



2018 ANNUAL REPORT



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Manager's Overview

It is with great pleasure to present the Port Honduras Marine Reserve (PHMR) annual report for 2018. This report summarizes the main activities that occurred throughout the year January 2018 - December 2018. The reserve staff has continued with the same dedication and passion in ensuring the successful management of the area and its conservation targets have remained first and foremost.

The field staff conducted a total of 389 patrols within the time period, a decrease from the previous year. As a result of these patrols, 3 arrests were made and successfully prosecuted, 3 verbal warnings issued, 1 written warning issued, 6 gill nets and 1 longline was removed/confiscated from within the reserve. Most of the patrols conducted were joint operations with the Belize Coast Guard, and personnel from other protected areas managed by the Toledo Institute for Development and Environment (TIDE). Great efforts were made to strengthen the working relationships with government agencies in 2018 such as the Belize Coast Guard, Belize Fisheries Department, Belize Police Department, Belize Port Authority, Belize Immigration Department and the Belize Forest Department.

Once again, we would like to express our sincere gratitude to the Belize Fisheries Department, PHMR Advisory Committee, the Belize Coast Guard, OAK-MARFUND, European Union, the Summit Foundation, Overbrook, Gulf Caribbean Fisheries Institute, New England Biolabs and the Protected Areas Conservation Trust. The great work towards the sound management and sustainable use of the marine resources would not have been possible without the financial contribution and commitment from these partners throughout the year.

I must make special mention of PHMR's rangers, Allan Halliday, Aaron Garbutt, Dervi Williams and Marcos Pow for their continued dedicated support and hard work to the conservation and protection of PHMR's natural ecosystems and its marine life. A special thank you must be given to the Belize Coast Guard for their tremendous support throughout 2018 in the enforcement of rules and regulations of the reserve and the security they provided for our staff and resource users. It has been a privilege and a great experience to have worked with you all for 2018 and looking forward to 2019 with great expectations.

Sincerely,

Ryan Moore

Marine Manager

TIDE

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0.0 List of Abbreviations

PHMR	-	-	-	-	Port Honduras Marine Reserve
TIDE	-	-	-	-	Toledo Institute for Development and Environment
BFD	-	-	-	-	Belize Fisheries Department
BCG	-	-	-	-	Belize Coast Guard
SMART	-	-	-	-	Spatial Monitoring and Reporting Tool
MPA	-	-	-	-	Marine Protected Area
GIS	-	-	-	-	Geographic Information Systems
PADI	-	-	-	-	Professional Association of Diving Instructors
MMMC	-	-	-	-	Maya Mountain Marine Corridor
SI	-	-	-	-	Statutory Instrument
RZ	-	-	-	-	Replenishment Zone
MA	-	-	-	-	Managed Access
EDF	-	-	-	-	Environmental Defense Fund
FWC	-	-	-	-	Fresh Water Cup
EAC	-	-	-	-	Esteban Assi Cup

1.0 Administration

1.1 Staffing for PHMR

PHMR Enforcement Staff

No.	Names	Position
1	Ryan Moore	Marine Manager
2	Allan Halliday	Head Ranger
3	Aaron Garbutt	Senior Ranger
4	Dervi Williams	Ranger
5	Marcos Pow	Ranger

Table 1: Showing PHMR Enforcement Staff

PHMR Research Team

No.	Names	Position
1	Heidi Waters	Science Director
2	Kevin Novelo	Marine Biologist
3	Nigel Gomez	Managed Access Coordinator/Research Assistant

Table 2: Showing PHMR Research Team

Community Researchers and volunteers

No	Names
1	Geneveve Ramirez
2	Anthony Rash
3	Eryn Bowden
4	Eulogio Teul
5	Alejandro Baki
6	Fernando Rabatu

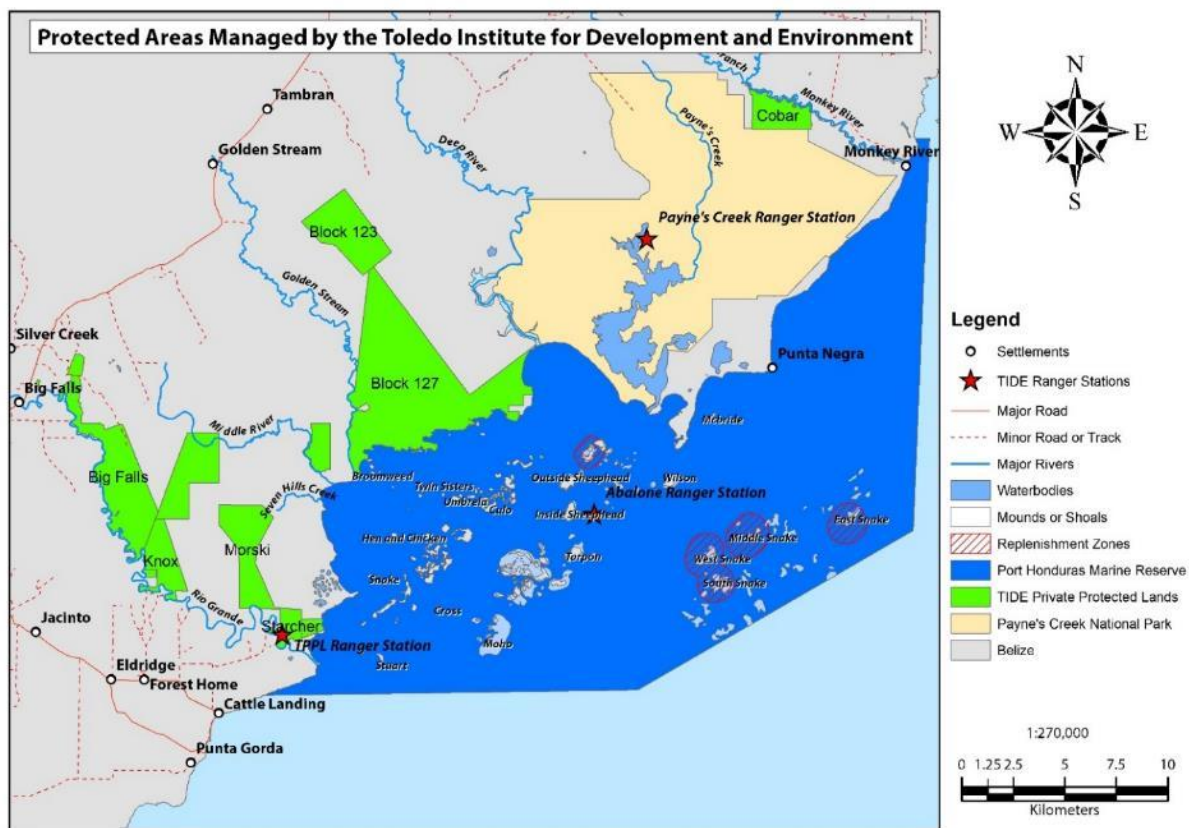
Table 3: Showing Community Researchers and volunteers who assisted in the management of PHMR

2.0 Background of the Port Honduras Marine Reserve

2.1 Introduction

The PHMR was declared by the Government of Belize on January 25th 2000. It is actively co-managed by TIDE with the governing authority being the Fisheries Department. PHMR is a semi-estuarine system that covers approximately 160 square miles and is an integral part of the MMMC in southern Belize. The reserve is located just off the coast of Punta Gorda and extends north up to Monkey River Village. PHMR is comprised of coastal wetlands, seabed, mangroves, lagoons, savannahs of Paynes Creek National Park and national lands within the area known as the Port Honduras, with general boundaries being the Rio Grande in the south, Monkey River in the north, the snake cayes in the east and the coastal wetlands in the west. The reserve is rich in biodiversity, containing approximately 138 small mangrove cayes, which provide essential habitat and nursery for juvenile aquatic species. Other critical habitats include sea grass beds, hard bottom communities, and soft bottom communities. A large portion of the reserve is covered by sea grass, which also provides essential habitat and food for juvenile fish species, sea turtles and manatees. Also, within the reserve are fringing reefs, coral patches and coral heads which provide a refuge and food for marine animals.

There are two buffer communities that are located adjacent to the reserve which are Monkey River Village and Punta Negra Village. The residents of each village are mostly commercial fishers, tour guides, or fly-fishing guides who depend on the resources of the reserve for their livelihood.



Map 1: A map of the protected areas managed by the Toledo Instituted for Development and Environment

2.2 PHMR's Strategic Plan and Goals

The PHMR management strategy is based on five major goals:

1. To protect the physical and biological resources of the Port Honduras Marine Reserve
2. To provide education and research
3. To preserve the value of the area for fisheries and other important genetic resources
4. To develop recreational and tourism services that will enhance the economic and social benefits of the area without causing environmental damage
5. To strive for sustainable financing

2.3 Zoning Plan and Regulations

Three zones were established for the purpose of the regulation and control of the reserve:

1. General Use Zone (95% of the Reserve)

Established to provide opportunities for uses and activities (e.g. fishing for conch, lobster, and finfish) under a stringent monitoring scheme.

2. Conservation Zone (4% of the Reserve)

Established to provide an area free from commercial fishing to prevent overexploitation of fishery stock, provide an undisturbed area for recruitment of species, and enhance the value of the area for recreational and tourism activities.

3. Preservation Zone (1% of the Reserve)

Established to provide areas within the marine reserve that is preserved in an entirely natural state and to protect areas of particularly fragile habitat or with threatened or rare species

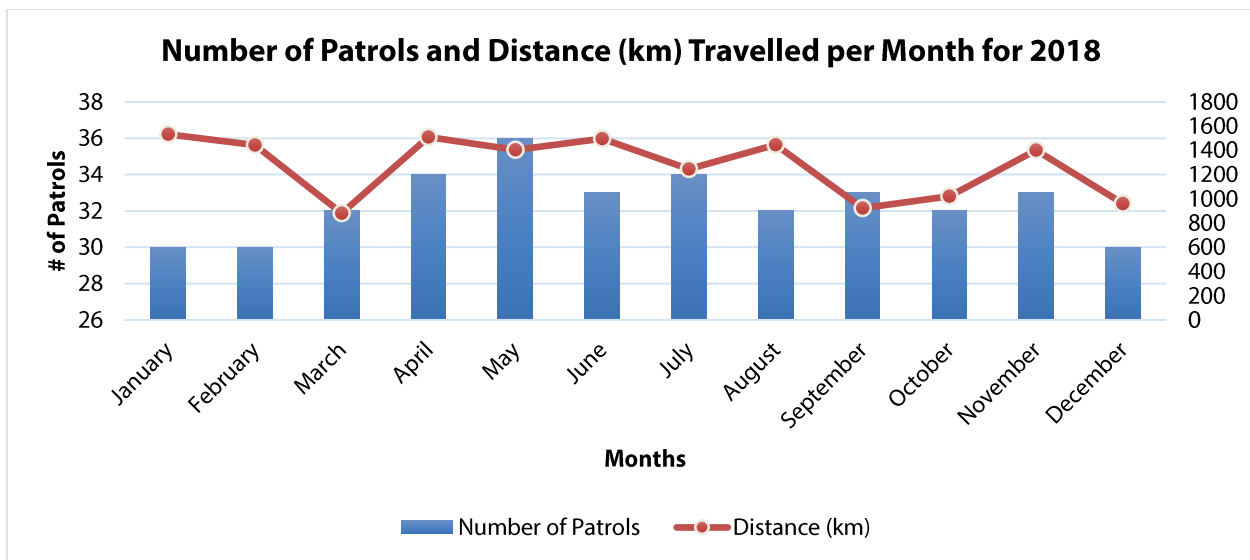
3.0 PHMR Activities Accomplished in 2018

3.1 Patrols and Surveillance

A total number of 389 patrols were conducted for the period January 2018 to Dec 2018 (*Appendix 1: Patrol Routes in 2018*). The rangers travelled a distance of ~15,200km and averaged ~1250km per month. This totaled ~1550 hrs at sea patrolling with an average of ~130 hrs.

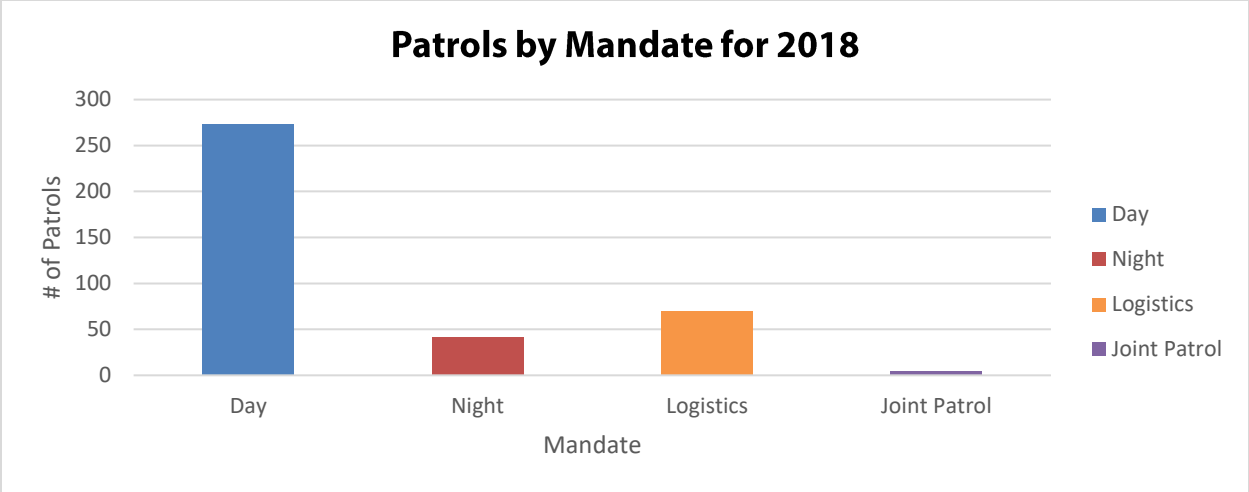


Picture 1: Showing rangers and the Belize Coast Guard inspecting a commercial fishing vessel



Graph 1: Showing patrols by mandate for 2018

An average of 32 patrols were conducted each month focusing on the conservation and preservation zones around the Snake Cayes and the most eastern islands which are the primary habitats for conch and lobster. Other priority areas included the coast leading up to Monkey River Village, the river mouths which empty into PHMR and the conservation zone around Wildcane Caye.

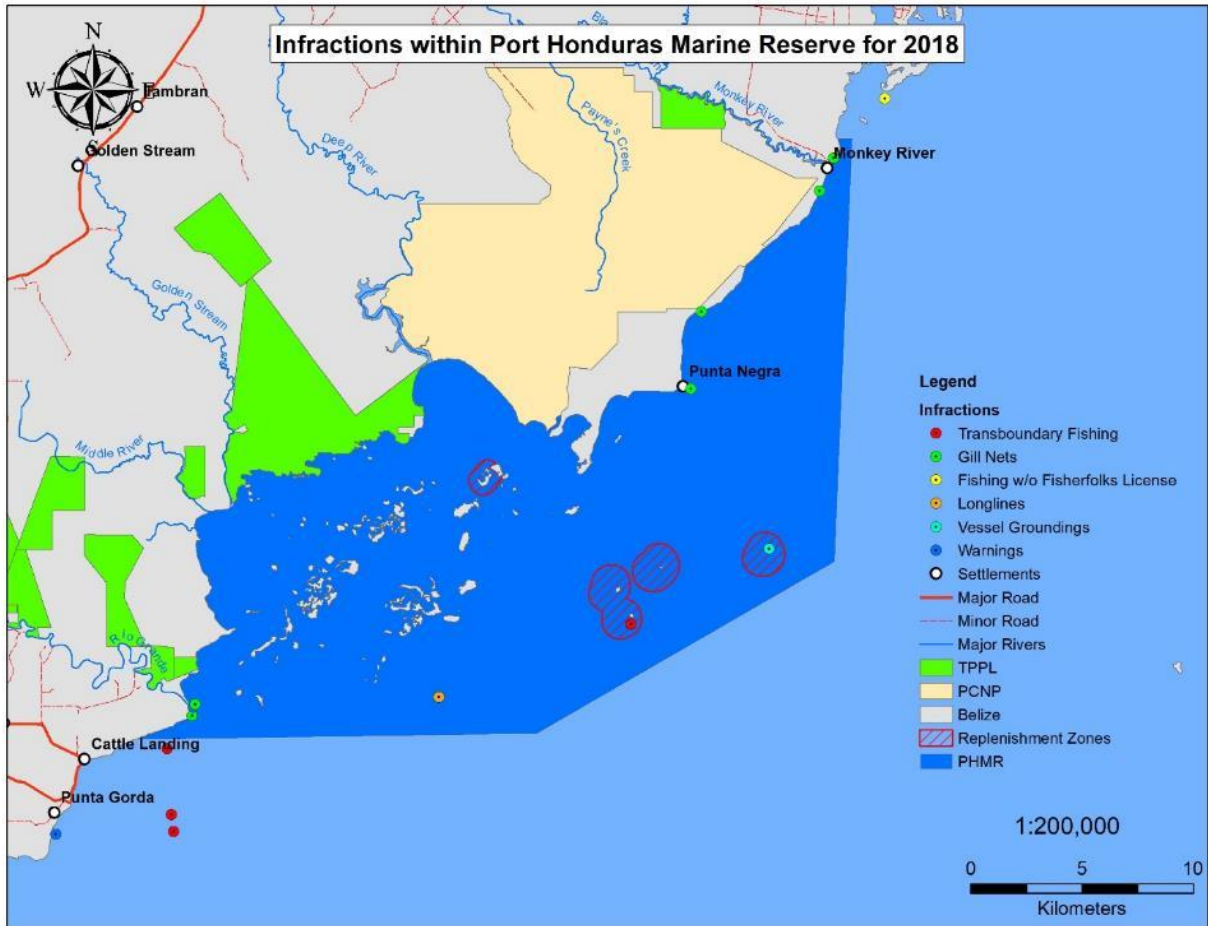


Graph 2: Showing patrols by mandate for 2018

Through the assistance of donors, we received 2 spotlights, 1 night vision binoculars, 2 laptops and regular binoculars which have made patrolling during the night time much safer and effective. The ranger team will continue to prioritize night time patrols of the PHMR to reduce illegal transboundary infractions by Guatemalans and Hondurans.

3.2 Patrol Infractions for 2018

Forty two night patrols were conducted which yielded: 3 arrests with successful prosecutions, 6 gill nets, 1 longline were confiscated, 3 warnings were issued and 1 vessel grounding at East Snake Caye occurred in which the Government of Belize recovered financially for the damages and all successful convictions.



Map 2: Showing infractions within PHMR for 2018

Table 4: Showing details of arrests made in 2018

#	Date	Name of Person	Description of Activity	Outcome	Fine/Penalty
1	28/01/2018	Mynor Cifuentes and Sergio Lopez	Engaged in commercial fishing with the use of restricted gear (gill net), no fisher folk license, no boat license and without distinguishing mark.	Arrested and handed over to the Belize Police Department.	A fine of \$3520 each and their boat, engine and other equipment was forfeited to the Government of Belize.
2	08/04/2018	Jorge Pineda and Kennedy Diaz	Engaged in commercial fishing with the use of restricted gear (gill net) no fisherfolk license, no boat license, possession of bonefish and possession of tarpon.	Arrested and handed over to the Belize Police Department.	A fine of \$2625 each and their boat, engine and other equipment was forfeited to the Government of Belize.
3	21/05/2018	Dalin Cruz and David Medina	Engaged in commercial fishing with the use of restricted gear (gill net), engaged in commercial fishing within a conservation zone (South Snake Caye), no fisherfolk license and no boat license.	Arrested and handed over to the Belize Police Department.	A fine of \$4025 each and their boat, engine and other equipment was forfeited to the Government of Belize.

3.3 Maintenance of Patrol Equipment

The upkeep of the patrol equipment such as the regular cleaning of patrol vessel, regular servicing of the outboard engine (engine oil, oil filter change, gear oil change, freshwater wash and re-greasing) were done by rangers; major repairs and any technical problems were done by a mechanic in Punta Gorda Town. Generally the boat was in good condition however during the later months the tilt and trim was giving significant trouble which limited the effectiveness of rangers on the water.

3.4 Infrastructure Maintenance

The upkeep of the ranger station was done by the rangers and personnel from the Belize Coast Guard (BCG) stationed at PHMR. Monitoring and maintenance of solar system was done by rangers and major issues and checks were done by Christopher Nesbitt who designed and installed the system.



Picture 2: Showing Abalone Ranger station before renovations

The tower and bathroom were refurbished which were severely affected by leakage of rain water. This was a major accomplishment as it improved living conditions and boosted morale for the Rangers and BCG.

3.5 Trainings Accomplished by PHMR Enforcement Staff



Picture 3: Trainers and Rangers who attended the second leg of trainings

Staff members were given the opportunity to participate in a number of trainings through the year.

#	Training or Workshop	Facilitator
1	TIDE Team Building Workshop	
2	Ranger Skills Training	Belize Coast Guard
3	Fisheries Regulations Training	Belize Fisheries Department
4	Managed Access Regulations and Log book fill out	TIDE's Managed Access Officer
5	Special Constable Training	Belize Police Department
6	Fisheries Enforcement Workshop	Belize Fisheries Department

Table 5: Showing trainings and workshops by PHMR Enforcement Team



Picture 4: PHMR rangers receiving training on how to properly fill out logsheets by then MA Officer Ryan Moore

3.6 Training needs for PHMR enforcement staff

1.	Advance Boat and Engine Maintenance Training
2.	MPA Enforcement Training
3.	Protected Areas Management Training
4.	Report Writing Training
5.	SMART/GIS Training
6.	Mooring, Demarcation Buoy Installation and Cleaning Training

Table 6: Showing training needs for PHMR Management Staff

3.7 Partnerships

The PHMR staff continue to work with local and partner organizations, these partners include Southern Environmental Association, the Fisheries Department, the Police Department, the Belize Defense Force, the Belize Coast Guard, the Belize Audubon Society, the University of Belize and the Tour Guide and Fishermen Associations from the buffer communities of the reserve.

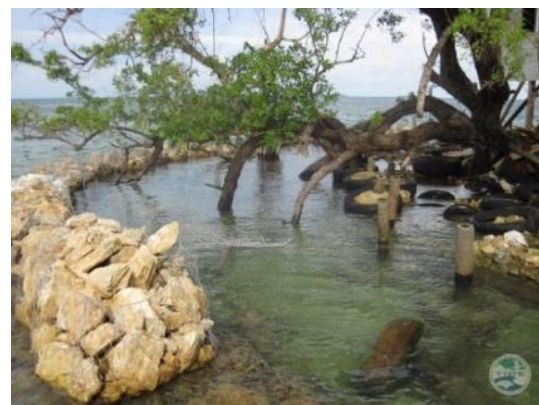
4.0 Communications

TIDE has developed and implemented a communications strategy for 2018 which was carried out by the new communications office. Through past consultations TIDE has identified the need for all stakeholders to be aware of the work TIDE is doing on behalf of them which includes activities relating to PHMR.

As a part of the communication strategy the Goliath Grouper, an endangered species, was highlighted over a period of one month. The message included responsible fishing and buying at the local market to reduce fishing pressure on the specie. We expect similar messages to be communicated to our stakeholders using local media houses as well as Facebook.

5.0 Erosion of Abalone Caye

For a short period in 2018 the island experienced a dramatic increase in erosion on the south western edge which was left unprotected by the gabion baskets. The area contained a small beach which was left exposed for normal beach replenishment processes however the erosion continued close to the pump house which resulted in that device being vacated to TIDE HQ. TIDE will continue to look into means and measures to permanently deal with the erosion problem to save Abalone Caye.



**Picture 5: Showing Abalone Caye and the seawall
Seawall out at Abalone Caye**

6.0 Community Education and Outreach

6.1 TIDE Freshwater Cup 2018

TIDE promotes primary and secondary schools in the holistic development of children ages 8-17 from 44 institutions. For this program a total of 1,605 students were directly involved in the soccer tournament. All schools were given the opportunity to improve their environment or share important tips on healthy living/ drug awareness during this project.



Picture 6: Showing students and their environmental poster

There were 24 environmental projects implemented by 20 primary schools and 4 high schools under the Freshwater Cup program. Thirty primary schools participated in the Esteban Assi Cup, an expansion of the Freshwater Cup engaging their community with drug awareness/healthy living poster presentations. The freshwater cup 2018 program had 23 female teams and 24 male teams. Each team had 15 participants collectively. The FWC program had 705 plus students directly involved in the soccer tournament. The Esteban Assi Cup had 30 female and 30 male teams participating with 15 participants on each team. That gave EAC about 900 children directly involved in the program.



Picture 7: Showing freshwater cup female champions

At the end of the FWC tournament, 3 male and 3 female teams were acknowledged for their team effort in being successful for the 2018 FWC Cup. The final games were held at the Cattle Landing football field with participation from St. Peter Claver Females and Little Flower Males from Zone 1, Big Falls RC Females and San Pedro Columbia RC Males from Zone 2, Golden Stream Gov. Females and Medina Bank Gov. Males from Zone 3 and Our Lady of Bella Vista Male and Females represented Zone 4.

Overall seven schools received a set of soccer jerseys for 2018 which was based on their needs.

The tournament was a successful endeavor with support from the communities and teachers who made the extra effort to have their students involved. Sports brought communities together to have fun and learn from each other as a positive attitude was displayed on and off the field of play.

6.2 Summer Camp

The theme for 2018 summer camp was “Beat Plastic Pollution, If You Can’t Reuse It, Refuse It”. This year’s success was possible with funding from Mass Audubon. The camp was at three locations: Punta Gorda, San Marcos and Big Falls. There were 78 campers engaged in fun-filled activities from July 16-27, 2018. The camp at Punta Gorda had 38 participant’s comprising 18 females and 20 males. The camp at San Marcos had 20 campers with 13 males and 7 females. The camp at Big Falls had 20 campers.

Students learned valuable information on the resources we manage, ways to care for them and what they can do to address some of the concerns they are facing such as coastline debris. There were 15 hardworking volunteers who made 2018 camp a success. San Marcos and Big Falls had 4 facilitators each and Punta Gorda had 7 facilitators.



Picture 8: Showing kids enjoying a game at the summer camp

At the Punta Gorda camp, we had the wonderful support of three Japan International Cooperation Agency (JICA) volunteers- Ryoko, Tamami and Masuki. These volunteers focused on recycling plastic during camp at three locations. During camp healthy snacks were emphasized and students enjoyed the various fruits and vegetable they were provided.



Picture 9: Showing kids working on Arts and Craft projects during summer camp

Each camper was given a camp T-shirt with his or her art piece added during an art session during the camp. At the end of the camp, each group was given the opportunity to visit Payne’s Creek National Park, Port Honduras Marine Reserve and the TIDE Private Protected Lands. Campers had fun learning about nature at the three protected areas. The children enjoyed their stay at West Snake Caye where they snorkeled among fish and corals in the Port Honduras Marine Reserve. All participants of the 2018 camp were eager to return to 2019 camp and we at TIDE hope to have a blast with them in the future

6.3 TIDE Saltwater Cup

The TIDE education coordinator liaised with Cattle Landing, Monkey River and Punta Negra village leaders and school teachers/principals to organize volleyball and play-for-fun football games for three mixed boys’ and girls’ teams in these coastal communities.



Picture 10: Showing kids playing volleyball at Monkey River in the Saltwater Cup

Monkey River and Punta Negra were so remote that their inclusion in the regular Freshwater Cup was prohibitively expensive; therefore, students from Cattle Landing and Punta Negra were transported to Monkey River for games. Winning teams were recognized with a framed photograph of team. The people of Monkey River provided lunch to the participants. Students had a fun day under the sun in Monkey River.

7.0 Managed Access in PHMR and Other Fishing Zones of Belize

7.1 Overview of the Managed Access Program for 2018

Through the European Union project, “Restoring Fisheries in the Mesoamerican Barrier Reef System,” and the Environmental Defense Fund; TIDE has continued with Managed Access activities as well as laying the groundwork for a bright future in Managed Access nationally.



Picture 11: Lane Snapper out at the Punta Gorda fish market

7.2 Fishing Forums



Picture 12: Showing Managed Access Fishing Forum in May 2018

Fishers continue to productively attend the fishing forums, these forums are an important means of dialogue between fishers and Managers and Co-managers. The first forum was held on May and the second in November. We expect a national fisher's forum in the early quarter of 2019 bringing together participants of the European Union project, 'Restoring Fisheries in the Mesoamerican Barrier Reef System.'

7.3 Committee Meetings



Picture 13: Showing Managed Access Committee meeting in February 2018

One committee meeting was held in 2018 which brought fishers from the communities of Punta Gorda, Cattlelanding, Punta Negra and Monkey River. Fishers were engaged and committed to continue to attend and participate in these meetings.

7.4 Outreach Activities



Picture 14: Showing the inside of the Punta Gorda fish market

The primary strategy for PHMR continues to be ‘one on one’ house visits however, frequent stops are still being made to the fish market where the dialogue remains vibrant and energetic. The Managed Access coordinator also conducted a training session with PHMR’s rangers at Abalone Caye over the course of one week whereby boat to boat outreach was done with PHMR’s fishers. Handouts were delivered which included a detailed map of the MA Areas in the southern portion of Belize; a fish ID guide which the fishers were clamoring for was also included.

7.5 Other Activities Conducted



Picture 15: Showing the Managed Access Working Group meeting held in June

A Managed Access working group meeting was held in Belize City on June 14th and 15th. This was attended by the MA Coordinator and the Executive Director. The importance of this session was to thread a path forward for MA in Belize.

8.0 Research and Monitoring

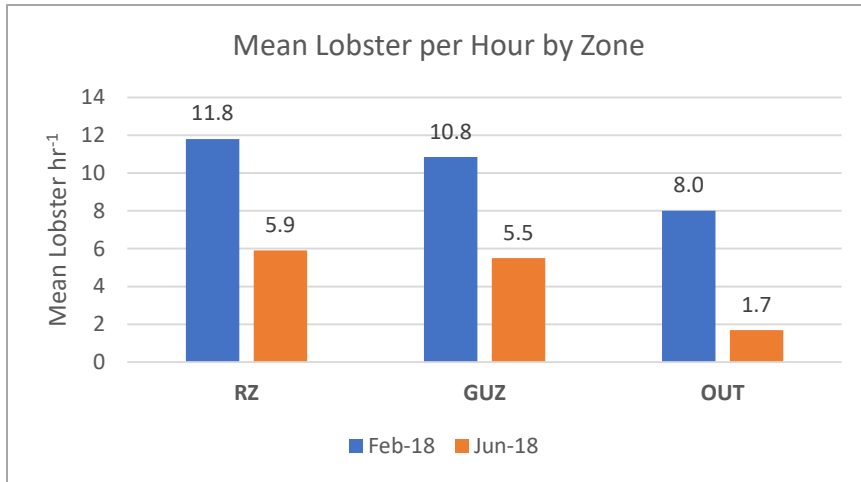
Research and monitoring continue to be an integral part in the management effectiveness of PHMR. Monitoring for the year 2018 included lobster surveys, conch surveys, sea cucumber surveys, coral health surveys, reef fish surveys, reef benthic surveys and coral bleaching surveys. Included with this report will be the commercial species update 2018. A more detailed analysis of the commercial species as well as reporting on coral health and bleaching, reef fish and reef benthic monitoring will be available in the PHMR Biological Report(s) for 2018.

8.1 Lobster Surveys (*Panulirus argus* and *Panulirus guttatus*)

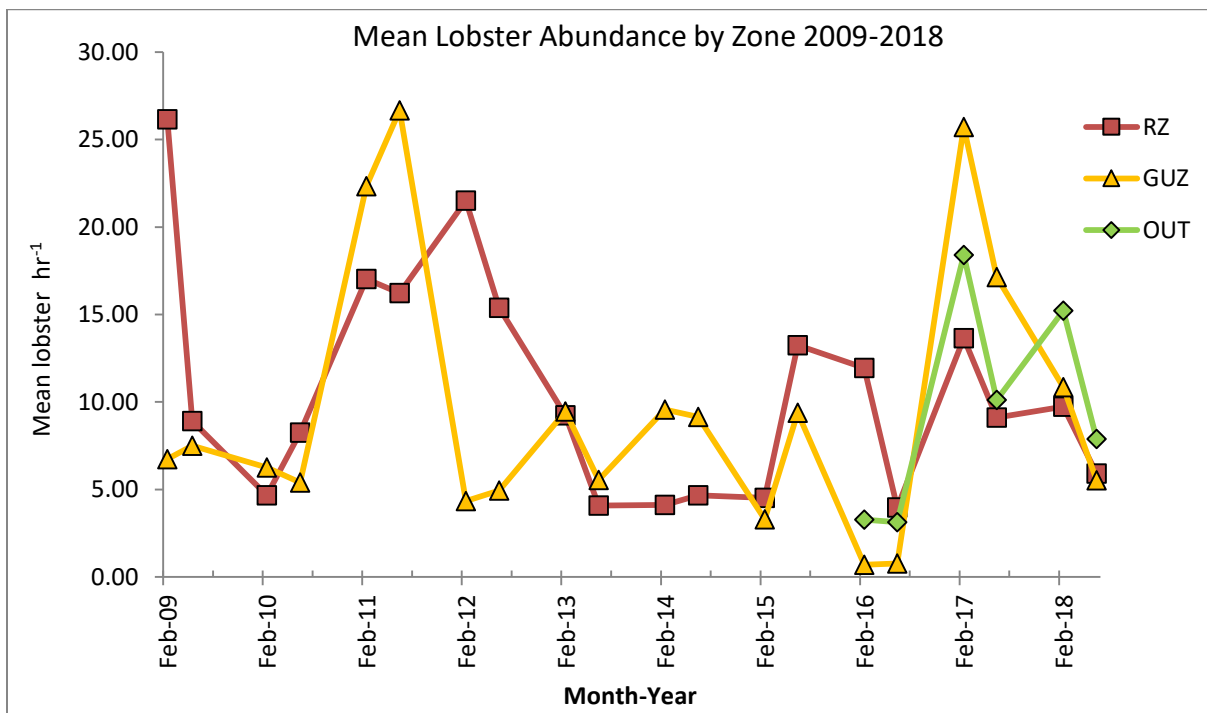
Monitoring of lobster takes place in Port Honduras Marine Reserve (PHMR) twice each year in February when the lobster season closes and in June before the season opens again. There are a total of 21 sites at permanent GPS coordinates for lobster monitoring: 9 sites in the General Use Zone (GUZ), 9 sites in the Replenishment Zone (RZ) and 3 sites monitored Outside (OUT) PHMR for comparative site and zone analysis. Six of the GUZ sites were originally selected using anecdotal knowledge of traditional fishermen. The other GUZ sites were either randomly selected within previous determined random plots or determined with replenishment zone expansion studies.

Of the 21 lobster sites inside and outside PHMR, 14 were surveyed in February at closing of season and 15 sites in June at opening of season in 2018. The number of sites surveyed in each zone varies between monitoring periods and years for a number of reasons including resources, weather and visibility.

Mean carapace length by zone was consistent throughout 2018 and ranged in all three sites from ~7-8.5 cm. The average lobster population was approximately the same in the RZ and GUZ in February (~6 lobster per hour) and June (~10-11 lobster per hour) 2018 (Figure 1). Of the 26 female lobster found in the GUZ, 8 were berried (with eggs) with carapace range from 8-10 cm. In the RZ, 3 of 15 (20%) female lobster carried eggs at 8-11 cm carapace range. The average number of lobsters decreased in all three zones from the closing season in February to opening season in June, a trend observed since 2016 (Figure 2).



Graph 3: Mean number of lobsters per hour by zone at close of season (February) and opening of season (June) 2018. [Replenishment Zone (RZ), General Use Zone (GUZ) and Outside the Reserve (OUT)].



Graph 4: Mean number of lobsters per hour by zone 2009-2018. [Replenishment Zone (RZ), General Use Zone (GUZ) and Outside the Reserve (OUT)].

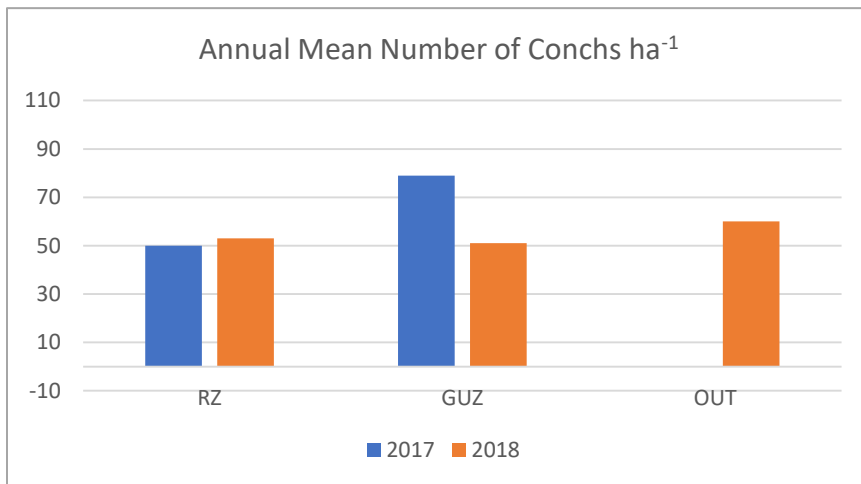
8.2 Queen Conch Surveys (*Strombus gigas*)

Monitoring of queen conch takes place in Port Honduras Marine Reserve (PHMR) twice each year in July after the conch season closes and in September before the season opens again. There are a total of 19 sites currently monitored at permanent GPS coordinates: 11 sites in the General Use Zone (GUZ), 5 sites in the Replenishment

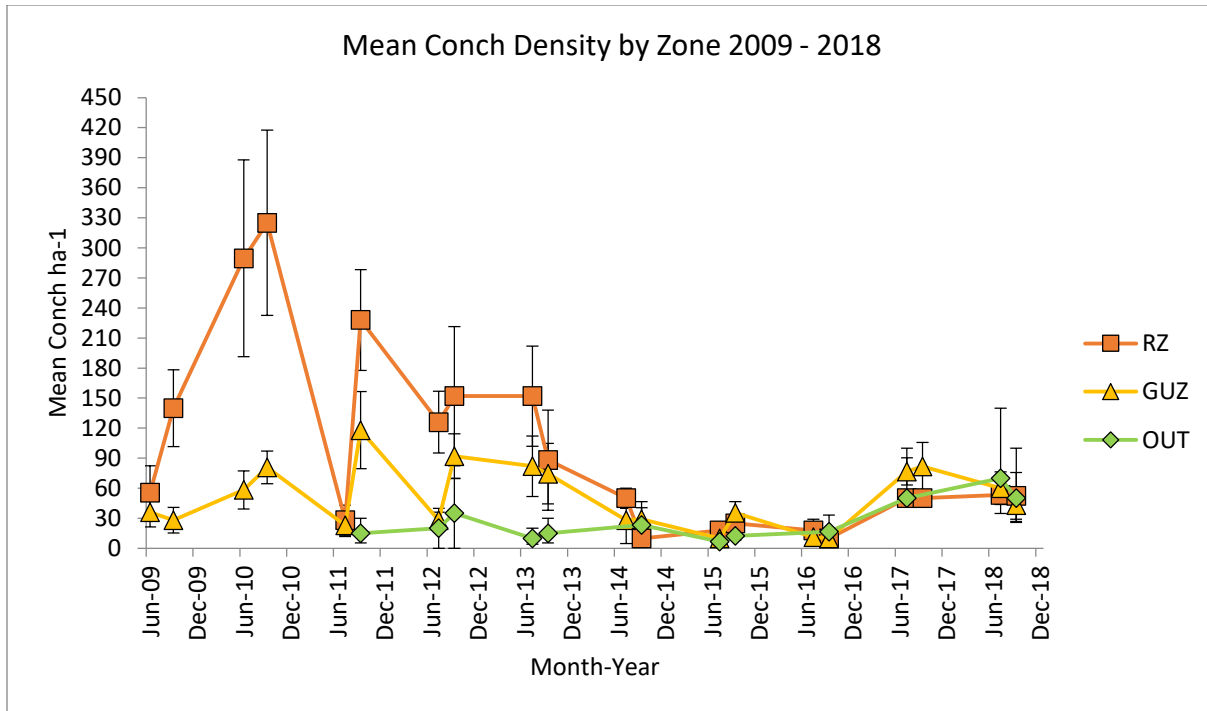
Zone (RZ) and 3 sites monitored Outside (OUT) PHMR for comparative site and zone analysis. Data was collected in July 2018 at 15 of the 19 permanent sites and in September at 14 of the 19 permanent sites. Weather, low visibility and logistical considerations prevented all 19 sites from being monitored.

Mean queen conch length at closing and opening of the season ranged from 20-23 cm, greater than national shell length limit at 17.8 cm. However, the majority of conchs measured in July showed mean lip thickness in all three zone <5 mm, suggesting they were immature (juvenile) conchs.

The mean queen conch density in the RZ was the same in July and September at ~53 ha⁻¹, similar to the annual mean density of the GUZ at ~51 ha⁻¹ which was a decrease from 2017 population levels. Though both 2017 and 2018 conch densities in zones were below suggested minimum mating thresholds at 88 ha⁻¹, populations have increased compared to 2014-2016 population lows.



Graph 5: Mean queen conch density, number of conchs per hectare, in RZ and GUZ: 2017-2018. [Replenishment Zone (RZ), General Use Zone (GUZ) and Outside the Reserve (OUT)].



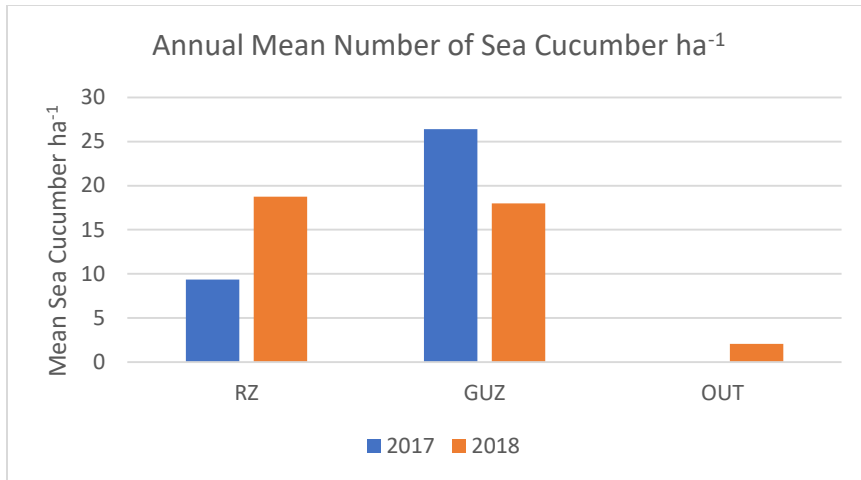
Graph 6: Mean queen conch density, number of conchs per hectare, in RZ and GUZ: 2009-2018. [Replenishment Zone (RZ), General Use Zone (GUZ) and Outside the Reserve (OUT)].

8.3 Sea Cucumber (*Holothuria mexicana*)

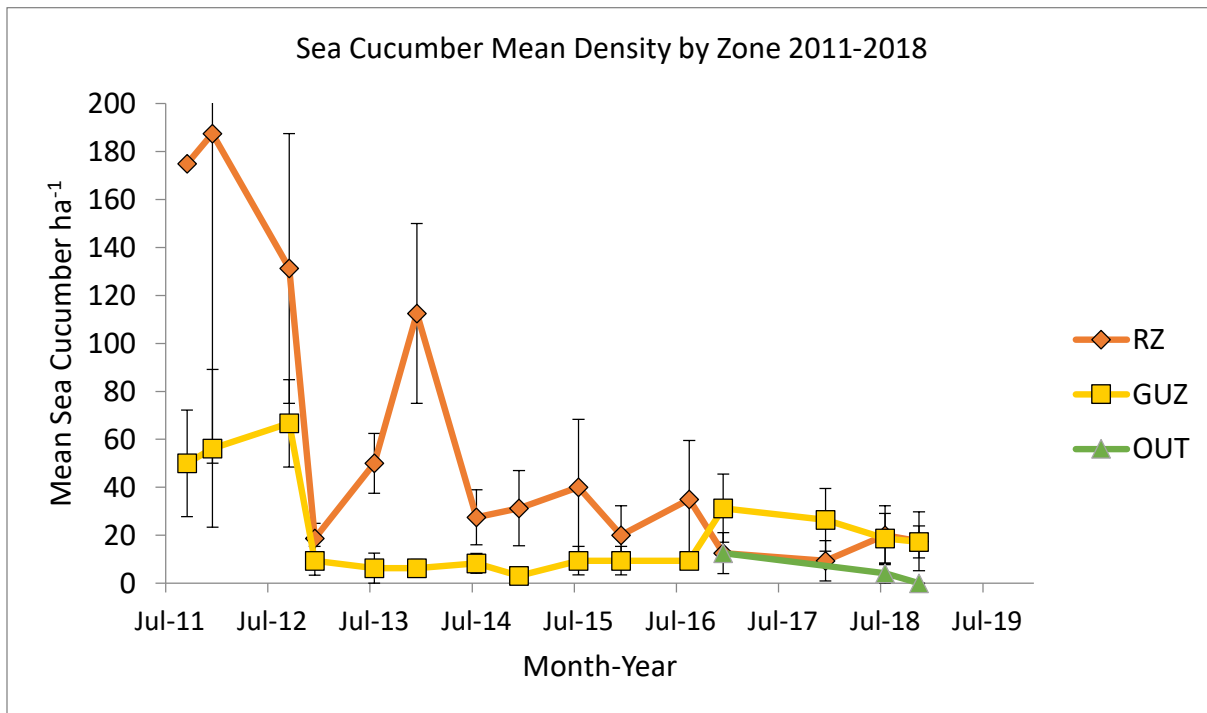
Monitoring of sea cucumber takes place in Port Honduras Marine Reserve (PHMR) twice each year. Though there is currently a moratorium on sea cucumber harvesting, the biannual surveys were conducted in July and November 2018 to acquire population density and determine mean size in different management zones. There are a total of 16 sites currently monitored at permanent GPS coordinates: 8 sites in the General Use Zone (GUZ), 5 sites in the Replenishment Zone (RZ) and 3 sites monitored Outside (OUT) PHMR for comparative site and zone analysis. All 16 sites were monitored in July and November 2018.

Annual mean sea cucumber weight and length were similar in RZ and GUZ at ~586 g and 21 cm respectively.

The 2018 annual mean density of sea cucumbers ha⁻¹ ranged from 17-20 in the RZ and GUZ, but only 2 ha⁻¹ OUT (Figure 5). The sea cucumber population seemingly increased from 2017-2018 in RZ, however, it is still extremely low compared to pre-2013 population levels (Figure 6).



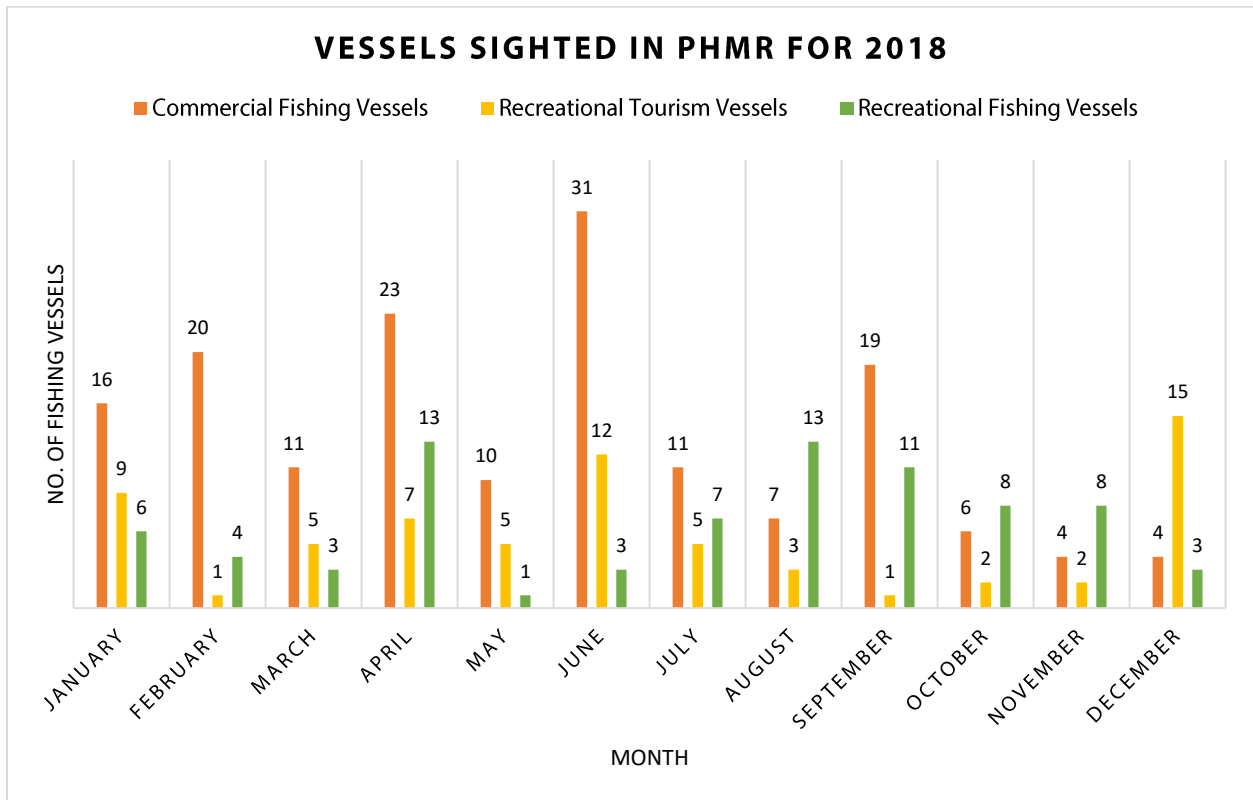
Graph 7: Mean sea cucumber density, number of sea cucumbers per hectare, by zone: 2017-2018. [Replenishment Zone (RZ), General Use Zone (GUZ)]



Graph 9: Mean sea cucumber density, number of sea cucumbers per hectare, by zone: 2011-2018. [Replenishment Zone (RZ), General Use Zone (GUZ) and Outside the Reserve (OUT)].

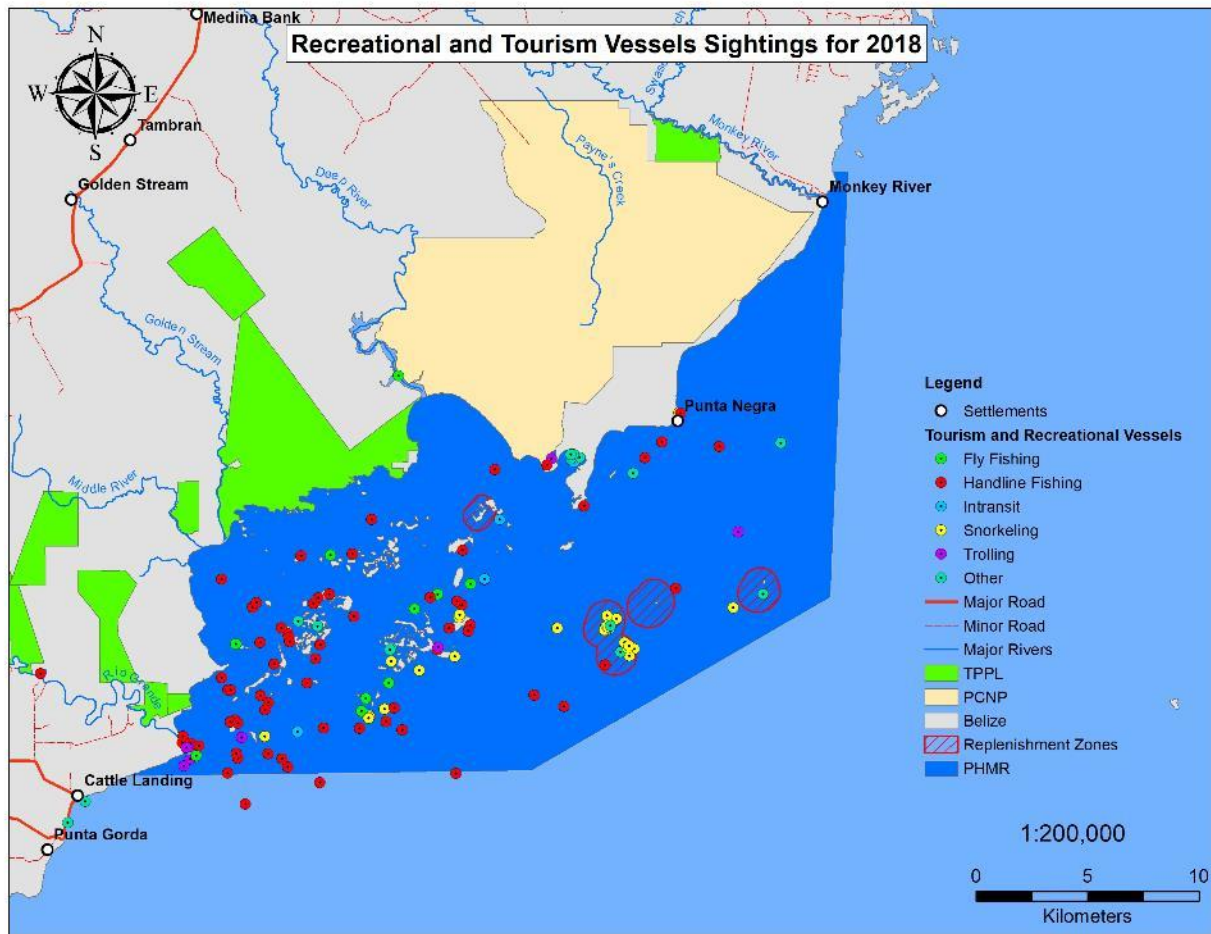
9.0 Commercial, Recreational and Tourism in PHMR

9.1 Vessels in PHMR



Graph 8: Showing vessels sighted in PHMR for 2018

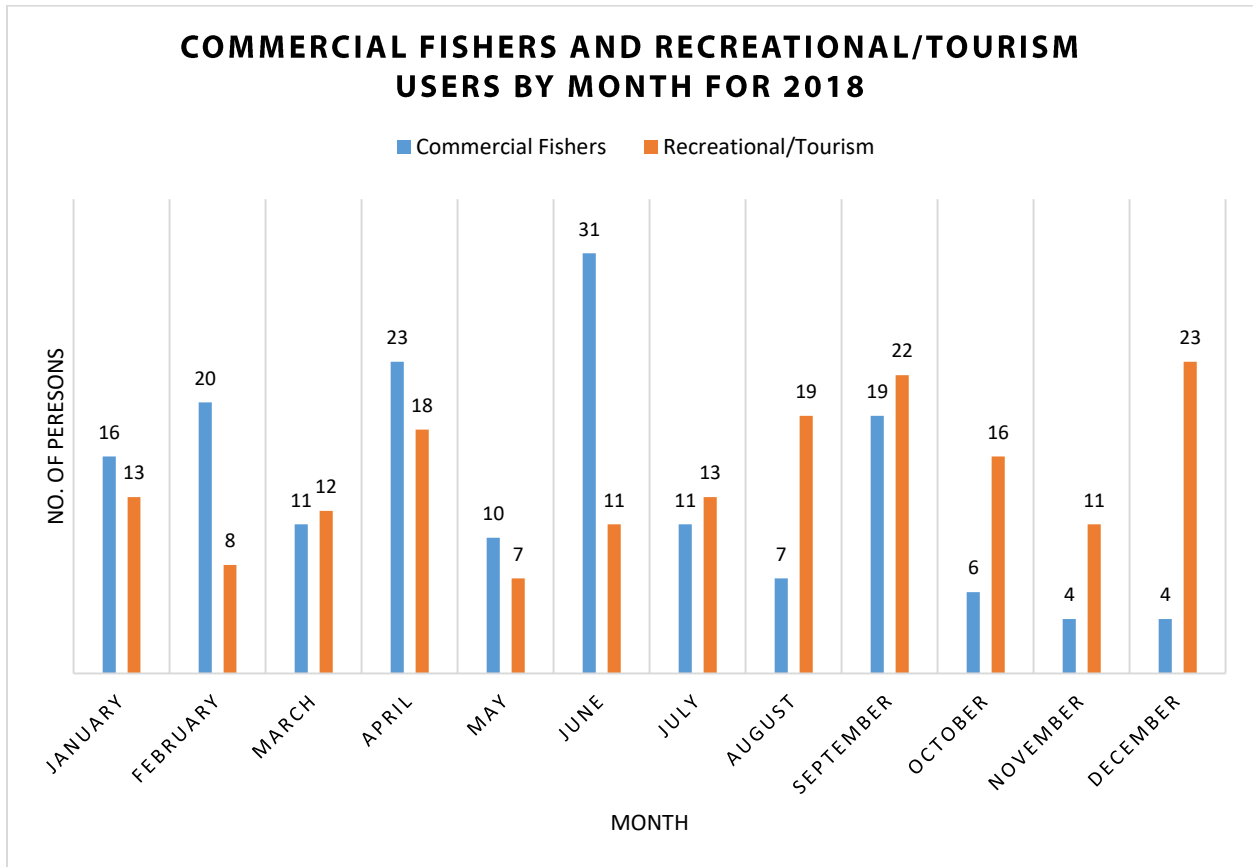
In 2018 the rangers through the Spatial Monitoring and Reporting Tool (SMART) logged over 333 vessels in the reserve. Of these vessels 162 were commercial fishers, 67 were recreational tourism vessels, 80 recreational fishing vessels and 24 other vessels either transiting the area or conducting other activities.



Map 3: Showing Recreational and Tourism Activities sighted in the reserve by Rangers and logged using SMART

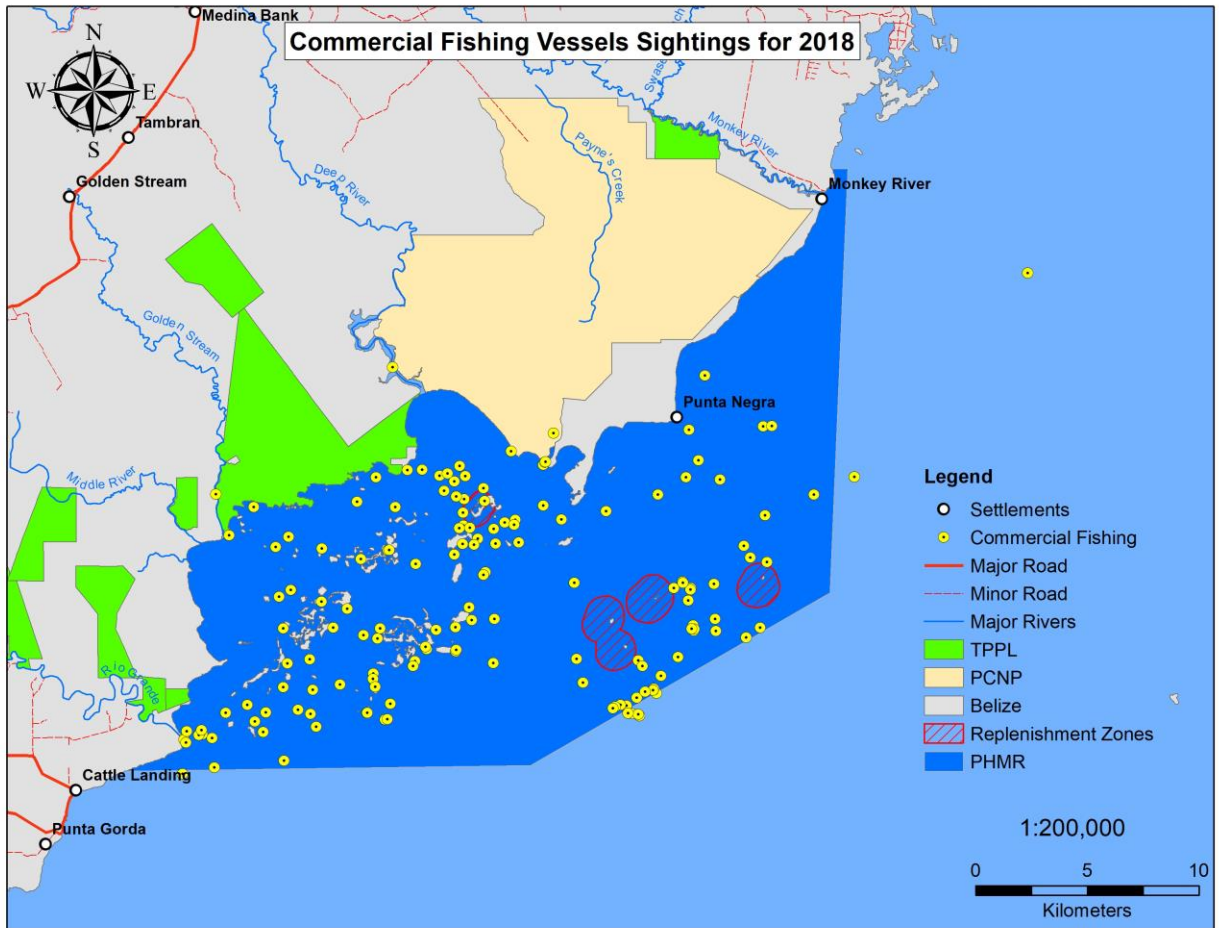
The map above shows that a majority of the reserve is being used for both recreational fishing and tourism related activities.

9.2 Commercial Fishers Recreational and Tourism Users in PHMR



Graph 9: Showing the commercial and recreational/tourism users for 2018

In 2018 TIDE Port Honduras Marine Reserve enforcement team, through SMART, logged ~162 commercial fishers and ~173 recreational fishers and tourism users in the reserve (Note: *These numbers are due to technical issues with the SMART program*).



Map 4: Showing Commercial fishing vessels in PHMR for 2018

The map above shows the approximate location for commercial fishers within PHMR (*The gps coordinates is taken at the location of the patrol vessel unless the rangers are directly interacting with the commercial fishers*).

Fishers Name
Aaron Burgess
Adrian Noralez
Akeem Williams
Alan Bochub
Alberto Bardalez
Alex Leonardo
Alex Williams
Alexander Garbutt
Alonzo Reymundo
Angel Aleman
Angel Escobar

Angel Paiz
Anna Ramirez
Anselma Cabrera
Armando Ramirez
Avington Ramirez
Bert Logan
Byron Paiz
Carlos Bardalez
Carlos Bardalez Jr
Carlos Ramirez
Consuela Lira
Daniel Tillett

David Bahadur
Earl Bowden
Earl Bowden Jr.
Edgar Aleman
Elder Aleman
Elon Cuevas
Evan Cuevas
Genevieve Ramirez
George Alford
George Ramirez
Gorge Ramirez
Harrison Young

Hilbert Brian Cuevas
Jason Williams
Jenny Ramirez
Joel Casimiro
John Nunez
Jonathan Alford
Kent Audinette
Leonel Delcid
Leroy Williams
Leslie Williams
Mainor Cifuentes
Mainor Melgar

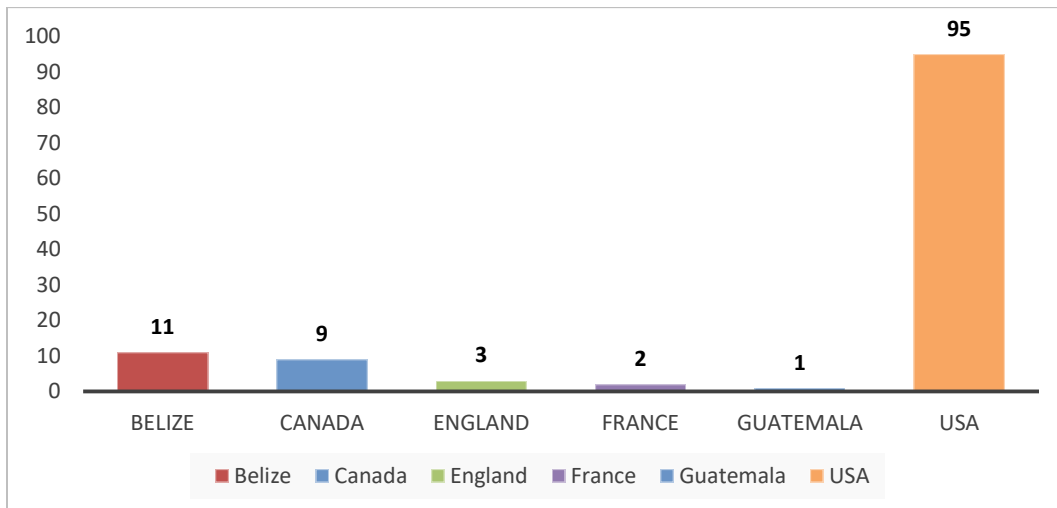
Mario Muschamp
Martin Reyes
Michael Williams
Miguel Bardalez
Mynor Melgar
Mynor Perez
Oliver Rojas
Oscar Lira
Rafael Ramirez
Ray Arzu
Ray Jacobs
Raymundo Noralez

Rayven Rain Garbutt
Reymundo Aleman
Reynaldo Ramirez
Romulo
Ruben Paiz
Serbando Canelo
Serjio Lopez
Wallace Bardalez
Wayne Castellanos
Winsley William Cuevas Jr.
Winston Thompson
Yonardo Cus

Table 7: Showing commercial fishers sighted in PHMR for 2018

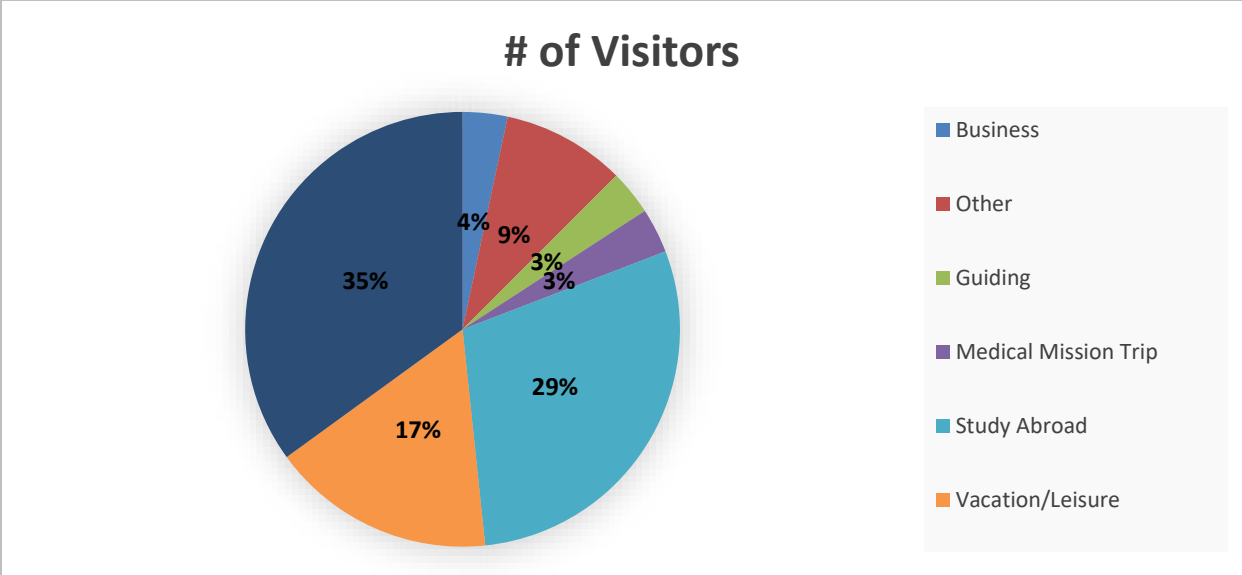
10.0 Recreational Tourist Visitation to Abalone Caye

A total of 121 individuals, from six different countries, stopped by the station and received presentations from the rangers.



Graph 10: Showing number and origin of visitors to Abalone Ranger Station

There are visitors that venture direct to West Snake Caye, an island within the conservation zone and conduct sport fishing, swimming, snorkeling within the reserve, and do not visit the ranger station so a record of their visit is not recorded in the log book but are captured in the ticket sale record.



Graph 11: Showing purpose of visit to Belize

11.0 The TIDE Team

11.1 Board of Directors

Albert Gabriel Roches (Chair)	Retired Public Officer (Public Health)
Jeremy Enriquez (Director)	Program Manager, Ecology Project International
Alexander Garbutt (Director)	Local Fisherman and Tour Guide in Monkey River/Monkey River Village Council
Marie Aleman (Vice-Chair)	Entrepreneur/Community Representative
Dale Gomez (Director)	PCNP Advisory Council Representative
Paula Williams (Director)	PHMR Advisory Council Representative
Williams Tate (Treasurer)	Entrepreneur/Tourism Community Representative
Celia Mahung	Executive Director (Ex-Officio)

11.2 TIDE Staff

11.2.1 Management Staff

Celia Mahung	Executive Director
Allan Genus	Program Manager
Joe Villafranco	Development Director
Stephene Supaul	Operations Manager
Heidi Waters	Science Director
Ryan Moore	Marine Manager
Mario Muschamp	Terrestrial Manager
Federico Caal	Environmental Education Officer/ Community Development Officer
Jasmine Faber	European Union - Project Manager
Paul Etienne	Information Technology Officer
Nigel Gomez	Managed Access Coordinator
Sabrina Myvett	Communications Officer

11.2.2 Administrative Staff

Darius Avila	Accountant
Kimberly Lawrence	Financial Administrator
Alaine Noralez	Accounts Clerk
Ishiamae Gomez	Front Desk

11.3 PHMR Advisory Committee

Mr. Dennis Garbutt/ Mr. Alex Leonardo	BTIA/PG Tour Guide Association
Mr. Armando Ramirez	Rio Grande Fisherman Cooperative
Mr. Daniel Castellanos	Monkey River Village Council/ Fishers Assoc.
Hon. Michael Espat	Area Representative
Mrs. Paula Jacobs	Chairperson Punta Negra Village Council
Mr. Roy Polonio	University of Belize-Toledo Campus
Mr. Lyndon Rodney/Victor Vasquez	Fisheries Department-PG
Mr. Kevin Choc	PG Town Council
Mr. Ivan Williams	Monkey River Village Council
Mrs. Celia Mahung	Executive Director
Mr. Mario Muschamp	Terrestrial Manager
Mr. Ryan Moore	Marine Manager

11.4 Tide Private Protected Lands Staff

Mario Xi	Head Ranger
Santiago Cucul	Ranger
William Garcia	Ranger
Pedro Shol	Ranger

11.5 Payne's Creek National Park Staff

Mario Muschamp	Terrestrial Manager
Augustin Sho	Ranger
Leonard Williams	Ranger

11.6 TIDE Tours Staff

Delonie Forman	
Caroline Oliver	
Martin Ack	
Anthony Rash	

12.0 Conclusion and Recommendations:

TIDE has completed its 3-year annual work-plan/budget 2019-2021. Information was gathered from technical documents such as the management plan, the strategic plan and the strategic enforcement plan.

For the coming year 2019, it is recommended we follow up on concerns raised by fishers pertaining to bait fishing and illegal transboundary fishing.

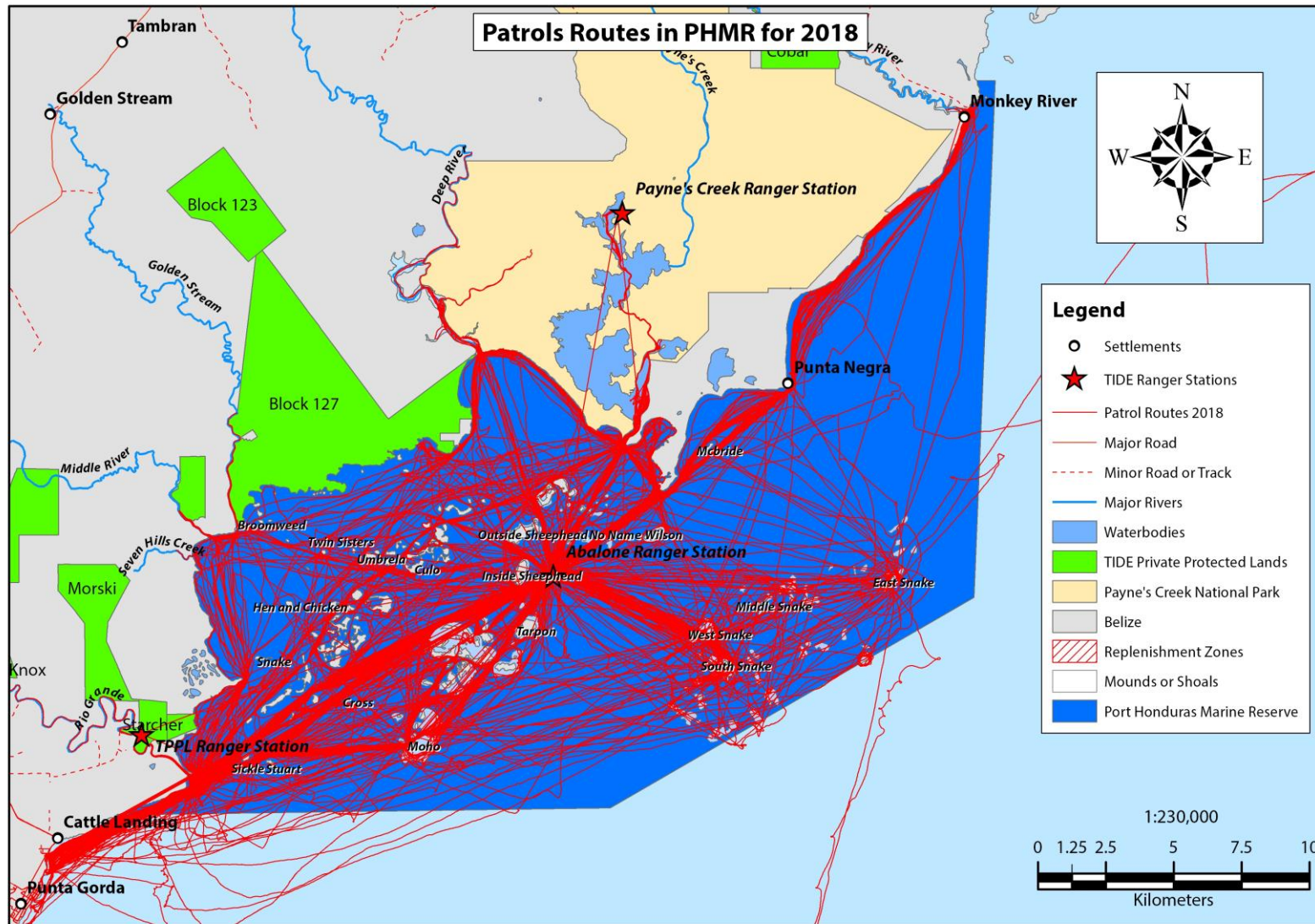
Recommendations

- Continue to collect socioeconomic data of the communities adjacent to the MPA to determine level of impact from management of the Reserve.
- Continue to evaluate success derived from activities or trainings that created local jobs to demonstrate MPA's contribution to the sustainable development in the area as well as identify gaps and opportunities for sustainable livelihood development activities.
- Continue to build staff capacity and Improve in technology to be more cost effective in the management of the protected areas.
- Continue to monitor for new developments in and around the reserve that can pose serious threat to the integrity of the protected area and ensure the Environmental Impact Assessment process is followed for the development and implementation of those projects.

On a final note, as can be seen in this report, the use of SMART in reporting was prevalent and extremely effective in capturing management needs which is otherwise lost using normal measures. With the addition of 2019 data TIDE expects to conduct a comparison to visualize the progress being made in regards to enforcement in PHMR. For 2019 we also hope to introduce to the SMART system tower observations which will include coverage of resource users not captured during patrols and catch sampling of all fishing activities in the reserve. With that, TIDE would like to express its deepest gratitude to all those who have made the management of PHMR a success in 2018.

13.0 Appendix

Appendix 1: Patrol Routes in 2018



Appendix 2: Financials

Toledo Institute for Development and Environment Port Honduras Marine Reserve Income & Expense Report January through December 2018

Ordinary Income/Expense	
Income	
4001 · Grants	807,959.64
4004 · Other Income	3,607.77
Total Income	<u>811,567.41</u>
Expense	
3001 · Equipment	10,032.20
3005 · Building	5,000.00
5001 · Salaries/Wages & Benefits	266,696.83
5002 · Travel & Transportation	1,516.63
5003 · Cleaning & Sanitation	95.88
5004 · Donations	767.00
5005 · Dues & Subscriptions	900.00
5006 · Insurance, Licensing & Permits	3,158.77
5007 · Postage & Delivery	1,360.89
5008 · Professional Fees	62,069.58
5009 · Public Awareness & Env. Ed.	52,577.35
5010 · Repairs and Maintenance	30,168.06
5011 · Supplies	23,378.16
5012 · Training	27,831.48
5014 · Board/Advisory Board Expense	2,105.18
5015 · Utilities	4,402.61
5016 · Telephone, Comm. & Internet	7,136.95
5017 · Bank Charges	1,538.08
5020 · Net Working	49,917.54
5025 · Institutional Strengthening &	3,850.24
5026 · Research & Monitoring	34,766.31
5027 · Recruitment	253.13
5035 · Surveillance, Patrol & Enforce	107,743.86
5037 · Community Development	113,411.83
Total Expense	<u>810,678.56</u>
Net Ordinary Income	<u>888.85</u>
Net Suplus(Excess)	<u>888.85</u>