Committee and establishment of a Marine Spatial Data Infrastructure. CZMAI and BPA, along with the Ministry of Natural Resources have initiated the discussions with UKHO on the expansion of the Belize National Spatial Data Infrastructure (BNSDI) to encompass a marine working group that will support the identification of gaps in marine data and facilitate the collection and sharing of data among Government, private sector and civil society to inform the sustainable use of our coastal and marine resources. CZMAI currently serves as the Chair of this Marine Working group under the BNSDI.



MISSION STATEMENT

OUR MISSION IS TO LEAD THE SUSTAINABLE USE AND PLANNED DEVELOPMENT OF BELIZE'S COASTAL RESOURCES THROUGH INCREASED KNOWLEDGE AND THE BUILDING OF ALLIANCES FOR THE BENEFIT OF ALL BELIZEANS AND THE GLOBAL COMMUNITY.

Chantalle Samuels
Arlene Young

Chief Executive Officer
Director

FINANCE, ADMINISTRATIVE, & OPERATIONS STAFF

Rosanne Constantino
Whitney Requena
Kachiri Flores
Hazel Oshon
Jason Ferguson
Ian Banks
[VACANT]
Shaneka Leslie

Finance & Operations Manager
Accounts Clerk
Administrative Clerk
Janitress
Goff's Caye Ranger/Boat Captain
Goff's Caye Assistant
Driver
Goff's Caye Sales Representative

MARKETING

[VACANT]
Ariese Briceno

Marketing Officer
Sales & Marketing Assistant

SPORTFISHING

Victor Sho

Sportfishing Coordinator

GIS DATA MANAGEMENT

Andria Rosado
Delwin Guevara

Data Manager
GIS Technician

COASTAL PLANNING & MONITORING

Samir Rosado
Azelea Gillett
Gilbert Andrews
Kent Garbutt

Coastal Planner
Coastal Planning Technician
Environmental Lab Technician
Boat Captain/WQ Assistant



Coastal Zone Management
Authority & Institute



Ministry of Fisheries, Forestry, the
Environment & Sustainable
Development

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