

Port Honduras Marine Reserve

Annual Report 2005

Submitted to: Belize Fisheries Department

Submitted by: Toledo Institute for Development and Environment



To promote the sustainable development of the Toledo District by fostering the efficient and effective management of its natural resources, conducting relevant research and by providing training and advocacy in order to preserve our natural heritage for present and future generations.

Contents

Table of Contents	1
Words from the Manager	2
About TIDE	3
TIDE's Goal	3
Our Approach	3
Where We Work	4
TIDE's Organizational Structure	4
About PHMR	4
Introduction	4
Reserve's Strategic Plan and Goals	5
Zoning Plan and Regulations	6
Legal body responsible for establishing regulations and procedures	6
Staff	7
PHMR Accomplishments 2005	9
Patrols and Surveillance	9
Partnership	10
In the Community	11
Community Support	11
Community outreach and Education	11
Community Meetings and training	12
Community Involvement	13
Reaching Out	13
Institutional Development	14
Infrastructure Development	16
Visitors to PHMR	17
Reserve Fees	18
Research and Monitoring	18
Users of the reserve for 2005	30
TIDE Board of Directors	32
TIDE Staff	32
PHMR Advisory Committee	33
Scholarship Students, Interns and Volunteers	34
PHMR Donors	34

Words from the Manager

This report summarizes the main activities occurring within the Port Honduras Marine Reserve for January 2005 to November 2005. This year again was a very successful year for the Port Honduras Marine Reserve. A number of training was held this year both for community members and for the PHMR staff. The Caribbean Regional Environmental Program (CREP) contributed to the occurrence of several of these training. One of the main techniques we continue to use in the management of the Port Honduras Marine Reserve is public awareness, education and to have as much community participation as possible in the management of the reserve. Last year a community ranger training was held at TIDE, during which 6 hand held radios were distributed to the community rangers. The main focus of this training was to have more community participation. This year 10 binoculars were given to the community rangers to further build their capacity. A number of meetings were held at Monkey River, Punta Negra and Punta Gorda Town, to build and strengthen relationship within the community and also to update them on the ongoing activities within the reserve. Special effort was made to reach out to the tour guide association through regular meetings, discussing issues such as visitor fees, and efforts in working together.

As part of our Education program for PHMR, several presentations and field trips were carried out by our Environmental Educator Danika Sierra. A total of twenty schools including primary, secondary and tertiary level within the Toledo District were targeted.

During the early part of this year, PHMR staff met with SCMR staff, Fisheries Department in Punta Gorda and the BDF Maritime wing to discuss efforts in working together. The initial plan was to conduct a number of joint patrols, and tour the different reserves together. However, due to lack of staff and fuel, we could not conduct as much patrols as planned. Next year we want to improve this since it is equally important to stakeholders of both reserves.

In terms of our capacity building program, we want to congratulate Ranger Marlon Williams and George Sambula for becoming certified special constables. We also want to congratulate Marine Biologist Juan Chub for completing a course offered by the Florida International University and the Universidad Nacional Autonoma de Mexico, in Marine Protected Areas Management.

In terms of infrastructure and institutional development we must thank the Caribbean Regional Environmental Program (CREP) again for proving us with demarcation buoys, a vessel and paying two of our PHMR rangers.

We also want to give special to the Fisheries Department, the PHMR Advisory Committee, The OAK Foundation, AVINA, National Oceanic and Atmospheric Administration, United Nations Development Programme – Global Environment Facility/Small Grants Programme, The Wallace Foundation, The Nature Conservancy, Mesoamerican Barrier Reef Systems, and the Foundation for Environmental Solutions.

Special mention must be made to the villagers of Monkey River and Punta Negra and the rest of the TIDE team.

Dennis Garbutt
Manager
Port Honduras Marine Reserve

About TIDE

The Toledo Institute for Development and Environment (TIDE) is a non-governmental organization (NGO) founded in September 1997 to meet the growing environmental and development needs of the Toledo District, the most southern district of Belize. The Toledo Institute for Development and Environment was conceived as a local initiative in response to the negative environmental effects from activities such as manatee poaching, illegal fishing, illegal logging and destructive farming methods.

TIDE's Goal

The organization has been hard at work over the past seven years to achieve its goal of improving organization's capacity to enable it to promote the protection and responsible management of Toledo's natural resources while simultaneously fostering programs that will create and promote sustainable alternative economic opportunities for resource users who have traditionally depended on these natural resources for their livelihoods. These alternatives accomplish two goals: instilling a sense of ownership in our common resources while conserving them for future generations.

Our Approach

As part of its expansive conservation program, TIDE employs several conservation methods from natural and social sciences, which fall under five strategic objectives:

1. Protected Areas Planning and Management
To protect conservation targets by promoting and leading the planning and management of protected areas in the target area.
2. Promotion of Sustainable Development
To foster integrated conservation and development initiatives that generates opportunities for the residents and lead to the sustainable development of the target area.
3. Research and Monitoring
To maintain the biodiversity and integrity of the ecosystems through continuous research, monitoring and appropriate interventions.
4. Environmental Education and Outreach
To expand and enhance the knowledge base on target area's natural resources to promote its protection and sustainable use.
5. Institutional Development
Improve TIDE's organizational capacity to accomplish its mission.

Where We Work

Near to its inception, TIDE identified what is now known as the Maya Mountain Marine Corridor (MMMC) as a high priority conservation action site. The MMMC is a magnificent natural area covering almost one million acres of land and 1000 square miles of sea. The MMMC extends from the crest of the Maya Mountains in southwestern Belize to the southern end of the Belize Barrier Reef System. Within this area, the more significant conservation activities revolve around the efforts in managing the Port Honduras Marine Reserve, Paynes Creek National Park and TIDE's Private Land Initiative.

TIDE's Organizational Structure

Initially started by volunteers, TIDE has now grown to include the Executive Director, who manages the organization and 29 other paid staff. The organization also has a policy making body – A Board of Directors – comprised of individuals from a wide cross-section of the society.

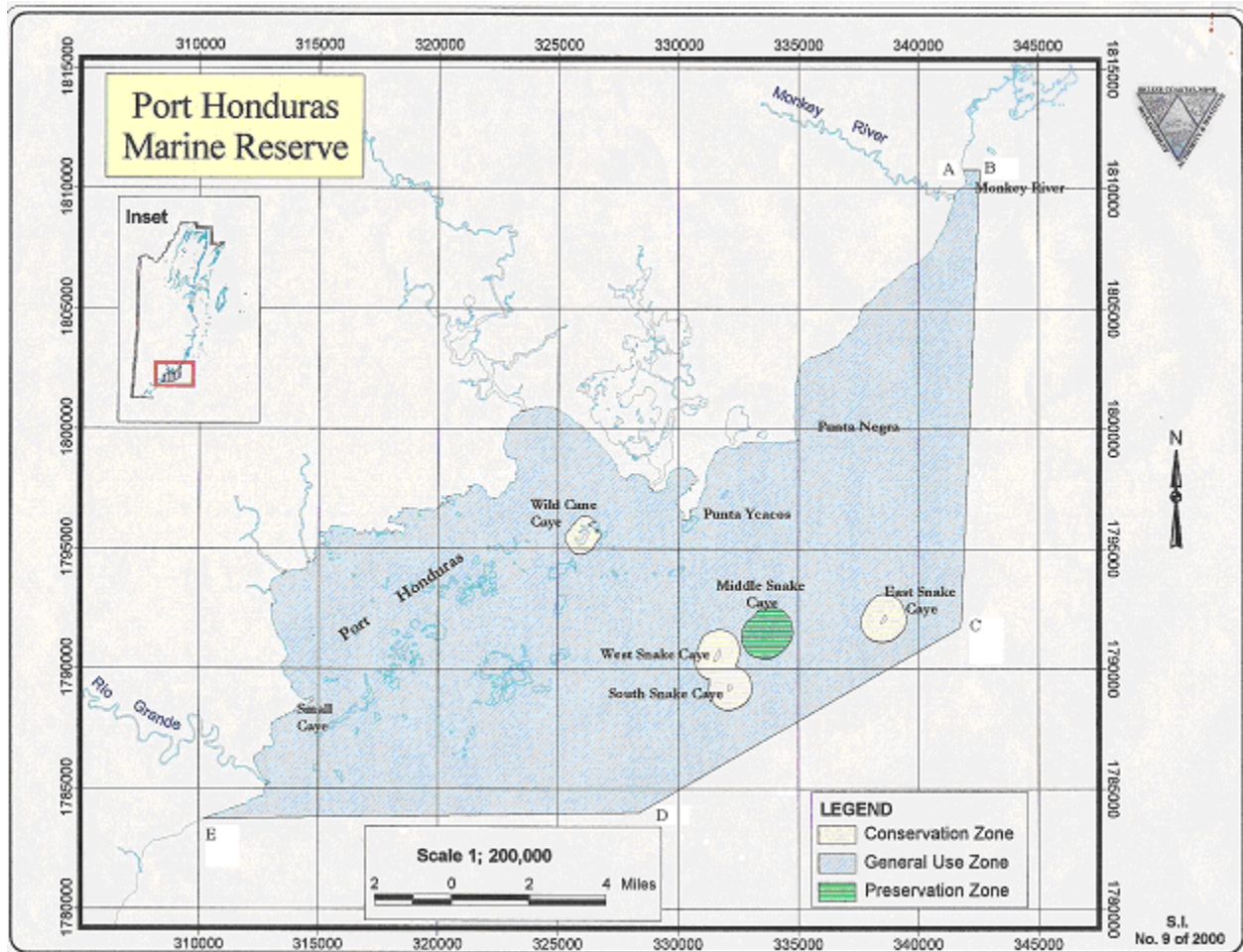
About PHMR

Introduction

Declared by the government of Belize in January 2000, the Port Honduras Marine Reserve is being actively co-managed by the Toledo Institute for Development and Environment (TIDE) and the Belize Fisheries Department. The Port Honduras Marine Reserve comprise of an area of approximately 160 square miles. The PHMR is an integral part of the Maya Mountain Marine Corridor and is located in southern Belize near the coast just off Punta Gorda Town (Ganja Point) between Rio Grande Bar and Monkey River Village. It comprises all the coastal wetlands, sea, seabed, and National Lands within the area known as Port Honduras with general boundaries being Rio Grande in the South, Monkey River in the North, the Snake Cayes in the East and the coastal wetlands along the coast.

The Port Honduras Marine Reserve is rich in biodiversity containing, approximately 138 small mangrove cayes, which provide essential habitat and nursery for juveniles. Other critical habitats include sea grass beds, hard bottom communities, and the soft bottom communities. A large portion of the reserve is inhabited by the Seagrass, which also provide essential habitat and food for juveniles, sea turtle, crocodiles and the West Indian Manatee. Within the Port Honduras Marine Reserve are also fringing reefs and several coral patches and coral heads, which provide habitat for vertebrates and invertebrates.

There are two villages located in the Marine Reserve, Monkey River and Punta Negra Village. These residents are mostly commercial fishers, tour guides, or fly-fishing guides who depend on the reserve for their income.



Map of the Port Honduras Marine Reserve

Reserve's Strategic Plan and Goals

The PHMR management strategy is based on five major goals:

1. To protect the physical and biological resources of Port Honduras.
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

Zoning Plan and Regulations

For the purposes of the regulation and control of the Reserve, five zones were established:

1. General Use Zone (95% of the reserve)
To provide opportunities for established uses and activities (e.g. fishing for conch, lobster and finfish) under a stringent monitoring scheme
2. Conservation I Zone
To provide an undisturbed area for recruitment of species to adjacent areas and to provide an area free from all research and collecting that will allow research and collection
3. Conservation II Zone
To provide an area free from commercial fishing to prevent fishery stocks from over exploitation and to enhance the value of the area for recreational and tourism activities.
4. Preservation Zone
To provide areas within the reserve that are preserved in an entirely natural state and to protect areas of particularly fragile habitat or with threatened or rare species.
5. Special Management Area
Area reserved for special projects

Legal body responsible for establishing regulations and procedures

Under the Fisheries Amendment Act of 1983, the Fisheries Department is *ultimately* responsible for the establishment and implementation of marine reserves. However, the Fisheries Department entered into a formal agreement for co-management of the PHMR with TIDE. Management of the reserve is delegated to a management committee that TIDE chairs. The role of the PHMR Advisory Committee includes: ensuring regular revision and review of the management plan, commenting on and recommending legislation and regulations, assisting in the development of sustainable financing mechanisms for the reserve and decisions relating to research to be conducted in the reserve. Under TIDE's leadership, the management committee has developed a division in roles and responsibilities, job descriptions and clarity over day-today management of the reserve's resources.

Staff

The Port Honduras Marine Reserve comprise of a total of 6 full time staff members. These include a Manager, Dennis Garbutt, who is supported by a Head Ranger, and 3 full time rangers and temporary rangers. The staff conducts regular patrols to monitor activities within the reserve and reduce threats such as gill net use, illegal fishing and over fishing. These rangers also enhance TIDE's public relations by conducting community meetings and play an active role in research activities being conducted within the reserve. The rangers also orient visitors to the ranger station on the reserve's educational display rules, facilities, and zoning. The ongoing research and monitoring of the reserve's biological resources in headed by the Marine Biologist, Juan Chub

PHMR Manager: Mr. Dennis Garbutt

Mr. Garbutt is an experienced Reserve manager, active in monitoring, research and baseline studies for PHMR. He is a PADI Certified Dive Instructor responsible for training TIDE staff as well as members of the community. He has experience in coral and fish monitoring and identification and leads the SPAG studies for the southern portion of the Belize Barrier Reef. Mr. Garbutt also has training in engineering technology and has directed numerous construction projects for TIDE, including the building of two Ranger Stations. Mr. Garbutt oversees the day-to-day activities of the reserve.

PHMR Marine Biologist: Mr. Juan Chub

Juan Chub, a former intern at The Nature Conservancy, studied under Dr. William Heyman. Juan has a Bachelor's degree from the University of Belize and has extensive experience in marine monitoring. Since joining TIDE, he has participated in a number of training courses to hone his skills and build upon his knowledge of protected areas management. The marine Biologist is responsible for developing, coordinating, and implementing all of TIDE's research and monitoring in the PHMR.

PHMR Head Ranger: Mr. Carlos Ramirez

Mr. Ramirez previously worked as a fisherman in Port Honduras, and brings experience in boat handling and marine knowledge to TIDE. He is a certified open water scuba diver and has been active in the baseline study and continued research of the PHMR. Mr. Ramirez knows the waters of PHMR like the back of his hand, and helps carry out all of the research and training in PHMR.

Ranger: George Sambula

Mr. George Sambula joined the team in August 2003. Mr. Sambula is a native of Punta Gorda Town. He is active in the upkeep of the ranger station and daily patrols and surveillance as well.

Ranger: Leonardo Castro

Mr. Leonardo Castro joined the team in October 2004. He has experience in boat handling from working with fishermen and researchers prior to working with TIDE. Mr. Castro is from Monkey River village and expresses much interest in learning and working with TIDE. He is also active in monitoring and research and the daily patrols and surveillance within PHMR.

Ranger: Marlon Williams

Mr. Williams also recently joined the team in October 2004. He recently graduated from the Toledo Community College in Punta Gorda Town. He also has excellent boat handling skills. He is a quick learner and also active in monitoring and research and the daily patrols and surveillance within PHMR.



In order from left to right; Dennis Garbutt, Marlon Williams, Leonardo Castro (back row), George Sambula, Juan Chub

Temporary Rangers, volunteers, interns and community researchers for 2005

Alexander Agustin	Temporary Ranger	Punta Gorda Town
Barry Bowden	Temporary Ranger	Punta Gorda Town
Carlos Cofus	Temporary Ranger	Cattle Landing Village
Edwardo Bochub	Temporary Ranger	Head Caye
Elvis Garbutt	Temporary Ranger	Monkey River Village
Manuel Martinez	Temporary Ranger	Hopeville, Punta Gorda Town
Roy Ramirez	Temporary Ranger	Head Caye
Victor Jacobs	Temporary Ranger	Punta Negra Village
Richard Valerio	Temporary Ranger	Punta Gorda Town
Fidel Audinette	Temporary Ranger	Punta Gorda Town
Neville Smith	Community Researcher	
Isani Chan	Community Researcher	
Paul Jacobs	Community Researcher	

Eloy Cuevas	Community Ranger
George Garbutt	Community Ranger
Kenworth Martin	Community Ranger
George Ramirez	Community Ranger
Oliver Garbutt	Community Ranger
Alex Leonardo	Community Ranger
Alexander Garbutt	Community Ranger

Other Community Members

1. Thomas Garbutt
2. John Young
3. Ovel Leonardo
4. Wallace Young
5. Roberto Echavarria

PHMR Accomplishments 2005

Patrols and Surveillance

PHMR rangers conducted a total of 910 patrols for January 2005 to November 2005. These included day patrols, night patrols, joint patrols with the Belize Fisheries Department, the Belize Police Department, the Belize Defense Force Maritime Wing and the Payne’s Creek National Park rangers. There is an increase in patrols done this year when compared to that done in 2004 (751 patrols). As a result of these patrols 32 arrests were made and 18 gill nets confiscated. The number of gill nets confiscated was reduced significantly when compared to 2004 (25 gill nets). No long lines were confiscated from January 2005 to November 2005. Most of the arrests made were due to fishing in the preservation and conservation zones, lobster out of season, undersize lobster, and commercial fishing without a valid fishing license.

Table 1 summarizes the number of patrols done from January 2005 to November 2005 and also includes the number of arrests made, reason for arrest, number of gill nets confiscated and the number of long lines confiscated.

Table 1 showing patrol summary for January 2005 to November 2005

Month	# of Patrols	# of arrests	Reason for arrest	# of gill nets confiscated	# of long lines
Jan-05	87	1	Fishing in Preservation zone		
Feb-05	102			1	
Mar-05	132			1	
Apr-05	105			8	

May-05	85	3	No fishing license		
Jun-05	72	1 + 20 from monkey river	1-lobster out of season, 20-no fishing license, unlicensed vessel	2	
Jul-05	75	5	No fishing license, commercial fishing in conservation zone		
Aug-05	84			3	
Sep-05	34	2	No valid fishing license, undersize lobster		
Oct-05	55			1	
Nov-05	79			2	
TOTAL	910	32		18	0

On June 15, 2005 a joint patrol was conducted by PHMR rangers, the Belize Fisheries Department, and the Belize police Department which led to the arrest of 20 fishermen, all from Monkey River Village. These fishermen were arrested for doing commercial fishing without a valid fishing license and unlicensed vessel. They were released without being charged with the agreement that they would get their fishing license and license their vessel.

Partnership

The Port Honduras Marine Reserve staff continues to work along with other staff from SCMR, the Fisheries Department staff in Punta Gorda, the Police Department, the Belize Maritime Wing, the university of Belize and other local governmental and non-governmental organizations in Toledo District. PHMR rangers, along with partners such as the Fisheries department, the Police department, Belize Maritime Wing conducted a number of joint patrols this year to make sure that the rules and regulations of the reserve are kept. In addition to the patrols PHMR staff visited SCMR and the BDF Maritime Wing Base this year along with representatives from the Fisheries department in Punta Gorda to discuss efforts in working together. PHMR staff also held meetings with Rio Grande fishing cooperative and the tour guide association in Punta Gorda this year to discuss plans in working together.

This year Port Honduras Marine Reserve rangers assisted partners such as Ya'axche Conservation Trust (YCT), University of Belize, and MBRS in providing transportation for personnel and for student trips. PHMR rangers also provided technical assistance to community members and YCT rangers having boat problems.

On the 14th, the PHMR Manager attended a meeting at the Punta Gorda Police Station. This meeting was to invite people to get connected to the Police radio frequency so as to have better

communication with the Police and vice versa. This is also one of the ways in which partnership was created with the Police Department.

In the Community

Community Support

This year TIDE supported the local community in several ways to build and strengthen their relationship within these communities. Rangers assisted several community members, teachers and students by providing transportation and also by providing technical assistance in the field. On April 15 rangers rescued 3 occupants of an overturned vessel in PHMR.

During this year, Rangers also provided transportation on a monthly basis for a team of medical personnel from the Jericho road clinic to Monkey River Village to give medical assistance to the community. PHMR Rangers also assisted several members of Punta Negra community with transportation from the village to Punta Gorda Town and back. They also transported persons from Punta Gorda to Punta Negra to help in the gardening project for the school.

Rangers of the Port Honduras Marine Reserve also participated in the replanting of mangrove on Crown Caye at Monkey River Village. The Monkey River community headed this project in an effort to prevent further erosion and losing Crown Caye destroyed by Hurricane Iris.

TIDE also supported the community of Monkey River in the Lobster shed project that is funded by UNDP. Several meetings were held in Monkey River whereby PHMR staff attended and discussed efforts in working together. An agreement was made with the Monkey River fishers to provide their catch and effort data to PHMR in order to monitor the success of their project. A support letter was written by TIDE and PHMR in support of this project.

Community Outreach and Education

To promote the public awareness of the Port Honduras Marine Reserve, TIDE took the initiative to reach out to schools for its environmental education outreach program. School presentations were made at 15 different schools in the Toledo District by the Environmental Educator and focused primarily on the West Indian Manatee. The schools targeted at primary school level include, St. Stephen Anglican School of Monkey River Village, St. Cutbert Anglican School of Punta Negra Village, Punta Gorda Methodist School, Bethel Seven Day Adventist school, St. Peter Claver School, Big Falls Primary School, Little Flower Roman Catholic School of Forest Home Village and St. Phillip Roman Catholic School of Cattle Landing Village. Secondary level schools included the Julian Cho Technical High School and the Toledo Community College. Focus of the presentations at this level was on coral reefs. At the tertiary level, the University of Belize Natural Resource Management Program Toledo Center was the target school. Presentations based on the history, purpose of protection, basic management techniques, conflicts in management, research and monitoring, zones within the reserve, habitats within the reserve etc, were conducted by PHMR manager, and Marine Biologist for the Port Honduras Marine Reserve. A tour of the conservation zones was given to the students. All these

presentations were followed by a field trip, which was carried out a few days after the presentations.

PHMR staff also took out other Belizean students outside the Toledo District to visit the Port Honduras Marine Reserve. A total of 50 students from the 4 H student group were transported to Punta Negra village where they assisted the community in a beach clean up. Head Ranger Mr. Carlos Ramirez also gave these 4H students a presentation and a toured of PHMR.

Community meetings and training

The PHMR staff continues to work along with the three communities that use the Port Honduras Marine Reserve. This year a number of meetings were held at the different communities including Punta Negra Village, Monkey River Village and Punta Gorda Town. Below are some of the highlighted community meetings that were held.

- On the 15th February, the staff of PHMR along with other members of the TIDE team conducted two Community meetings. One was held in Monkey River and the other in Punta Negra. The Purpose of these meetings was to inform the community about the activities at PHMR and Paynes Creek National Park.
- On 11th February 2005, a community/TIDE meeting was held at the TIDE conference room where 15 Binoculars were distributed to the PHMR rangers and the community rangers.
- PHMR manager Dennis Garbutt attended a meeting in Monkey River village with UNDP/Monkey River Tour Guide on a proposal about lobster shades that is to be funded by UNDP. TIDE will support Monkey River in this Project and in return landings of data will be obtained form the fishers.
- On July 5 to July 19, 2005, 6 fishermen and tour guide were trained to be emergency first aid responder rescue divers and were also given training to become a dive master after completing 60 dives. These trained fishermen are as follows: Michael Cayetano, George Ramirez, Neville Smith, Lionel Martin, Roland Alford, Salomon Alvarez and 1 staff Carlos Ramirez. This training is a part of TIDE's alternative livelihood program to assist fishers of the Port Honduras Marine Reserve. This course was conducted by PHMR manager Dennis Garbutt (OWS Instructor) and was made possible through funding from UNDP and AVINA.
- The Port Honduras Marine Reserve manager (Dennis Garbutt) along with the PHMR Head Ranger (Carlos Ramirez), attending a meeting at the Monkey River village on August 23, 2005. The main purpose of this meeting was to meet with the community and talk about some of the alternative livelihood programs, which will be offered through the CREP program.

- PHMR manager Dennis Garbutt attended a meeting in Monkey River village with UNDP/Monkey River Tour Guide the proposal about the lobster shed project that was funded by UNDP. TIDE supported Monkey River village in this Project and also made an agreement with the fishers to collect the landings data from them in order to monitor the success of their project.
- The Port Honduras Marine Reserve Manager held a tour guide meeting on August 3, 2005. All rangers attended this meeting. The main purpose of this meeting was to discuss the visitor fee system with the tour guides and also to find ways how the rangers could work along with the guides at PHMR.

Community Involvement

One of the main goals of PHMR is to involve the community in the management of the reserve, since several communities are users of the reserve. This year a total of 10 community members from the different communities were used as temporary rangers in PHMR. Seven community members were involved in the community ranger program. Three community researchers, three volunteers, and two volunteers participated in the research and monitoring program. Community members or UB students are invited to participate in data collection to gain some experience and build their knowledge in scientific methodology. University of Belize students involved in research for this year include, Leonel Requena, Julio Shal, Ermain Requena, and Gillion Castro. Community researchers include Neville Smith, and Isani Chan.



University of Belize students participating in mangrove monitoring in lab

Reaching Out

The Port Honduras Marine Reserve staff continues to reach out to the general public in several ways. Every six months the PHMR staff writes an article about the activities such as research

and monitoring, training, community involvement etc, occurring within PHMR, which is included in the TIDE's newsletter. This newsletter is distributed to schools, local NGO's and to communities such as Punta Gorda, Punta Negra and Monkey River. The PHMR staff also produces weekly news on the "Rising TIDE" radio show on Mondays. The PHMR staff also went on several of these radio shows to discuss these activities.

To reach out to the public on a more national, regional and global level, most of the general information about the reserve, activities occurring within the reserve, news and events and research reports are being placed on the TIDE website at www.tidebelize.org. The website is updated periodically and an entire section is devoted to the PHMR.

The PHMR rangers also participated in the Independence Day, 21 September, parade activity. They participated in the float competition displaying a design of the Maya mountains to the reef. This display included most of the protected areas in southern Belize, promoting some awareness of these protected areas to the community.

During this year, TIDE also held its fourth Annual Fisherman's Festival on November, 19 and 20, 2005. This year's fish fest again was a huge success and a lot of people from outside the Toledo District got the opportunity to learn about TIDE and the Toledo District. The National Garifuna Council also collaborated with TIDE to have one big event at the TIDE compound. The activities occurring within the Port Honduras Marine Reserve were displayed during this time. Information on PHMR was given out and presentations were made to several individuals. This is one of the ways in which public awareness of PHMR is promoted.

A group from KREM TV also visited the Port Honduras Marine Reserve on October 15 and 16, 2005. The main purpose of this group is to create an ad on all marine reserves in Belize, which would promote public awareness of the reserves. The group interviewed rangers, PHMR manager and Marine Biologist on the current activities within the reserve. They were also taken out in the field where they got a first hand experience in some of the research and monitoring activities being done.

Institutional Development

Training, workshops and meetings

Major Training for staff in 2005

This year the PHMR staff received a number of different trainings to build and strengthen their capacity for the more effective monitoring and management of the Port Honduras Marine Reserve. Below include a list of the major training for staff for 2005.

Research Related

- In January 2005 an MBRS database training was held at the TIDE office for Marine Biologist; Juan Chub and PHMR Ranger; Leonardo Castro. The main focus of this training was to train TIDE data collectors in using the MBRS database for data entry and

for data output. User names and passwords were given to each of the participants by the trainer Ms. Mary Vasquez of MBRS.

- On the 6th, Head Ranger Carlos, attended the manatee working group meeting in Belize City and went to Manatee Village to assist in the capturing of Manatee for the purpose of tagging and research.

Capacity building

- In March 2005, PHMR Manager; Dennis Garbutt completed his PADI diving instructor training course in Belize City. Mr. Garbutt also got training in compressor maintenance, Regulator repairs and tank visual inspection.
- On April 3 to April 13, 2005 two of the PHMR staff participated in Tri-National Rangers Training/Exchange Program. The first three days of the training was held in Belize and the remaining days between Guatemala and Honduras. One of the main objectives was to share experiences of the different Protected Areas and share ideas.
- PHMR manager Dennis Garbutt and PHMR ranger George Sambula attended training in Effective presentation skills held from the 28th September to 30th September 2005. The Caribbean Regional Environmental Program (CREP) sponsored this training in an effort to support TIDE in its capacity building program.
- TIDE rangers attended a Protected Areas Management training course on May 3, 2005 to May 9, 2005. Two personnel from the Colorado State University conducted this course in order to strengthen the effective management skills of the TIDE rangers.
- On June 14, 2005 – 2 rangers Marlon Williams and Leonardo Castro who were trained and certified as PADI Open Water Divers by the Manager of Port Honduras Marine Reserve (PHMR).
- Marine Biologist, Juan Chub attended a course in Marine Protected Areas Management offered by the Florida International University and the Universidad Nacional Autónoma de México held in Puerto Morelos, Mexico from July 1 to July 9 2005. The Protected Areas Conservation Trust (PACT) sponsored this course in an effort to support TIDE in its capacity building initiatives.
- On June 30, 2005 – 2 PHMR Rangers took part in the Bird Training that was conducted by Mario Muschamp – Manager of Paynes Creek National Park (PCNP).
- PHMR manager Dennis Garbutt and PHMR ranger George Sambula attended training in Effective presentation skills held from the 28th September to 30th September 2005. The Caribbean Regional Environmental Program (CREP) sponsored this training in an effort to support TIDE in its capacity building program.
- This year 2 of the Port Honduras Marine Reserve Rangers took a special constable training offered by the Police Department. Ranger Marlon Williams and Ranger George Sambula were given certification to be a special constable.

Meetings and Workshops attended for 2005

Research related

- On March 2, and 3, 2005, Marine Biologist; Juan Chub attended a MBRS Synoptic Monitoring Program (SMP) meeting held in Guatemala City. The main purpose of this

meeting was to evaluate the process, achievements and requirements of the MBRS Synoptic monitoring Program.

- On 10th May the PHMR Manager attended a SPAG meeting in Belize City.
- Marine Biologist, Juan Chub attended a Recruitment calibration workshop held at Calabash Caye from June 17 to June 21. The main purpose of this workshop was to train researchers throughout the country to monitor recruits in coral, fish and lobsters.
- On June 28, 2005, Marine Biologist along with PHMR Manager attended a workshop along with other biologist and managers from marine protected areas within Belize and the Fisheries Department (CCU) to discuss and come up with a monitoring strategy for Lobsters and Conch countrywide.
- On the 15th to the 18 May the Manager of PHMR attended an Earth Watch workshop at the Seafront Inn in PG where plans were discuss to begin research at SCMR.
- Marine Biologist and PHMR manager attended a 2-day workshop on the 26 and 27 September 2005. This workshop was sponsored by Earth watch Institute in an effort to find out the current research being done in Southern Belize as well as the research priorities for the NGO's. Based on these research priorities Earth watch institute will seek ways to assist NGO's in their research priorities.

Other related workshops and meetings

- On the 27th, the Manager of PHMR along with other TIDE staff members attended a meeting at the PG Parish Hall on National Protected areas.
- On July 20 to July 22, 2005, PHMR manager attended a management effectiveness workshop for the Paynes Creek National Park.
- On July 6th, 2005, the Port Honduras Marine Reserve Manager along with the Co-managers of TASTE and FON met with officers from the Belize Fisheries Department to discuss the visitor fee system.
- On August 11, 2005, PHMR manager attended a coast guard meeting at Belize City. Several issues concerning the future coast guard in Belize was discussed at this meeting.
- On August 16, 2005, a PHMR advisory board meeting was held at the TIDE conference room.
- The PHMR Manager also attended a MBRS workshop held at Cancun Mexico from the 17 to the 19 of August 2005 to discuss future plans for the MBRS project.

In addition to the training, workshops and meetings attended the Port Honduras Marine Reserve staff were also given their employment evaluation during the month of August. The main reason of the staff evaluation is to find ways to strengthen weakness in the work area of the staff. In addition to this, weekly department staff meetings and monthly staff meetings are also held to update the activities occurring within the Port Honduras Marine Reserve.

Infrastructure Development

This year PHMR received a new 12 gauge shot gun. Ranger Carlos Ramirez, George Sambula and PHMR manager also received a license for both 12 gauge shot guns at PHMR.

10 anchors and 10 demarcation buoys were installed at the conservation zones within PHMR. This will assist users of the reserve to identify the conservation zones within the reserve.

Visitors to PHMR

The total number of visitors recorded in the PHMR visitor guest from January 2005 to November 2005 is 639. Table 2 summarizes the number of visitors to PHMR for January 2005 to November 2005. Visitors from 13 different countries were recorded in the PHMR guest book. Most of these visitors came to PHMR either for recreation and educational visits.

Table 2 showing number of visitors according to nationality for January to November 2005.

Nationality	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	TOTAL
Belizean	14	18	108	18	17	9	54	20	13	35	13	319
Americans	14	28	35	23	23	11	32	14	6	10	18	214
Canadians	1	3							2		2	8
British	2	1	4					6	1			14
Swedish	3					2						5
Guatemalans		42		16			2		3			63
Brazilians		1										1
Costa Ricans		1		1								2
Japanese			1									1
Hondurans				8								8
West Indian				1								1
Mexican							1					1
Nicaraguan										2		2
TOTAL	34	94	148	67	40	22	89	40	25	47	33	639

Figure 1 shows the total number of visitors per month from January 2005 to November 2005. The highest number of recorded visitors was in March. During this time a total of 108 Belizeans visited the Port Honduras Marine Reserve. The remaining visitors were mostly Americans. In February the second largest number of visitors were recorded while in July recorded the third largest in number of visitors were recorded. Again a large number of Belizean visitors were recorded in July. The least number of visitors were recorded in June 2005.

Figure 1 showing the number of visitors to PHMR from January 2005 to November 2005.

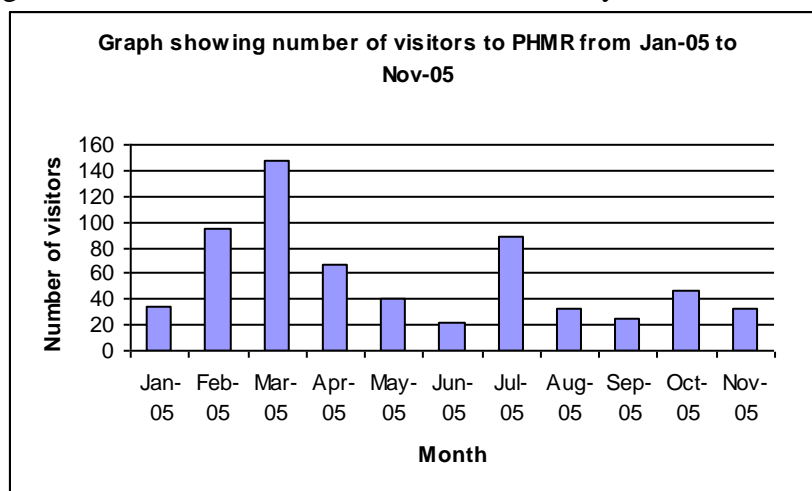
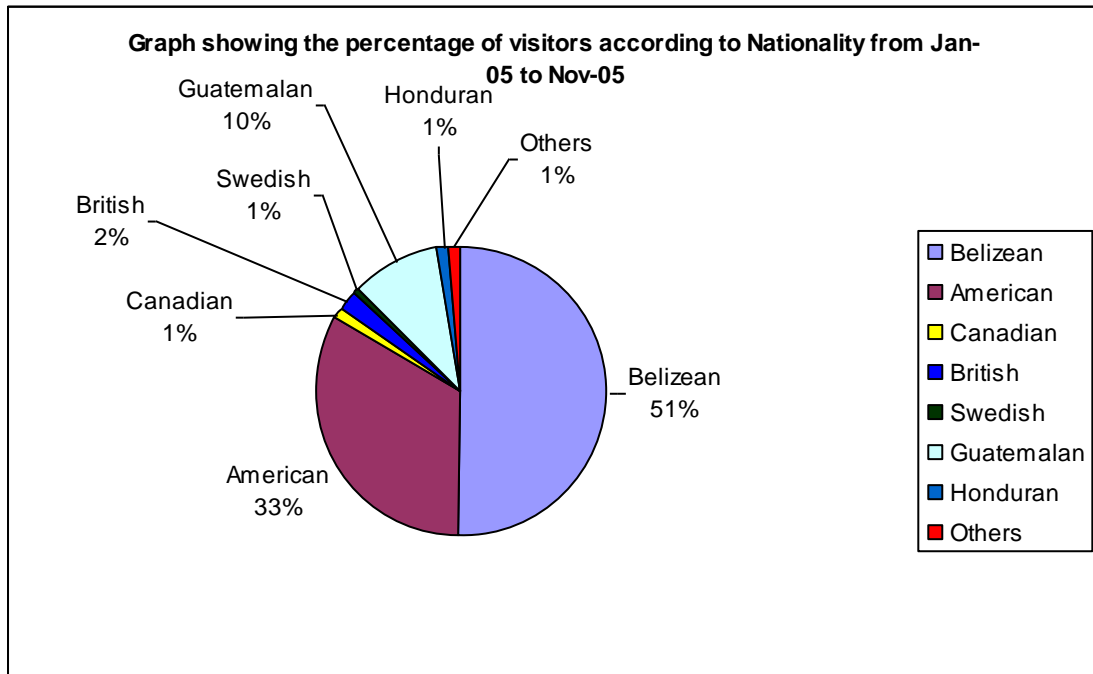


Figure 2 showing the percentage of visitors according to nationality for Jan 05 to Nov 05



Based on the chart, the largest number of visitors at the Port Honduras Marine Reserve was Belizeans covering 51 percent of the total visitors for January to November 2005. Americans were the second largest number (33 percent) followed by Guatemalans (10 %) and British (2%). Canadians, Swedish, Honduran and other were 1% each. Others included visitors with very low numbers such as Mexicans, Nicaraguans, West Indian, Japanese, Costa Ricans and Brazilians. Belizeans were highest in numbers due the amount of educational field trips that was carried out by PHMR staff.

Reserve Fees

On November 1, 2004, a user fee was put in place for all non-Belizean visitors in all marine reserves in Belize. From November 1, 2004 to December 5, 2005 a total of 960 tickets were sold to non- Belizean visitors in the Port Honduras Marine Reserve. This accounted for a total of 19,200 collected for visitor fee for November 1, 2004 to December 5, 2005.

RESEARCH AND MONITORING

Research and monitoring of the biological resources of the Port Honduras Marine Reserve continues to play an integral role in evaluating the management effectiveness of the reserve. On going research activity, which are chosen as target biophysical indicators include, monthly water quality assessment, underwater lobster and conch visual surveys, mangrove biomass and community composition, seagrass biomass and community composition, and coral and fish surveys. These research activities are necessary to track changes in resource populations, community compositions and health of the ecosystems over time. Hence, the most important

component of the Port Honduras Marine Reserve is the value of its biological resources. Recently, a manatee research focusing mainly on the habitat was also started. It is also hoped that the endangered sea turtle within the Port Honduras Marine Reserve be monitored in the following year 2006.

*** Lobster Surveys**

Following the Fisheries Protocol for Lobster and Conch surveys, lobster underwater visual surveys were conducted immediately after closed season in February 2005 and before open season in June 2005. Lobster surveys were conducted at 11 sites within the reserve in February and in June. A larger portion of the reserve was surveyed in comparison to 2003 and 2004. Seven of these sites were selected by knowledge of local fishermen within PHMR. The other 4 sites included the 4 Snake Cayes. The 4 Snake Cayes were surveyed 2 days prior to the closed season, while the other sites within the general user zone were surveyed after the closed season.

Methods of data collection included a 30-minute dive for 2 surveyors searching all crevices, counting and measuring carapace length for spiny and spotted lobsters. Carapace length was measured with a small rod with centimeter increments.

A 2-team effort was done in conducting these surveys, whereby 1 team covered the northern portion of the reserve and 1 team covered the southern portion of the reserve. Surveyors included PHMR manager (Dennis Garbutt), Marine Biologist (Juan Chub), Head Ranger (Carlos Ramirez), Ranger (Marlon Williams), Ranger Leonardo Castro, Temporary Ranger (Manuel Martinez) and local fishermen (Paul Jacobs, Edwardo Bochub, and Roy Ramirez). The table below shows a summary of the total counts for the 11 sites surveyed in February and June.

Table 3 showing the total number and mean size of lobsters surveyed in Jun and Feb 2005.

Sites	Feb-05		Jun-05	
	No. of lobsters measured	Mean size in cm)	No. of lobsters measured	Mean size in cm)
East Snake caye	3	5.6	13	7.07
West Snake caye	3	8.6	1	8
Middle Snake caye	32	8.6	27	9.51
South Snake caye.	32	9.3	2	12
Breon Bank	9	8.2	9	6.3
Young Rock	14	5.5	52	5.9
Moho caye	2	11	0	0
Frenchman	5	5	7	4.8
Bank 1	1	8	5	6.4
Wilson	5	9.8	1	7
Abalone	5	8.2	28	5.8
	108 (total)	8.1 (mean)	145 (total)	6.6 (mean)

Based on the table, a larger number of lobsters were surveyed in June 2005 than in February 2005. In June 2005, a total of 145 lobsters were surveyed while in February 2005, a total of 108 were surveyed. Mean carapace length for the lobsters surveyed in June 2005 was however reduced when compared to that of February 2005. Young Rock had the greatest number of

lobster surveyed in June 2005. The mean carapace length at this site is very Middle Snake Caye and South Snake Caye seemed to have the greatest numbers of lobster surveyed in February 2005, however there was a significant reduction of lobsters found during surveys done at South Snake Caye in June 2005. This could be due to either illegal activities occurring at this conservation site or due to the migration of lobster from habitats. It is hope that for the coming year, underwater visual lobster surveys at the conservation site be monitored more often as well as the number of patrols be increased at these conservation sites.

*** Conch Surveys**

Conch surveys are usually done twice a year immediately after the closed season and just before the closed season. However this year conch surveys were conducted only once in the middle of the closed season. A total of 10 sites were surveyed within the Port Honduras Marine Reserve. At each site, a 300 meter by 5 meter transect line was placed parallel to the cayes and banks. The starting point was recorded with GPS. A particular bearing was set and recorded for each transect. An anchor was used at the beginning and ending point of the transect line to secure the rope. Buoys were also placed at the starting and ending point of the transect line to prevent loosing the transect line and anchors. Four divers, two on each side of the transect line dove from the starting point to the end of the transect line, recording and measuring queen and milk conch species, identifying maturity and measuring length and lip thickness as adapted from the fisheries protocol. This covered an area of 1500 square meters per site. For queen conch, lip thickness was measured with a caliper. Since no caliper was available for the measurements of the length, measuring sticks and rulers were used.

Table 4 shows the different sites and their GPS locations for the conch surveys

Location	GPS Coordinates
London Bank	16 Q 0328421, UTM 1786592
Breon Bank	16 Q 0339039, UTM 1802344
Moho Bank 1	16 Q 0321823, UTM 1786160
Moho Bank 2	16 Q 0321989, UTM 1786382
East Snake Caye Bank 1	16 Q 0339115, UTM 1794707
East Snake Caye Bank 2	16 Q 0338957, UTM 1794037
South Snake Caye Bank	16 Q 0333588, UTM 1789848
Punta Ycacos Bank	16 Q 0330900, UTM 1795742
Wilson Caye Bank	16 Q 0330075, UTM 1793843
Frenchman Bank	16 Q 0325537, UTM 1789641

The total area covered for all 10 sites within the Port Honduras Marine Reserve was 15000 square meters or 15 square kilometers (5.8 square miles). This accounted for 3.6 percent of the total area of the Port Honduras Marine Reserve. The table below shows the data obtained form the surveys done in August 2005.

Table 5 showing the number and mean length of Queen and Milk conch surveyed per site for August 2005.

Location	# of Queen Conch sampled	Mean length per site (cm)	# of Milk Conch Sampled	Mean length per site (cm)
London Bank	1	25	1	8
Breon Bank	0		0	
Moho Bank 1	10	21.7	21	11.1
Moho Bank 2	1	23	5	12.52
East Snake Caye Bank 1	2	26.5	2	10.7
East Snake Caye Bank 2	1	26	31	10.6
South Snake Caye Bank	3	18	0	
Punta Ycacos Bank	5	19.9	3	10.9
Wilson Caye Bank	5	19.2	4	12.42
Frenchman Bank	3	21	6	11.9
	Total # of Queen Conch Sampled (31)	Mean length (21.2 cm)	Total # of Milk Conch sampled (73)	Mean length (11.1 cm)

The total number of queen conch surveyed for August 2005 was 31. Based on the table, Moho Caye Bank 1 had the greatest number of queen conch, while the greatest number of Milk conch was recorded at East Snake Caye Bank 2. None of the 10 sites surveyed were in the conservation and preservation zones, since the size of these zones did not allow for 300 meter transect line. Although surveys were done in the middle of the closed season there is a significantly small number of queen conch recorded during the surveys. In 2004, a total of 67 queen conch were recorded during surveys at the same sites, however the area covered in 2005 (19000 m²) was greater than that covered in 2004. Although the number of conch recorded for 2005 was less than 50% of that recorded in 2004, which might indicate fishing pressures on the Conch population, the data is not enough to verify this. It is recommended that more sites be monitored and that monitoring be done more often to cover a larger percentage of the reserve and to view seasonal changes in conch population.

*** Sea-grass**

Sea-grass community composition and biomass data collection were conducted at 3 sites within the Port Honduras Marine Reserve during the month of February 2005 and August 2005. These sites included West Snake Caye, Frenchman Lagoon and Stuart Caye. For community composition, 2 transects were placed at each site and quadrants were used on both sides of transects to estimate the community composition of sea-grass within the area.

For sea-grass biomass, 2 samples were taken from each site. Methods of sample collection and laboratory processes were followed from the MBRS Synoptic Monitoring Manual.

Frenchman Lagoon is an enclosed area by mangroves, and is generally unaffected by wave action. Depth at this site was between 1 to 2 meters. Seagrass beds at this site were patchy and generally had long blades of 30-60 cm in length. This area was found to have the lowest seagrass

biomass when compared to the other three sites. The substrate is soft, primarily mud. Roots and rhizomes biomass were generally low, and much of the substrate was loose, as there was not much root system to hold it together. *Thalassia testudinum* was the only species was found at this site.

The Stuart Caye site is in an area open to wave action. Seagrass blades are shorter in height but were more dense. The bottom consists primarily of hard substrate (rocks and gravel). Both *Thalassia testudinum* and *Syringodium filiforme* (manatee seagrass) were found growing at this site. A smaller percentage of the manatee seagrass is found at this site. This site has the highest seagrass biomass with roots and rhizomes contributing to a large percent of the total biomass.

West Snake Caye is a site located in the conservation zone. This site consists mainly of the *Thalassia testudinum* but also contains a larger percent of the *Syringodium filiforme*. This site is located southeast of West Snake Caye and consist mainly of hard substrate. Several small coral heads exist at this site. This site also has high biomass and had the highest total biomass for February 2005. A large percent of the total biomass at this site is represented by the *Syringodium filiforme*, which was recorded in 2005. The tables below shows the biomass for each of the sites surveyed for February 2005.

Table 6.1 Stuart's Caye Seagrass biomass represented in grams dw/m² for February 2005

Stuart's Caye	Core # 1	Core # 2	Mean	SD	SE	Total
Total Thalassia fraction	763.5	796.8	780.2	23.6	16.7	1560.3
Other grass fraction	Not recorded					
Total Biomass	763.5	796.8	780.2	23.6	16.7	1560.3

Table 6.2 Frenchman Lagoon Seagrass biomass represented in grams dw/m² for February 2005

Frenchman	Core # 1	Core # 2	Mean	SD	SE	Total
Total Thalassia fraction	338.1	280.2	309.1	40.9	28.9	618.2
Other grass fraction	Not recorded					
Total Biomass	338.1	280.2	309.1	40.9	28.9	618.2

Table 6.3 West snake caye seagrass biomass represented in grams dw/m² for February 2005

West Snake Caye	Core # 1	Core # 2	Mean	SD	SE	Total
Total Thalassia fraction	268.6	510.2	389.4	170.8	120.8	778.8
Other grass fraction	430.9	551.6	491.2	491.2	60.4	982.5
Total Biomass	699.5	1061.8	880.6	256.2	181.2	1761.3

Table 6.4 Total biomass and means for all three sites surveyed in February 2005

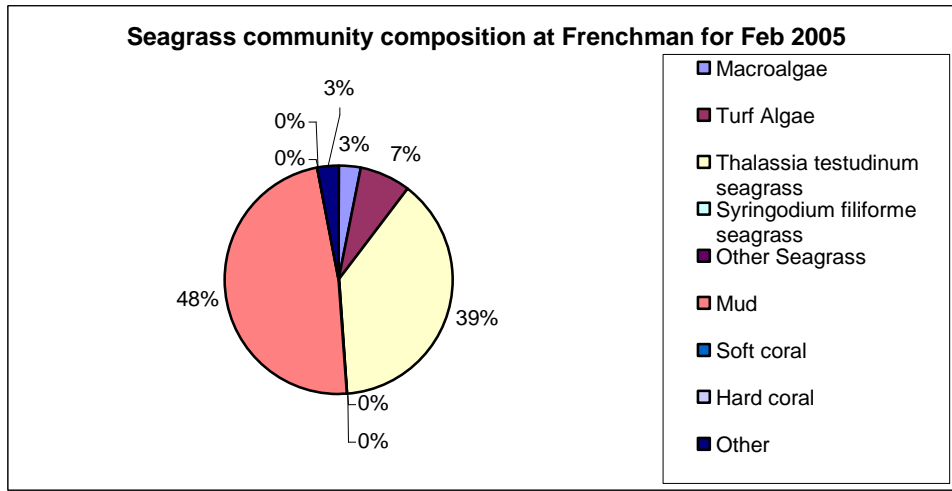
	FR (g/m)	SC (g/m)	WSC (g/m)	MEANS
Total Thalassia fraction	309.1	780.2	389.4	492.9
Other grass fraction			491.2	491.2
Total Biomass	309.1	780.2	880.6	656.6

Based on the results Stuart Caye had the highest *Thalassia* biomass (780.2 g/m) for February 2005. West snake Caye had the second highest, while Frenchman lagoon had the lowest. However the other seagrass fraction consisting primarily of the Manatee grass (*Syringodium*

filiforme) recorded at West Snake Caye contributed to this site having the highest seagrass biomass for February 2005.

The graphs below shows the percentage community composition of seagrass for the three sites monitored. Each percentage shown on the chart represents an average of the total community composition within all the quadrants on both transect lines for each site.

Figure 3 Graph showing the percentage community composition at Frenchman Lagoon for February 2005



The community composition at the Frenchman lagoon was less diverse. Almost 50 percent of the area surveyed was only mud.

Figure 4 Graph showing the percentage community composition at Stuart Caye for February 2005

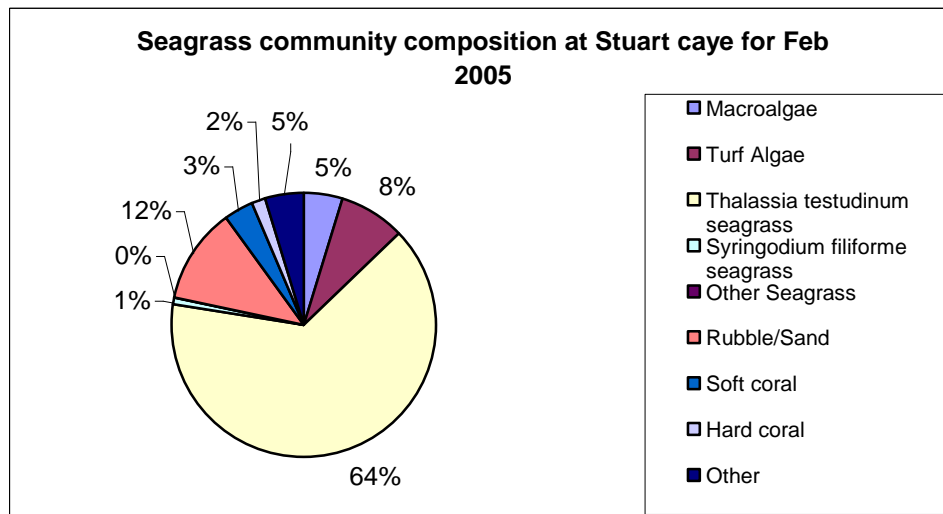
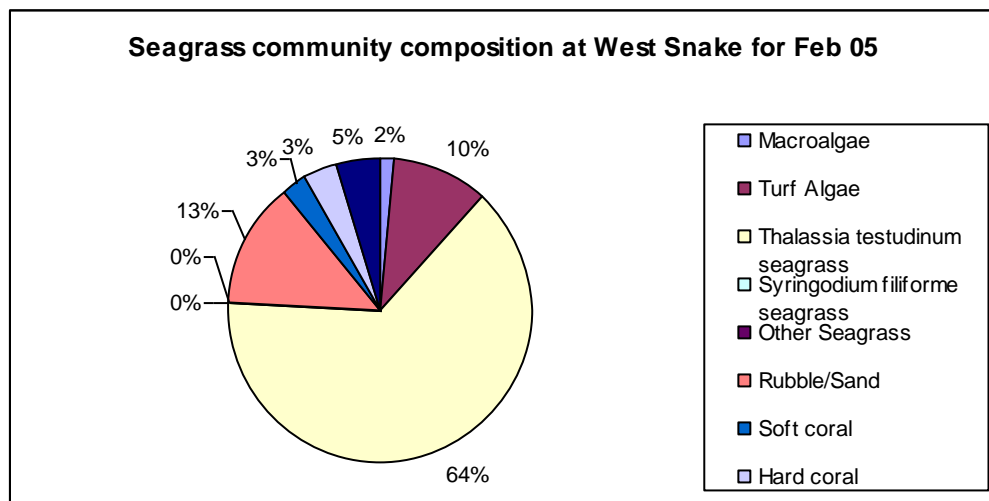


Figure 5 Graph showing the percentage community composition at West Snake Caye for February 2005



Based on the graphs, the community composition at West Snake Caye and Stuart Caye had similar percentages. An average 8.5 percentage of turf algae exists at all three sites.

Although studies done in 2003 to 2005 reveal that Stuart Caye had the highest *Thalassia* biomass, it is not indicative of the seagrass for the entire reserve. Studies done by Heyman 1996 indicate deep river still having the highest biomass form all three sites monitored in 2003 to 2005. Seagrass with a higher biomass tend to have higher productivity thus supports more aquatic life. Thus, it is intended for 2006 that the monitoring site at deep River, studied by Heyman 1996, be revisited and re-established as a monitoring site for seagrass. Monitoring of the other 3 sites should continue to view seasonal and yearly trends in seagrass productivity.

* **Mangroves**

Mangrove leaf litter data collection was done for 5 consecutive months during this year 2005. Three permanent plots labeled (A, B, C) containing 10 leaf litter traps each were established at East Snake Caye during the baseline studies in 2003. These traps were constructed from PVC pipes and 0.5 mm fiberglass mesh screen. At the end of each month the leaf litter was collected in labeled Ziploc plastic bags in the field and taken to the lab where they were transferred to labeled paper bags and then placed in a drying oven at ~70°C for 48 hours. The dried samples for each trap were then divided into leaves, bracts, fruits, flowers, wood, and miscellaneous. Weights for each component of the sample were recorded and entered in the CARICOMP excel file for productivity.

After a complete full year of mangrove litter fall data collection was done in 2003, high productivity peaks and low productivity peaks was determined. Few scientists recommend that only high productivity and low productivity peaks be monitored for subsequent years. However, due to slight changes in seasons, recommendations are made to start monitoring mangrove productivity at least 1 month before the high and low peaks and 1 month after the high and low

productivity peaks. This makes measuring productivity at least 6 months for the year. In 2003, the highest rate of litter fall productivity for the Red Mangrove was seen during the month of July with a mean rate of 7.8 g dw/m²/day and a monthly litter fall productivity of 226.8 g dw/m². Low productivity peaks was seen in April. In 2005, highest productivity occurred in July with a mean rate of 6.48 g dw/m²/day and low productivity occurred in March with a mean rate of 1.9733 g dw/m²/day. The table below shows the mean rate of litter fall per day for the month of March 2005 to July 2005 for plots A, B and C at East Snake Caye.

Table 7 Mean rate of litter fall per day for the month of March 2005 to July 2005

Month	Rate of Litter fall (g/m ² /day)
March 2005	1.9733
April 2005	3.5266
May 2005	5.5166
June 2005	5.0066
July 2005	6.48

Figure 6 Mean rate of litter fall productivity for Red Mangroves (*R. mangle*) per day for Plots A, B and C at East Snake Caye for the months of April through August 2003.

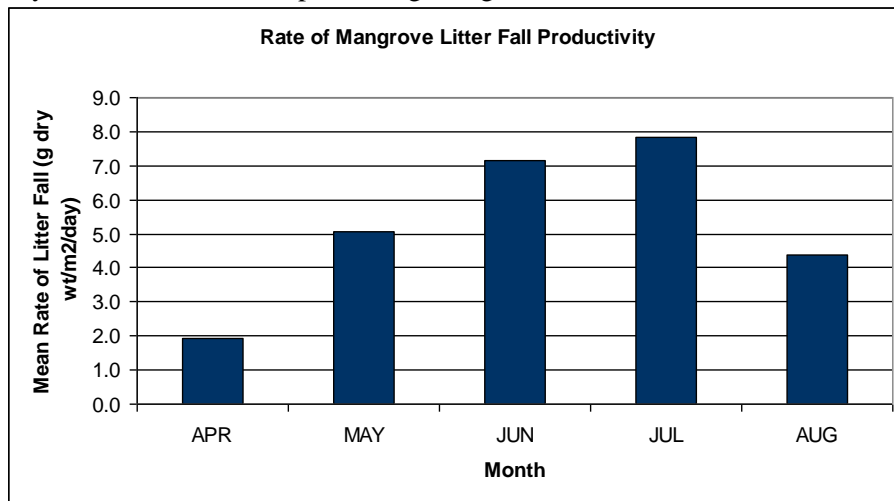
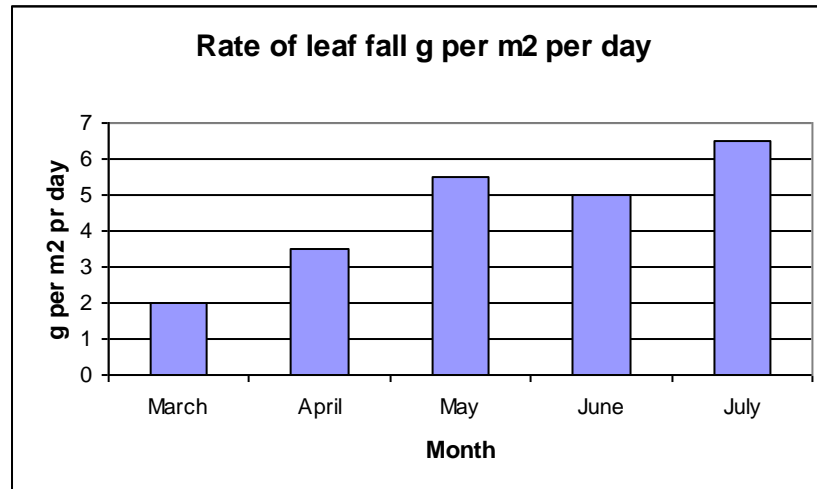


Figure 7 Mean rate of litter fall productivity for Red Mangroves (*R. mangle*) per day for Plots A, B and C at East Snake Caye for the months of March to July 2005



When compared to the data collected in 2003, there is a slight decrease in rate of productivity for June and July in 2005, however there is an increase in productivity for April 2005 when compared to that of April 2003. Leaf litter was collected for August 2005, however it was not analyzed in the laboratory. Although no data exists for August 2005, it is only assumed that mean productivity was higher than that for July 2005. Due to the changes in productivity peaks it is necessary to monitor productivity for at least 6 months during the year.

* **Water Quality**

This year water quality assessment was done in all 14 permanent sites within PHMR for all months, with the exception of May 2005. Parameters tested included Salinity, Temperature, pH, Turbidity, Dissolved oxygen %, Dissolved oxygen, and TDS. Samples were taken from each site and tested for Nitrates and Phosphates in the lab. Core parameters such as date, time, collector's name, weather conditions, wind speed and direction, surface current speed and direction and sea state were also recorded. Surface current speed was estimated. During the early part of the year 2005, permanent data loggers were placed in all fourteen sites within the reserve. These data loggers (Star-Oddi Data Storage Tag Conductivity and Temperature loggers) are microprocessor controlled temperature, depth and conductivity (salinity) recorder with the electronics in a waterproof housing. The loggers were installed about one meter below the surface, attached to a subsurface buoy that is anchored to the substrate. The DST CTD loggers were set to record seawater temperature and salinity at 15-minute intervals prior to installation in the water. Data were downloaded from the loggers every 1 – 2 months. However due to the constant bio-fouling of the ocean, these loggers needed to be visited quite often to be cleaned. Housing, ropes and buoys needed to be kept clean because of risk of bio-fouling in the ocean. Also due to the loss of one of the loggers, the constant battery power failure and inadequate readings due to bio-fouling, they had to be removed from the monitoring sites. These loggers will be sent for re-calibration to the manufacturing company and will be used again for 2006.

Setbacks on the monitoring of water quality were with equipments. It is hoped that for 2006, better water quality equipments be obtained for the continuous monitoring of the water quality at

PHMR. Much of the analysis on the water quality data will be provided in a Biological report for 2006.

*** Reef Benthic and Fish surveys**

Coral and fish surveys are usually done once a year between May-July. Both surveys are being conducted during the same time since eight permanent sites have already been established for these surveys from baseline studies in 2003. This year 2005, coral and fish surveys were conducted during late August to October 2005. Out of the eight permanent sites, only six were being monitored for 2005. These include all the 4 snake cayes, Wilson Caye, and Frenchman Caye. The two Banks (Bank 1 and Bank 2) were not surveyed due to severe weather condition causing poor visibility.

As recommended from the MBRS monitoring protocols and the Biological monitoring manual, all team members went through the protocols before any data gathering. Knowledge of coral species, diseases, fish species, algae, and other invertebrates inhabiting coral reef ecosystems is necessary before data collection. Thus team members were refreshed on coral ID, fish ID, coral diseases, and reef monitoring methodology.

Team members were a bit more consistent this year and were competent about their task; hence this provided more validation to the data collected.

Methods for the fish and coral surveys were adapted from the PHMR manual for biological monitoring and MBRS protocols.

For the Coral surveys, field procedures included, Linear Point Intercept, Daidema antillarum counts and Presence/Absence diversity sampling, Coral Recruitment and characterization of coral community (coral health). Fish surveys included the Rover Diver technique and Belt transects for defined species (adults and recruits). The table below shows the total number of fish recruits recorded for all six sites monitored.

Table 8 showing the total number of fish recruits recorded for six sites within the Port Honduras Marine Reserve.

	Frenchman	Middle Snake	Wilson	East Snake	South Snake	West Snake
Ocean Surgeon	2	2	4	8	16	32
Blue Tang	2	2	4	8	16	32
Banded Butterfly	0	0	0	0	0	0
Four-eye Butterfly	0	0	0	0	0	0
Fairy Basslet	0	0	0	0	0	0
Spanish Hogfish	0	0	70	129	253	452
Slippery Dick	71	61	132	264	528	1056
Yellowhead wras.	0	0	0	0	0	0
Clown Wrasse	0	0	0	0	0	0

Wrasse	0	0	0	0	0	0
Bluehead wrasse	0	0	0	0	0	0
Blue chromis	0	0	12	22	43	77
Longfin Damsel.	5	5	10	20	40	80
Dusky Damsel fish	0	0	1	2	4	7
Beaugregory	1	1	2	4	8	16
Bicolor Damsel fish	0	0	5	9	18	32
Threespot Damsel.	4	4	12	24	48	92
Cocoa damselfish	5	5	154	288	557	1009
Striped Parrotfish	207	188	395	790	1580	3160
Princess Parrot.	0	0	0	0	0	0
Greenblotch Parrot.	0	0	0	0	0	0
Redband Parrotfish	0	0	1	2	4	7
Stoplight Parrotfish	0	0	0	0	0	0

Based on the table, it is evident that the largest numbers of recruits at all sites were the Striped Parrotfish. Slippery dick had the second highest in numbers recorded while Cocoa damsel followed. Of the 23 species of fish recruits selected as reef indicators, only 13 species were recorded at the six sites monitored. A detailed analysis on the coral and fish surveys will be provided in a Biological Report for 2006.

*** Manatee and Sea turtle monitoring**

There is no comprehensive monitoring programme in place for the monitoring of manatees, dolphins and sea turtle. Generally, sightings of these species by PHMR rangers and biologist are regularly recorded when they are encountered in the field.

These year two baseline manatee studies were conducted in PHMR. On the 23rd and 24th of February 2005, a 2-day Manatee field survey was conducted within the Port Honduras Marine Reserve. The main purpose of this survey was to gather baseline data on the status of the Manatee population and identify sites within PHMR for future Manatee research. Sites of focus surveyed included Deep River, Rio Grande, Stuart Caye, Paynes Creek, Golden Stream and Frenchman’s lagoon.

On day 1, a total of 6 Manatees were observed at a point west of Stuart Caye and north of Rio Grande mouth. Sightings of these Manatees occurred in the evening around 4:00 pm. On day 2, a total of 3 manatees were sighted at a point between Deep River mouth and Scotland Point (a point south of Paynes Creek River mouth). Sightings of these 3 manatees occurred in the morning. The table below summarizes data gathered during the two days manatee surveys.

Table showing the date, GPS coordinates, location, time and number of manatee recorded during surveys done in February 2005.

Date	GPS Coordinates	Location	Time	# of Manatee sighted
------	-----------------	----------	------	----------------------

23-Feb-05		North of Rio Grande Mouth	4:00 pm	6
24-Feb-05	16 Q 0307599 UTM 1782441	North of Deep River Mouth	9:25 am	1
24-Feb-05	16 Q 0307599 UTM 1782441	North of Deep River Mouth	9:35 am	1
24-Feb-05		Deep River Mouth	10:15 am	1

Other manatee sightings recorded in the field is shown in the table below

Date	GPS Coordinates	Location	Time	# of Manatee sighted
3-Jan-05		Rio Grande bar mouth	4:45 pm	1
1-Feb-05		Frenchman Lagoon	1:30 pm	1
27-Jul-05	N16°13'17.2" and W 88°44'04.1"	Golden Stream river mouth	9:44 am	3
18-Aug-05		Rio Grande bar mouth		1
25-Sep-05		West of Long Caye	11:15 am	1
29-Sep-05		Breon	3:10 pm	1

Based on the tables above a total of 17 manatees sighted in the field were recorded for this year. This information is preliminary and needs to form part of a larger more comprehensive effort.

In addition to the regular recordings of manatees in the field and the 2-day manatee survey that was done in February 2005, a study was conducted on the status and habitat of the manatees within the Gulf of Honduras. This study which had participants from the current members of TRIGOH, would further lead to the formulation of a technical scientific proposal that will help their conservation in this area. Hence TIDE participated in all the preliminary data collection that occurred in southern Belize as well as some data collection in Honduras and Guatemala. A total of 5 sites were selected from the Port Honduras Marine Reserve. Sea grass samples were obtained for biomass and three 50 X 50 cm quadrates were used to record community composition of the seagrass. Water quality samples were also obtained from each of the sites. Results obtained from this study will be compiled into a report, which will be submitted by project leaders in early 2006.

Since manatees and marine turtles are legally protected, it is necessary to monitor their numbers to determine changes in population size and structure. It is hoped that funding could be obtained for the monitoring of the endangered sea turtle for 2006.

Users of the reserve and vessel names

Gorge Ramirez Ocean Girl
Jack alford

Roy Ramirez Lupita
Edwardo Buchub

Lione Delcid Gilda
Anna Ramirez

Kenworth Martin Tight Line

Michael Cayetano Josh

Lionel Martin B Dreamer

Hugo Delcid Tishane

John Young Permit
Conrado Perez Mrza

Ashlean Sareles Silence
Mathew Nicholas
Peter Lino
Leslie Willams

Carlos Parham Isamar
Walton Parham
Carl Gonzalez
Emerson Ramclm

Wilder Parham Paola

Salvador Ramirez

Fredy Perez Mullet
Nery Parez

Jewel Casemero Iriea
Ray Arzue

Larry Arena
Leo Harry

Leslie Willams Paaz

Jewel Casemero	Iriea
Sheldon Lambey Filton Gentle	
Ian Cuevas Victor Cuevas Victor Cuevas Jr. Alwin Muschamp	Opportunity
Daniel Castellano	Martha
Persaval Gordon George Gordon Rayman Gorden	Columbus
Devon Castro Jason Garbutt	Queen of Harts
Winston Garbutt Brian Garbutt	Tina
Boni Avila Juan Makin Jose Elia	Andrea
George Garbutt	Mystic

Sport Fishing/tour guides and their vessel names

Thomas Garbutt	Unity
Oliver Garbutt	Sea Life
Roberto Echavaria	Wild thing
Eworth Garbutt	Destiny
Victor Jacobs	Imagine
Paul Jacobs	Mandingo
John young	Permit
Alex Leonardo	C glazer
George Coleman	Baby Eisha
Eloy Cuevas	Fugitive
George Garbutt	Mystic
Ian Cuevas	Opportunity
Daniel Castellano Jr.	
Bobby Polonio	Princess

TIDE Board of Directors

Alistair King - Chairman - Local Businessman (Texaco & Fabrigas)
Celia Mahung – Treasurer – Professor (University of Belize, Toledo Campus)
Wilfredo Galvez – Secretary - Director of Operations, TIDE
Robert Polonio – Local Fisherman and Tour Guide in Punta Gorda
Eloy Cuevas –Fly-Fisherman and Local Tour Guide
Sebastian Choco – Milpa Farmer
Lyndon Bardalez - Local Businessman (Dick’s Service Station)
Elizabeth Enriquez – Manager (Punta Gorda Hospital)
Gabriel Roches – Public Servant at the Ministry of Labor
William Maheia - Executive Director, TIDE

TIDE staff

TIDE currently has 30 full time paid staff members. It has grown significantly from 19 staff members in 2003 to 31 staff members this year. Our staff is as follows:

Management Staff

Executive Director: William Maheia, Msc
Operations Director: Wilfredo Galves, Bsc
Science and Stewardship Director: Dr. Robin Coleman, PhD
Development Director: Jonathan Labozetta

Programmatic Staff

Port Honduras Marine Reserve

Manager: Dennis Garbutt
Marine Biologist: Juan Chub, Bsc
Head Ranger: Carlos Ramirez
Ranger: George Sambula
Ranger: Leonardo Castro
Ranger: Marlon Williams

Paynes Creek National Park

Manager: Mr. Mario Muschamp
Ranger: Leonard Williams
Ranger: Susette Jacobs
Ranger: Wilfred Muschamp

Private Lands Initiative

Forest Management Specialist: Eugenio Ah
Ranger: Carlos Bardalez
Ranger: Anselmo Chavaria

Freshwater Initiative

Freshwater Coordinator: Joseph Villafranco, Bsc

Environmental Education

Environmental Education Coordinator: Danika Sierra

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Community Liaison Officer: Phillip Gabriel

Environmental Education Coordinator: Linda Nunez

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Receptionist: Patsy Rodriguez

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IT Officer: Jonathan Borland

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Part Time Staff

New Scholarship Program Coordinator: Delone Foreman

Scholarship Program Coordinator: Ronise Caliz

TIDE Tours

Ecotourism Coordinator: Shiela Ramclam

Tour assistant: Martin Lino

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Thomas Garbutt, Fisherman Association

George Coleman, Tour Guide Association

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Michael Espat, Toledo East Representative

David Linarez, Monkey River Village

Carlos Galvez, Punta Gorda Town Council

Celia Mahung, Ministry of Education Representative

Dennis Garbutt, PHMR Manager

Scholarship Students, Interns and Volunteers

Gillion Castro (Summer Camp Volunteer)
Cordelia Che (Summer Camp Volunteer)
Zoarra Gutierrez (Summer Camp Volunteer)
Heather Castro (Summer Camp Volunteer)

Leonel Requena (Intern - University of Belize)
Julio Shal (Intern - University of Belize)

Kareen Lee	Peace Corp Volunteer
Clodia Chan	Research Volunteer
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