

Catching up with TIDE

Toledo Institute for Development and Environment
Annual Report 2017





About TIDE

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Mission:

To engage stakeholders in the sustainable management of natural resources within the Mayan Mountain Marine Corridor of Southern Belize for the benefit of all.

Vision:

Toledo's healthy ecosystems support biodiversity, communities and sustainable development.

The Toledo Institute for Development and Environment (TIDE), located in southern Belize was established in 1997 as a community-based response to manatee poaching and marine degradation and has grown into one of Belize's leading non-government conservation organizations.

Our 'ridge to reef' approach to conservation within the Maya Mountain Marine Corridor, aims at enhancing stewardship of the environment. TIDE is respected for its innovation through the years – playing a leading role in the 'Debt for Nature Swap' with The Nature Conservancy and Government of Belize, winning awards for its Freshwater Cup and Community Researchers Programs, pioneering Managed Access fisheries in Belize, planning for climate change adaptation and generating income for conservation.

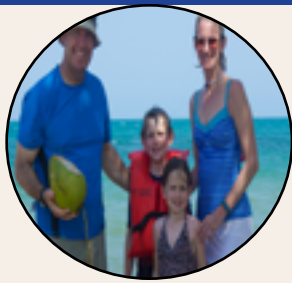
TIDE has co-managed Port Honduras Marine Reserve and Payne's Creek National Park with the Belize government since 2000. We also directly manage over 22,000 acres of land held in trust for the people of Belize. Together, these areas form some of the most pristine habitat in the entire Meso-American Complex.

Our dedicated staff of 32, along with part time community researchers, interns and volunteers work across five program areas with a budget of just over US \$1M. Resource Protection maintains biodiversity in the protected areas we are responsible for; Environmental Education empowers local residents to be environmental stewards; Research & Monitoring informs management actions; Sustainable Development supports the needs of local people and Financial Sustainability helps to generate income for protected areas management.



Highlights

from 2017



TIDE Tours was awarded the Caribbean Climate Smart Award at the 2017 Caribbean Sustainable Tourism Awards Program in St. Kitts and Nevis from a total of 96 entrants.



2017 was a busy year for the community development program, 4 community group businesses were established in the buffering communities of PCNP, a project funded by the Darwin Initiative. The project was able to provide a small grant to each group as startup capital and all members made major business progress!



Five persons from the basic fire training in 2016 were chosen for the Advance fire training in February 2017. 10 participants from protected areas across Belize as well as staff from the Forest Department participated. The 15 participants are now equipped with the skills necessary to implement fire management activities.



Major upgrades of park's facilities were done during 2017. The refurbishing of the shower stalls, toilet facility and tiling of kitchen floors were done at the Paynes Creek National Park with funding through TIDE Tours to accommodate the increase visitation via the Ridge to Reef Expedition.



Fishers continue to report low population of Queen Conch in southern Belize and our independent surveys do not differ from their oral reports. As co-managers, we pledge to continue working with conservation partners and the Belize Fisheries Department to make the best management decision for this fishery.



A very exciting year for our scholarship program this year! In 2017, 10 students who were enrolled in the TIDE scholarship program graduated high school. Another 40 students enrolled in the program continued on to successfully complete their level and move forward in school.



Through the CARSI Project, 12 vocational trainings were completed targeting unemployed youths from the Toledo District. At the end of 2017, 222 youths graduated from this program. Additionally 110 youths completed life skills courses to improve performance in the workplace.



In 2017, our Education and Outreach Program had the direct involvement of 3,491 students from 44 primary schools and 4 high schools in southern Belize! It was the first year that we included primary schools from very remote areas in Toledo and we hope to be able to fundraise to continue working with these schools.



With TIDE's support, the Monkey River Watershed Association was registered in January of 2017 and has submitted 2 proposals to PACT and UNDP GEF/ Small Grants Program to develop a road map to restore the functionality of the watershed so it can become the provider of water and sediment to the PHMR and Monkey River coastline.



Our Ridge to Reef Program continues to attract volunteers who not only want to enjoy the natural beauty of Belize, but come prepared to assist TIDE achieve its conservation objectives within the Maya Corridor. This volunteer worked with primary school children on a tree planting project.



Executive Director's Message

As we celebrated our 20th anniversary this year, with theme, "Twenty Years of Community Participation in Conservation, we reflected on our numerous achievements and planned on ways to address our limitations. Indeed, we have accomplished a lot and seeing results of our intervention, in all program areas is motivating. Seeing results from our contributions towards maintaining ecosystem health and securing the livelihood of communities that depend highly on natural resources has been rewarding. Observing youth and children we connect with annually through sports, school projects, special events, summer camps, and social media demonstrating an appreciation for the environment, gives us hope for the future generations. Knowing that hundreds of stakeholders who buffer protected areas we manage, continue to benefit either from high school scholarships, a variety of skills trainings, offered consistently over the years, including vocational, fire management, dive certification, marine monitoring are using skills to make an improve their livelihood is inspiring. Communities are always at the heart of our work and it is critical that they continually benefit from our intervention. Even as we plan on innovative ways of generating an income for protected areas managers, we find ways of ensuring that community members benefit through the use of their skills and local knowledge.

Aside from highlighting our achievements, we took time out to honor individuals who played a key role in the formation and development of TIDE. This included government and community representatives, fisher-folks, partners, donors board members and staff. We are aware that it takes a number of committed individuals to achieve conservation goals and TIDE has been fortunate to have support from many individuals, partners and donors who have contributed to the growth of the organization. We have been extremely lucky to have the dedication of a staff of 32, part time employees, volunteers and interns and we are thankful for everyone's commitment to the growth of the organization.



Resource Protection

Protected Areas

Our work focuses on the Maya Mountain Marine Corridor of southern Belize. Within this spectacular landscape, TIDE co-manages the Port Honduras Marine Reserve (100,000 acres) with the Fisheries Department and the Payne's Creek National Park (38,000 acres) with the Forest Department. TIDE also manages over 20,000 acres of Private Protected Lands.

2017 was a successful year for TIDE's three protected areas. There were over 700 patrols within the three protected areas with few illegal activities. In Payne's Creek National Park there were 5 parrots (3 yellow headed and 2 red-lored) confiscated from the Bladen Community. Of the 430 patrols conducted in PHMR, 5 arrests were made, 5 verbal warnings were given, 17 gill nets, 2 long lines, and 6 fish plots were removed/confiscated from within the reserve.

In order to ensure effective management, TIDE rangers participated in multiple training sessions. Staff were trained to use Spatial Monitoring and Reporting Tool (SMART) technology to collect data during patrols to inform management. They were also trained in data base development and report generation using the software. The terrestrial rangers participated in training to install and use camera trapping. They also learned protocols for pine/palmetto monitoring and Yellow Headed Parrot monitoring. Two rangers completed dive certification and tour guide training, allowing for better understanding and protection of protected areas. Our ongoing education ctivities focused on understanding the need for compliance of protected areas regulations.

Yellow Headed Parrot

The Yellow-headed Parrot (*Amazona oratrix*) is an IUCN Red-listed species and is considered endanger of extinction across its range. The distribution of the family, *Amazona oratrix belizensis*, is primarily restricted to the coastal pine savannas found throughout eastern Belize. Nesting behavior is initiated in January and February, with 2-4 eggs being laid by March.

After ongoing monitoring of the Yellow-Headed Parrots within the Deep River and Swasey Forest Reserve and the Paynes Creek National Park, it is known that aside from natural predation and habitat loss, poaching is the largest threat to their nesting success. Educational outreach programs in nearby communities to address poaching issues, as well as supplemental livelihood opportunities are essential to reducing poaching that occurs in the protected areas. Ongoing joint patrols with the Belize Forest Department personnel is critical and continued collaboration with the Belize Bird Rescue is recommended to help with at risks chicks from poaching and any health issues.

Survey results demonstrate that artificial nest boxes, in areas that are monitored consistently, such as the Paynes Creek National Park, provide suitable nesting sites where there are few natural options.

To improve the habitat and increase availability of natural nesting sites, effective fire management and education needs to be continuous within the protected lands and nearby communities.

Lastly, in order to keep this program viable, TIDE needs additional volunteers, and interns to continue the monitoring program in future years.



Fire Management



Our protected areas manager, and fire management expert, Mario Muschamp along with terrestrial field staff, Owen Lenard Williams and Norman Andrew Williams and Florida fire ecologist, Rick Anderson provided fire management training for the staff at THE RESERVE and developed an Integrated Fire Management Plan for the area. They also submitted proposals to Monkey Bay Wildlife Sanctuary and Programme for Belize, to provide basic and advanced fire training fire management training for their staff and buffer communities. TIDE now has the capacity to provide fire management trainings and partners locally and regionally have been utilizing the skills of our human resources.

Managed Access

Managed Access is a fishery management tool that protects stocks by identifying the traditional users of an area and granting only them access to fish commercially within that area. It has proven successful at sites throughout the world but, until recently, had never been applied in the Caribbean or Central America. At the forefront of progressive fisheries management in the developing world, the Belize Fisheries Department launched Managed Access in the Port Honduras Marine Reserve and Glover's Reef Marine Reserve in 2011 in collaboration with its partners, TIDE, the Environmental Defense Fund and the Wildlife Conservation Society. This regime aims at ensuring the sustainability of Belize's fisheries and securing the livelihoods of its fishers for the long term.

Many Managed Access fishers comply with new regulations by color coding their boats to clearly indicate what fishing areas they can legally use. A number of them also submit their catch data to TIDE and the Belize Fisheries Department. This data is analyzed and results are shared at fishing forums held three times per year.

During this year's forum, TIDE provided updates on funded projects and shared findings and recommendations from benthic survey reports. Fishers in turn, shared their observations with the implementation of Managed Access, including their perception of the performance of park rangers and TIDE on a whole. We find this open dialogue important to maintaining a good working relationship with fishers.





Sustainable Development

Community Researchers



In order to improve efforts to collect data, monitor the reserve, and improve fisheries enforcement and management in the Port Honduras Marine Reserve, TIDE began a community researcher training program in 2009 to fill the gap. This program selects young, local community members and trains them in SCUBA diving, various environmental monitoring techniques, ecology, and safety and compensates them for their time.

Many of our Community Researchers have gone on to further their studies or taken on full-time positions at other conservation organizations in Belize. In 2017, our Community Researchers assisted with monitoring of coral, seagrass, conch, lobster, and sea cucumber populations. Thanks to the help, we were able to successfully monitor more sites.

Fish Festival

In October 2017, TIDE celebrated its 20th anniversary at TIDE's annual Fish Festival. The theme of the weekend was "Celebrating 20 Years of Community Participation in Conservation." The mission was to promote awareness about environmental issues as well as celebrate of our environment and natural resources.

TIDE Fish Festival consisted of two parts – the Seafood Gala, and the Fish Festival. At the gala, one could find fresh seafood caught from the Port Honduras Marine Reserve. Over the weekend, there were bike competitions, coconut husking contests, door prizes, and local foods from many different cultures. Over 2,500 people attended the 2017 Fish Festival weekend.

COMMUNITY BUSINESSES

In 2017, several community members benefited through our community development program. 4 community group businesses were established in the buffering communities of Paynes Creek National Park, a project funded by the Darwin Initiative. These group businesses are: Adventures in the Last Corridor in Medina Bank, San Isidro Farmers Agroforestry Association (SIFAA) and Xibe Women's Group both in San Isidro Village and United Hands in Trio.

The project provided a small grant to each group as startup capital. All groups made major progress; Adventures in the Last Corridor is about to launch a day tour which includes caving, river tubing, lunch and cultural tour. Xibe Women's Group built and is operating a snack shop next to the village primary school, SIFA are in the final stage of completing a chicken coop and continue to plant short term crops and United Hands have one sow and have plans to expand their operation.



Youth Engagement

The project titled, 'Empowering Toledo's Youth to contribute to safer and more productive communities, through building capacity, environmental education, and sports for development, implemented in collaboration with the Department of Youth Services -Toledo, engaged 1,458 youth in skills development, sport, and education as preventative measures for participating in criminal activities. This was done through numerous skills trainings for un-employed youth to enhance their professional skills and capacity to be prepared for employment opportunities.

In addition, the project targeted youth in schools through the expansion of TIDE's Fresh-Water Cup - a famous award-winning football tournament for which school teams (males and females) complete environmental or health project in order to participate in a football competition. This program contributes to the wholistic development of youth and they look forward to this annual program that also motivates them to stay in school. At the completion of the project in September of 2018; TIDE would have invested over BZ\$500,000.00 - a CARSI grant, in the Toledo District.



Research and Monitoring

Queen Conch

Queen conch (*Lobatus gigas*) is a large gastropod and an important commercial species throughout Belize. What once was a prevalent species with high population densities, has now demonstrated drastic population decreases. Since 2009, TIDE has been monitoring population sizes throughout PHMR to determine whether the species is being fished sustainably.

Recently, population trends have been seen to drop drastically, even though fishers within the region are fishing legally and following regulations. In 2017, conch densities increased slightly in all zones in PHMR in comparison to the critical lows of 2015-2016. However, conch densities continue to be well below healthy population levels and minimum density thresholds. Shell length continues to be used as an indicator for maturity of the species. However, previous studies show lip thickness to be the best indicator to determine the maturity of the species (Foley & Takahashi 2017). Toledo Institute for Development and Environment aims to continue work with the Belize Fisheries Department to propose new management of this very important commercial species as fishers are also reporting low population densities.



Sea Cucumber

Since 2011, sea cucumber has increasingly become an important commercial species within Belize. This group of species is also vital to coral reef health as they filter harmful bacteria out of the water to increase water quality. Due to overfishing and serious declines in population levels, a moratorium on sea cucumber fishing was enacted in 2017 by the Belize Fisheries Department. To ensure the preservation of the species found within PHMR, TIDE continues to monitor sea cucumber.

In 2017, both the general use zone (GUZ) and the replenishment zone (RZ) showed negative trends in population densities from the previous year. Sea cucumber densities in the GUZ were higher than in the RZ at 26 per hectare and 9 per hectare respectively. The replenishment zones did not have much success in 2017 with densities at the lowest since records began. Though the GUZ showed higher population densities than the RZ, it decreased ~40% from 2016 with sea cucumber average size similar to 2016 values. This clearly demonstrates that sea cucumber populations in PHMR are still very low and primarily adult habitat. This could be due to a number of issues including lack of mature spawning stock causing poor recruitment and/or illegal fishing in PHMR. With the closure of the sea cucumber fishery, TIDE hopes this important commercial species will begin recovery in 2018.



Lobster

Lobster monitoring in 2017 indicated that populations are healthy within all zones of PHMR. This year, the abundance of individuals increased in all zones with GUZ having number of individuals similar to 2011 levels ~25 per hectare. Replenishment zone abundance also increased with number of individuals yearly average ~11 per hectare, similar to 2015 abundance levels, but ~50% less than 2012. Reduced maturity in RZs indicate possible illegal harvesting of large mature lobsters in RZs, or migration of mature lobsters to other areas.

Though lobster populations are under pressure it appears to be healthy and relatively stable. The declining trends demonstrated in 2016 caused concern within fishery and TIDE's research team will continue to explore the possibility of increasing the size of replenishment zones and conducting studies to determine the efficiency of lobster shades. These endeavors will help TIDE gain a better understanding of population trends of lobster within PHMR, and maintain a sustainability of the fishery.





Education and Outreach

Youth Summer Camp

TIDE has been hosting an annual summer camp since 2002 with a different theme each year. The aim of this annual camp is to encourage children to understand the concept of biodiversity and its role and importance within the environment. The theme of the 2017 Youth Summer Camp was “Life Below Water” and the main objective was to help the children develop an appreciation for their personal impact on the environment. There were 5 main goals of the 2017 Youth Summer Camp: 1) Foster an appreciation for and knowledge of personal impact on the environment 2) Develop a greater understanding of marine resources and its value 3) Define climate change and sustainability 4) Highlight everyday actions that affect the environment and, 5) Involve equal numbers of girls and boys in camp, enhancing self-esteem, improving interpersonal skills, and involving them in healthy outdoor activities to promote a healthier lifestyle. In 2017, TIDE hosted 44 campers ranging from 10 to 17 years of age. The youth campers attended marine field trips to learn about TIDE’s marine protected area and the species it fosters. The venture facilitated an appreciation for the marine environment and encouraged the campers to improve their actions. The 2017 Youth Summer Camp would not have been possible without the help of 6 volunteers.



Scholarship Program

At TIDE, a solid partnership and cooperation with our stakeholder communities is very important. Each year, TIDE embarks on fund-raising to be able to assist families by easing some of their school related expenses.

In the school year 2016-2017, with the generous support of our donors, namely Marfund and the German Cooperation and Mass Audubon, TIDE assisted a total of 42 students in their high school studies. TIDE commends 5 students who were enrolled in the TIDE scholarship Program who successfully completed their 4th year of High School education and graduated. TIDE also congratulates the other 34 students who continued their high school journey. The students were awarded with book scholarships and/or school registration scholarships. The high schools that students attended include: Toledo Community College, Providence High School, Claver College Extension, Belize Comprehensive School, Georgetown Technical High School, Julian Cho Technical High School and Independence High School. These students are from communities within Punta Gorda Town, Monkey River Village, Punta Negra Village, San Miguel Village, San AMrcos Village, San Antonio Village, Bella Vista Village, Golden Stream Village, Eldridge Ville and Forest Home Village.

TIDE makes a concerted effort to provide such educational assistance because the organization realizes that many of the families in Toledo have limited income, and many are dependent on the south’s natural resources in order to sustain themselves. Many of our teenage recipients come from fisher-folk families, from subsistence farming families. We foster better relations with our community stakeholders, but we also invest in the next generation by better their chances of success in educational pursuits. These young people grow into adults with a wider array of skills, skills which may allow them to earn a living for themselves and their families through alternate livelihoods.



TIDE Freshwater Cup

TIDE's Education and Outreach Program is designed to empower local residents to be better environmental stewards. We raise awareness of the ways in which the ecosystems of the Maya Mountain Marine Corridor benefit people and the ways in which people can take better care of the ecosystems.

One of TIDE's annual activities is the Freshwater Cup, an integration of football and environmental education. In order to participate, each team of school children must plan and implement an environmental project that benefits their community and protects freshwater resources. Projects that have been undertaken have included starting recycling programs, creating green spaces in schools and communities and planting trees. Other activities have involved being engaged in clean-ups of rivers and streams, creating eco-parks and environmental clubs and the management of solid waste. The tournament not only teaches the children and their communities about the environment, but it also fosters teamwork, empowering the children by making them realize what can be achieved through working together. It also promotes gender equality by encouraging both girls and boys to take part.

In 2017, the TIDE project coordinator facilitated community and environmental projects for 17 primary schools and 4 high schools participating in the TIDE Freshwater Cup. This award winning project impacted over 1,000 school children in 2017.



Financial Sustainability



Financial Sustainability

In 2017, TIDE Tours was registered as a separate legal limited liability tour company, with its own board of directors, consisting of tourism business stakeholders from Toledo. We continued to offer educational expeditions within TIDE's protected areas, vacation packages and day tours throughout Belize. TIDE Tours participated in three major marketing events in 2017 which included the Belize Tourism Expo (BETEX), Virtual Trade Show organized by BTB & Canada Roadshow. The Canada roadshow consisted of two events, one in Calgary and one in Toronto. At each event, suppliers were allocated a table space in the event hall, upon which TIDE Tours marketing manager displayed information relating to TIDE Tours. Local buyers were invited by the BTB to attend the event. The event commenced with a 60 minute mini-trade show – where buyers could visit supplier booths to learn more about the services offered and we were able to connect personally with approximately 25 buyers at each event. These marketing efforts were not only to showcase TIDE's work, but to sell adventures in Belize, and those especially that can contribute toward our goal of promoting responsible Tourism. We also formed new partnerships with companies such as Winterline Academy whereby we hosted students for the entire month of October who acquired different life skills taught by local expert guides. Some of the skills included scuba diving, kayaking, social science research and drum making to name a few. We also hosted paid volunteers who contributed significantly to projects within the TIDE private protected lands.

Some of the projects these volunteers helped with included reforestation along the Rio Grande River, painting and installing lines along protected area borders, collecting data from Yellow head parrot nest boxes, clearing transect lines and border trails. TIDE Tours contributed over 400,000+ to the local economy plus in 2017. With a small full time staff of three at the TIDE Tours, this allows us to employ many locals, cooks, boat captains, tour guides and drivers and contribute to an increased standard of living for these locals. We hope to nurture the new and existing partnerships formed and expand our services for the coming year in order to bring much needed income for the financial sustainability of TIDE.

An awardee - TIDE at 20

During the Fish Festival weekend, we awarded donors who supported TIDE for over 15 years with a plaque and treated them to tickets to our seafood gala. These donors included OAK Foundation, Summit Foundation, The Nature Conservancy, GEF Small Grants Programme, Mass Audubon Society, Protected Areas Conservation Trust and MAR Fund.

Also included in awardees were individuals who played a critical role in the formation and development the organization over the years. These included community representatives, staff, board of directors, co-management partners and the media.



Finances

TIDE 2017 Income Breakdown

	USD	
Grants, Private	\$339,069.50	38%
Grants, Public	\$436,006.50	48%
Endowment Interest	\$22,403.00	2%
Earned Income	\$26,758.50	3%
Other Income	\$75,449.00	8%
	\$899,686.50	

2017 TIDE's Expenses by:

Protected Areas	USD	
1 TIDE Private Lands	\$77,889.50	8%
2 Payne's Creek National Park	\$118,112.00	12%
3 Port Honduras Marine Reserve	\$586,024.00	60%
4 General & Administrative	\$188,684.50	19%
	\$970,710.00	

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