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**TOLEDO INSTITUTE FOR  
DEVELOPMENT AND  
ENVIRONMENT (TIDE)**

Belize



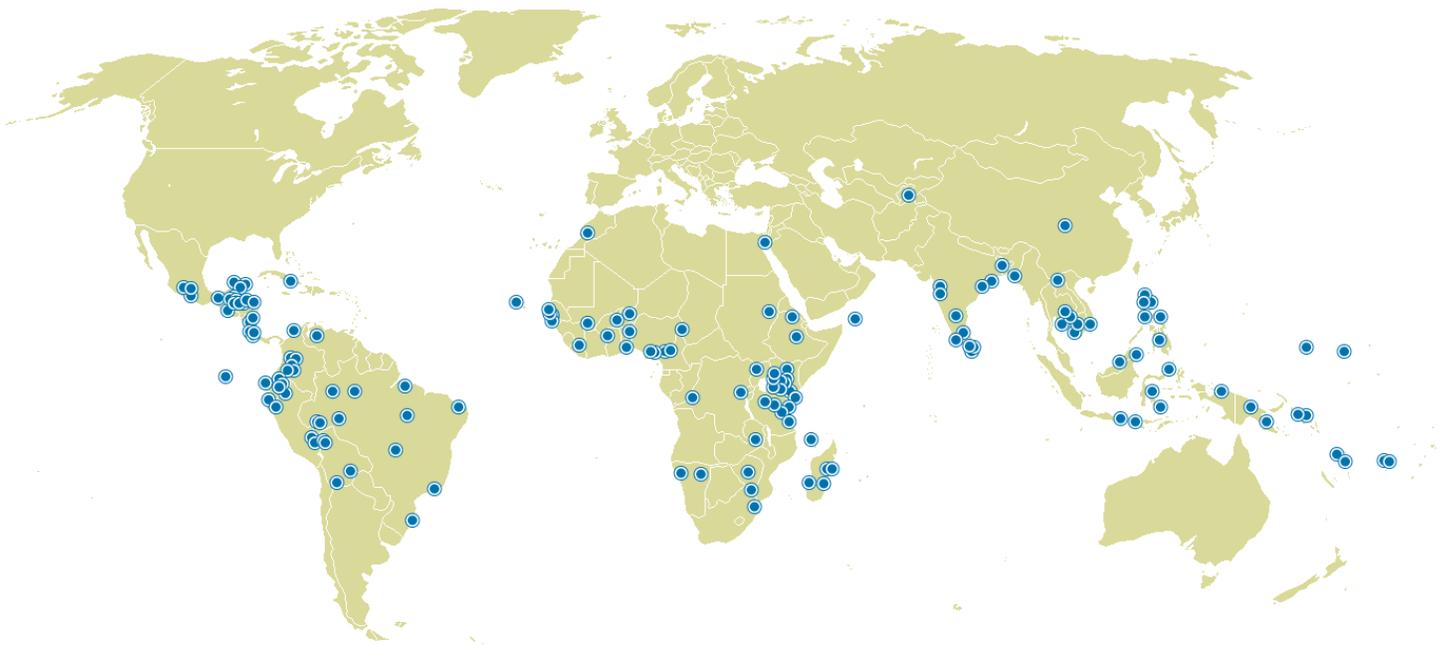
**Equator Initiative Case Studies**

Local sustainable development solutions for people, nature, and resilient communities

# UNDP EQUATOR INITIATIVE CASE STUDY SERIES

Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still have undertaken to tell these stories with community practitioners themselves guiding the narrative.

To mark its 10-year anniversary, the Equator Initiative aims to fill this gap. The following case study is one in a growing series that details the work of Equator Prize winners – vetted and peer-reviewed best practices in community-based environmental conservation and sustainable livelihoods. These cases are intended to inspire the policy dialogue needed to take local success to scale, to improve the global knowledge base on local environment and development solutions, and to serve as models for replication. Case studies are best viewed and understood with reference to *'The Power of Local Action: Lessons from 10 Years of the Equator Prize'*, a compendium of lessons learned and policy guidance that draws from the case material.



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## Editors

*Editor-in-Chief:* Joseph Corcoran

*Managing Editor:* Oliver Hughes

*Contributing Editors:* Dearbhla Keegan, Matthew Konsa, Erin Lewis, Whitney Wilding

## Contributing Writers

Edayatu Abieodun Lamptey, Erin Atwell, Toni Blackman, Jonathan Clay, Joseph Corcoran, Larissa Currado, Sarah Gordon, Oliver Hughes, Wen-Juan Jiang, Sonal Kanabar, Dearbhla Keegan, Matthew Konsa, Rachael Lader, Patrick Lee, Erin Lewis, Jona Liebl, Mengning Ma, Mary McGraw, Gabriele Orlandi, Juliana Quaresma, Peter Schechter, Martin Sommerschuh, Whitney Wilding, Luna Wu

## Design

Oliver Hughes, Dearbhla Keegan, Matthew Konsa, Kimberly Koserowski, Erin Lewis

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# TOLEDO INSTITUTE FOR DEVELOPMENT AND ENVIRONMENT (TIDE)

Belize

## PROJECT SUMMARY

Toledo Institute for Development and Environment (TIDE) partners with local communities to promote sustainable income generation and co-management of both forest and marine resources in the Maya Mountain Marine Corridor, a conservation area covering approximately 739,650 acres of land and the equivalent of 100,000 acres of sea.

From its volunteer-led beginning, TIDE has grown to include about 30 full-time staff members. The organization works with communities across three main program areas: education and outreach, resource protection, and research and monitoring. Additionally, TIDE has established an ecotourism venture to provide revenue for its work and to support the development of alternative livelihoods for community members. The group also organizes activities such as beach clean-ups and community fire management training, with a target audience comprising 12 coastal and inland communities, for a total of more than 10,000 people.

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## KEY FACTS

EQUATOR PRIZE WINNER: 2002

FOUNDED: 1997

LOCATION: Toledo District, Belize

BENEFICIARIES: Up to 4,500 residents in local communities

BIODIVERSITY: Maya Mountain Marine Corridor



# Background and Context



The Toledo Institute for Development and Environment (TIDE) promotes sustainable income generation and the participatory co-management and protection of local natural resources within the Maya Mountain Marine Corridor (MMMC) in southern Belize. This award-winning organization co-manages the Port Honduras Marine Reserve in cooperation with the Fisheries Department, the Payne's Creek National Park in cooperation with the Forest Department, and approximately 30,000 acres of private land under the Tropical Forest Conservation Act.

## *A mosaic of landscapes and cultures*

Belize's Maya Mountain Marine Corridor is a biologically significant area that encompasses approximately 739,650 acres of land and the equivalent of 100,000 acres of sea. It includes more than 43 distinct ecosystems that support threatened species, fulfill human needs, and contribute to natural disaster mitigation and climate change adaptation. This corridor connects tropical rainforest and pine savannas with mangroves and small, offshore islands known as cayes and includes seven intact watersheds that flow into coastal wetlands and marine waters to an offshore barrier reef, which is second in size only to Australia's Great Barrier Reef. The corridor is composed of a number of protected areas that provide shelter to many of Central America's endangered species, including jaguars, tapirs, sea turtles, crocodiles and the largest population of West Indian manatees in the world.

TIDE works in part of this corridor, the Toledo District, which is Belize's poorest and least developed region and has the highest unemployment rate in the country. Until recently, local people relied heavily on subsistence agriculture, hunting and fishing for livelihoods. However, a combination of overfishing, little or no enforcement of fishing regulations, and harmful fishing methods brought about a sharp decline in fish populations, while agricultural activities and gravel mining encroached on forest habitats. It was the near disappearance of the manatee that finally galvanized the community into action and

led to TIDE's foundation in 1997. Initially conceived as a grassroots initiative to respond to unsustainable resource use, TIDE has since been actively involved in the implementation of conservation plans and in the development of income-generating alternatives for local residents.

The local community was instrumental in obtaining legal status for the marine reserve, a process that began with community members collecting biological data to demonstrate the decline of resources and the degradation of ecosystems. With TIDE's help, they lobbied for the area to be made into a reserve, collecting hundreds of signatures in support of the establishment of a reserve and sending them to the Minister for Fishing. These efforts were met with considerable opposition from commercial fisheries, but the Belizean government endorsed the proposal and formally adopted the Port Honduras Marine Reserve in January 2000. Shortly thereafter, TIDE was granted co-management authority over the reserve and acquired three boats for use in its marine patrols and other conservation work. In 2004, TIDE signed a co-management agreement with the Forestry Department for Payne's Creek National Park and more recently, has begun to manage newly acquired private lands on the Rio Grande River and between Golden Stream and Deep River.

The Port Honduras Marine Reserve consists of 160 square miles of coastal waters recognized for their high biodiversity, with a robust belt of unaltered mangroves and sandy coasts that provide a critical link between terrestrial and marine ecosystems. These crystal clear Caribbean waters are home to endangered and vulnerable species. Approximately 4,500 people live in adjacent communities, with additional fishing pressure stemming from poachers. The reserve encompasses estuaries near shore communities and extends to protect fringing reefs. There are over 100 small, mangrove-fringed cayes and benthic habitats comprised of soft-bottom seagrass beds, reefal banks and fringing reefs, which are unique to the country. The reserve forms one of the most important fish nurseries in the Caribbean and is an ideal habitat for the endangered West Indian manatee.

tee. TIDE rangers patrol the reserve to ensure compliance with regulations and to reduce environmental threats, such as the use of gill nets, illegal fishing, over-fishing and the catching of under-sized fish.

Payne's Creek National Park covers 36,420 acres in southern Belize - north to the Deep River Forest Reserve, east to Monkey River, the Caribbean Sea and Punta Negra, south to Port Honduras, and west to the bank of the Deep River. This national park protects hypersaline, saline, brackish, and freshwater habitats, mangroves, broadleaf forest and savannah. The ecosystems are a matrix of broadleaf forest, short grass and pine savannah, and herbaceous and mangrove swamps. The park provides direct protection for a great diversity of species, at least 22 of which are endangered or vulnerable. These include the manatee, goliath grouper, howler monkey, white ibis, jabiru stork and yellow-headed parrot, in addition to Belize's five species of cat - jaguar, ocelot, margay, puma, and jaguarondi. Three hundred species of bird live or winter in the park. Within the park's boundaries, archaeologists have uncovered four ancient Mayan sites, now submerged under water in the Y'cacos lagoon, adding a cultural element to the protection of this land. Wild fires are the most severe threat faced by Payne's Creek National Park; yearly fires impede young pine regeneration and destroy the nesting sites of yellow-headed parrots, sparrows and black-throated bobwhites.

### *Conservation on land and at sea*

In addition to wildfires, forests in the Toledo region of Belize face further threats, including the newly-constructed Southern Highway of Belize which provides access to once remote areas, and deforestation through the expansion of agriculture and logging operations. With the help of the Nature Conservancy, TIDE began to purchase strategic parcels of land in the Maya Mountain Marine Corridor to secure them from unsustainable development and currently manages approximately 30,000 acres of such lands. The majority of TIDE's private lands are located on the banks of the Rio Grande River, a riparian corridor where visitors can catch glimpses of the endangered West Indian manatee and hicatee turtle. TIDE rangers patrol more than twenty miles of coastal forest land and over thirty miles of riverfront in these areas. In this way, TIDE's private protected lands are successfully contributing to the conservation of a biological corridor that links other protected areas in the Toledo District.

From its volunteer-led beginning, TIDE has grown to include about 30 full-time staff members, including 8 administrative staff, 9 rangers, and several marine and terrestrial biologists. TIDE involves community members in decision-making through participation on advisory

boards which are made up of residents from the buffer zones. Furthermore, the organization's Board of Directors includes fishers, a farmer, a tour guide operator, a community worker, a teacher, and the dean of the local university. TIDE also works cooperatively with government officials and has extensive links with the academic community in Belize and abroad. Additionally, the organization has succeeded in building partnerships within the private sector, especially through its for-profit tourism arm, TIDE Tours, which contracts many of its tourism services to small, local businesses. The target population for all of TIDE's activities and outreach is 12 coastal and inland communities, for a total of more than 10,000 people.



*“This guy is having an argument with the ranger, saying if we take his net how is he going to live? He's got his family to feed and its difficult for us from the conservation point to just come and take away their nets without providing an alternative.”*

*Will Maheia, TIDE*

# Key Activities and Innovations



TIDE's three main program areas are education and outreach, resource protection, and research and monitoring. Additionally, TIDE has established an ecotourism venture to provide revenue for its three main activities and to support alternative livelihoods for community members. TIDE also organizes other activities such as beach clean-ups and community fire management training.

## *Education and Outreach*

TIDE's environmental education and outreach program is designed to increase public awareness of the Maya Mountain Marine Corridor and foster appreciation, ownership and pride among stakeholders. Through meetings, discussions, radio shows and several annual activities, TIDE aims to promote sustainable resource use in the protected areas managed by the organization as well as in the buffer zones. This program engages young people in conservation and environmental issues by directly supplementing their science and social studies curricula. TIDE also conducts house visits in the buffer communities and employs an education and outreach coordinator who visits over 50 households a year in six communities, reaching more than 360 people. The coordinator also visits primary schools and delivers presentations to over 1,000 students. So far, the house visits have proven an effective outreach tool, as resource users are more open to engaging in discussion in the comfort of their own homes.

An important component of the environmental education and outreach program is the TIDE Freshwater Cup. Recognizing the need to transform the communities into sustainable partners for environmental initiatives and using a sport of enormous popularity, TIDE established the Freshwater Cup Environmental Football League in order to promote environmental action at the community level. In order to participate, students are required to organize environmental projects. Past participants have engaged in clean-ups of rivers, coasts and dumpsites and have given presentations at their schools.

The Fish Fest is another annual event which usually begins with an early morning fishing tournament in the Port Honduras Marine Reserve and includes a series of traditional activities such as coconut husking, cast net throwing, kayak and cycle races and a volleyball tournament. In 2010, the tournament promoted sustainable fishing of the fin fish species and sport fishing. There is an annual Youth Conservation Competition in which young people compete for associate degree scholarships by making stage presentations on environmental themes. The competition allows audience members to learn about environmental issues and the work of participating organizations.

TIDE has hosted a summer camp for six consecutive years with a different theme each year. In 2010, the theme was "The Importance of Biodiversity." A total of 140 children from Punta Gorda and neighboring communities participated. Thirty facilitators, including university and high school students, teachers and three international volunteers, assisted with the camp. The aim of this annual camp is to encourage children to understand the concept of biodiversity and its role and importance within the environment, with an emphasis on the terrestrial and marine ecosystems found within the corridor. Additionally, one of TIDE's terrestrial biologists developed an Introduction to Bird Watching course that has been conducted for school children in Punta Gorda and TIDE staff. TIDE also offers field trips during which local children are taken out to coral reefs and protected areas. The aim is to get children interested in the protection of their local natural resources so that they will become community stewards one day.

## *Resource Protection*

The second area of work, resource protection, refers to TIDE's ongoing co-management of the Port Honduras Marine Reserve, the Payne's Creek National Park and TIDE Private Protected Lands. TIDE employs several full-time park and marine rangers who live at the

ranger station during their two-week shifts. TIDE's management of the Port Honduras Marine Reserve is widely recognized as a successful example of community-based co-management. The marine rangers are the primary authority in the Marine Reserve and routinely inspect local fishers for their licenses and to make sure their catches are within seasonal legal limits. TIDE rangers also serve as sources of information and education, as the rangers use each inspection as an opportunity to tell the fishers about ongoing and seasonal regulations and also about the importance of their compliance with those regulations.

### *Research and Monitoring*

The third program refers to TIDE's year-round biological research and monitoring of the reserves. Ongoing research activities carried out by TIDE track changes in resource populations, community compositions and the health of ecosystems over time. Regular data collection in both marine and terrestrial sites allows any changes or fluctuations from baseline trends to be identified and further investigated. For the marine data collection project, activities include monthly water quality assessment, underwater lobster and conch visual surveys, mangrove and seagrass monitoring, and coral and fish surveys. In order to measure water quality, marine biologists record temperature, salinity, turbidity, and dissolved oxygen levels, all of which have an impact on biodiversity prosperity and survival. Another important aspect of this program is fish stock assessment, for which TIDE has over two years of quality data. Additionally, biologists examine coral for signs of bleaching and collect samples of sediment and seagrass, which are also monitored for data regarding species, percentage cover, density, canopy height, grazing and flowers. Assessments of turtle nesting sites and mangroves are also undertaken on a regular basis.

The terrestrial research and monitoring program collects data on biodiversity within the forests and savannahs of the TIDE Private Protected Lands (TPPL) and Payne's Creek National Park (PCNP), and allows for an understanding of how bird and mammal species impact the management of protected areas. Four biodiversity transects have been established in the lowland broadleaf rainforest and mixed-pine forest ecosystems to identify bird and mammal species and track changes in their numbers over time. These results have been used to inform conservation plans based on the abundance of bird and mammal species in different parts of the protected areas. In the future, TIDE plans to increase the size of transect areas in order to reflect a greater range of habitats and to include amphibians in its monitoring activities.

### *Developing ecotourism to diversify livelihoods*

An additional area in which TIDE works is ecotourism. TIDE Tours was established in 1999 in order to promote ecotourism in the Toledo District. Its primary objectives are to provide profitable, alternative economic opportunities to local residents and to generate funding for TIDE's conservation work. In order to achieve these goals, TIDE Tours works to give community members the necessary skills

to work in the ecotourism industry by providing capacity-building workshops such as microenterprise training as well as a popular tour guide certification course. As a result of this project, TIDE Tours has assisted a number of former fishers to move into more sustainable and profitable employment as tour guides. TIDE Tours also serves as a tour operator, providing a range of activities such as snorkeling and trips to Mayan archeological sites, inland caves and waterfalls.

### *Innovative approaches to conservation*

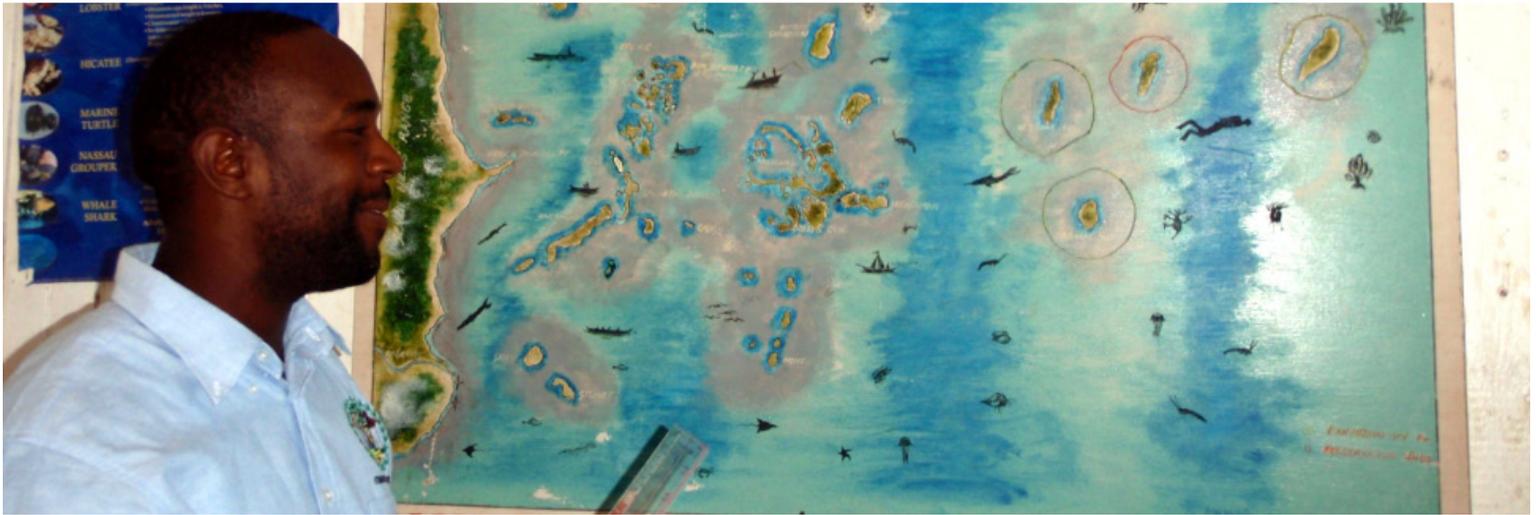
TIDE takes a holistic approach to conservation by ensuring the connectivity of the Maya Mountain Marine Corridor, thereby protecting marine and freshwater ecosystems which are highly dependent on terrestrial activities. Since the highlands of this corridor receive over twelve feet of rainfall each year, the runoff creates waterways that feed into the lowland and marine ecosystems. TIDE acutely understands that any ecological disturbance in one part of the corridor has an impact on the wellbeing of flora and fauna in other areas, and has been recognized internationally as the single most important actor working toward the protection of this corridor, investing large amounts of political and financial capital into the purchase of strategic parcels of private lands.

TIDE also uses a number of innovative methods in its education and outreach program. The scholarship competition for youth and the various sports tournaments are examples of creative and dynamic ways through which TIDE engages the local communities. Innovative programs include a scholarship fund for children whose parents agree to stop using unsustainable fishing and farming methods and a net exchange program that allows fishers to trade gillnets for more environmentally sensitive equipment.

TIDE has been quick to make use of new technologies, especially social media tools, in its outreach, as well as hosting a local radio program to educate listeners about environmental conservation efforts and activities. TIDE has successfully wielded these communication tools in order to influence and empower communities. TIDE also demonstrates a high level of knowledge sharing with local people, making an effort to share up-to-date biological research at regular community meetings.

TIDE's newest success is the Community Stewards Program which provides training and support to community members to enhance their stewardship and collaborative work with TIDE. The program has been in place since early 2009 when 15 community stewards from seven communities were identified to take part in trainings on marine and terrestrial ecosystems, the environmental laws of Belize, computer skills, communication skills and outboard engine maintenance. Through knowledge exchange visits, the stewards have been able to add new skills to their foundation of knowledge, promoting fuller and more effective participation in conservation activities. The stewards have played an important role in motivating others to gain a greater understanding of the protected areas and the need for sustainable resource use.

# Impacts



## BIODIVERSITY IMPACTS

The million-acre Maya Mountain Marine Corridor forms a significant portion of the Mesoamerican Biological Corridor. Traditional threats to this corridor include hunting and fishing, climate variability, land clearance for agriculture, coastal development, population growth, coral diseases, the pet trade and wildfires. Through the implementation of its comprehensive community conservation plan and through the purchase of large tracts of private land, TIDE ensures the connectivity and protection of this mountain-to-sea corridor, thus safeguarding marine and terrestrial ecosystems as well as the endangered species that migrate freely from the mountainous areas to coastal lowlands for food and breeding, such as jaguars (*Panthera onca*), peccaries (*Pecari tajacu*) and ocelots (*Leopardus pardalis*).

TIDE's ongoing education program and daily patrols have resulted in the effective elimination of illegal fishing and hunting in the protected areas that they co-mange. TIDE has almost eradicated the killing of West Indian manatees (*Trichechus manatus*) in the Gulf of Honduras, as seen by the disappearance of manatee meat from public markets. Rangers have also observed a decrease in the hunting of endangered and game species including the yellow-headed parrot (*Amazona oratrix*), the white-lipped peccary (*Tayassu pecari*), and the great curassow (*Crax rubra*) within the protected areas, which may be attributed to TIDE's dedication to informing communities about hunting laws and regulations within and outside the protected areas.

Viable populations of marine species within the Port Honduras Marine Reserve have also been maintained through the effective zoning of the Reserve into 'general use', 'conservation' (no take) and 'preservation' (no entry) zones. The introduction of managed access fisheries has also helped to address overfishing. For example, in order to increase population numbers of spiny lobsters (*Panulirus argus*), an important commercial species in Belize, TIDE enforces a closed season between February 15th and June 14th every year.

TIDE has also achieved significant success in terms of forest restoration and wildfire control. Understanding the role of fire in local ecosystems—fire is required for pine regeneration, for example—TIDE rangers, field staff and volunteers use prescribed burns and a method called "black-lining" in strategic places within the Payne's Creek National Park to control the location and size of forest fires. These controlled burns are used to reduce the fuel load, prevent the spread of wild fires and stimulate seed germination. TIDE also has a riparian reforestation project with the goals of preventing further clearing of the legally established 66 foot setback along rivers and restoring riparian areas that had previously been cleared, endeavors which have helped to improve water quality and maintain freshwater biodiversity. In order to achieve these goals, TIDE collaborated with community groups in targeted villages to establish nurseries for riparian and fruit trees, the saplings of which are then given to farmers to reforest their own land along the Rio Grande river bank. The species targeted for reforestation are cotton (*Gossypium hirsutum*), fig (*Ficus carica*), mahogany (*Swietenia macrophylla*), cedar (*Cupressus lusitanica*), mamee apple (*Mammea americana*), and inga (*Inga feuillei*). To date, approximately 50 per cent of the riparian areas of San Pedro Columbia and San Miguel have been reforested with over 5,000 seedlings.

### *Building a biodiversity data bank*

TIDE also involves local university students (from University of Belize-Toledo) in the collection and identification of medicinal plants for the organization's botanical garden. A number of students have assisted TIDE staff in biodiversity data collection and have established a baseline for species monitoring in order to gauge management effectiveness.

Each month, TIDE rangers collect data on bird sightings, visiting each transect at dawn to maximize the number of sightings. Findings indicate that the diversity of birds and mammals is not consistent

throughout the protected areas. More mature forests with abundant supplies of fruiting trees support higher numbers of birds and mammals. Over 97 species of bird were observed, including the migratory blue-grey gnatcatcher (*Poliophtila caerulea*), the American redstart (*Setophaga ruticilla*) and the worm-eating warbler (*Helmitheros vermivorus*), as well as rarer species such as the violet sabre-wing (*Campylopterus hemileucurus*).

In addition, an annual 'Christmas Bird Count' is conducted - the most recent year's count was a total of 234 species, including the Ornate Hawk-eagle (*Spizaetus ornatus*), the Painted Bunting (*Passerina ciris*), and the black-and-white owl (*Strix nigrolineata*). Mammal species are also carefully monitored. In 2009, a total of 16 species of mammal were recorded including some at risk of extinction: the Baird's tapir (*Tapirus bairdii*), jaguar (*Panthera onca*), Yucatán black howler monkey (*Alouatta pigra*) and white-lipped peccary (*Tayassu pecari*). There seems to be a relatively healthy population of jaguars (42 recorded sightings), likely due to high numbers of small mammals such as armadillo (*Dasybus novemcinctus*), lowland paca (*Cuniculus paca*) and red-brocket deer (*Mazama americana*). In the pine savannah, the most abundant mammal is the white-tailed deer (51 recorded sightings) and the most abundant bird is the yellow-headed parrot (67 recorded sightings). With these data sets, TIDE will be able to develop more accurate and efficient conservation plans.

Coral monitoring is another important aspect of TIDE's research and monitoring program. The average percentage cover of live coral across sites in the Port Honduras Marine Reserve has increased between 2003 and 2009, indicating an increase in the health of the coral reefs. The average cover of coral increased from less than seven per cent in 2003 to over 16 per cent in 2009, indicating that the marine reserve regulations and zoning have had a positive effect on the benthic cover within the marine reserve. The increase in coral cover has had a positive effect on the other organisms within the marine reserve that rely on the structural complexity of the coral for their habitats.

Improvements to the health of marine ecosystems can be attributed in part to TIDE's role in cracking down on destructive practices such as the use of gillnets which catch indiscriminately and have been responsible for killing large sections of coral reefs and grass beds. Aside from confiscating gillnets when they come across them, TIDE rangers also encourage behavioral change among local fishers by allowing fishers to trade gillnets for more environmentally sensitive equipment. TIDE rangers also play a key role in rescuing endangered animals, for example, bringing injured American crocodiles (*Crocodylus acutus*) to the American Crocodile Education Sanctuary whenever they find them.

## SOCIOECONOMIC IMPACTS

TIDE believes that natural resource management cannot be achieved without offering local people sustainable, alternative livelihood opportunities. TIDE's efforts to this end focus on the promotion of ecotourism through its subsidiary company TIDE Tours. Through training and certification programs, TIDE has created opportunities for people who once earned about USD 4,000 per year as fishers to

earn up to USD 15,000 per year as tour guides. In this way, resource-extractive and environmentally-destructive livelihoods are replaced with more profitable alternative economic opportunities, thereby helping to reduce poverty in the protected area buffer zone.

### Distributing benefits throughout the community

To date, TIDE has trained more than 50 former fishers and hunters to serve as tourism brokers in fly-fishing, kayaking, scuba diving, snorkeling, and other activities. In order to help these former fishers and loggers become entrepreneurs, TIDE conducts microenterprise training and other workshops to assist community members in acquiring the necessary skills to join the tourism industry. TIDE Tours subcontracts small businesses in the region to provide tour packages, carefully ensuring that it works with as many individuals as possible on a rotating and equitable basis. The organization also assists local tour guides by providing them with access to kayaks, snorkeling gear, and other sports equipment. Another benefit of this program is that former fishers now contact TIDE to report illegal activity, as these tour guides have begun to see gill nets and other harmful fishing methods as threats to their businesses. TIDE Tours also undertakes marketing efforts to promote the Toledo District, actively working to expand tourism in the area while ensuring that benefits accrue to local communities.

In addition to its ecotourism activities, TIDE offers training to other groups of people who depend on the health of ecosystems to sustain their livelihoods. Training is provided in diving, computer and GPS skills, and boat engine maintenance. TIDE's 'community stewards' are examples of those who have benefitted from these trainings. TIDE has also undertaken development projects in its target communities. For example, the organization built a bathroom facility for the Punta Negra Primary School, renovated the Monkey River Tour Guide building and given science supplies to schools in Big Falls and San Miguel.

TIDE also contributes in more direct ways to poverty reduction. With 38 employees, TIDE is the leading employer in Toledo after the government. Occasionally, TIDE uses conservation projects as a way to distribute income directly to community members. For example, more than 80 local people are involved in the riparian reforestation project and earn a stipend of BZD 25 (Belize dollars) per day as compensation.

The TIDE scholarship fund helps children from communities where TIDE works and that buffer the protected areas: Punta Gorda Town, Forest Home, Elridge Ville, Cattle Landing, Monkey River, Punta Negra and Big Falls Village. Throughout the year, the scholarship students volunteer with TIDE and contribute to TIDE Weekend including the Fish Fest and Youth Conservation Competition. The students have assisted with the TIDE Freshwater Cup and have led clean-up campaigns in their own villages, assisted as group leaders in the TIDE Summer Camp, and collected data for the Adaptive Management Program carried out in 2009. Financial assistance allows these scholarship students to attend second- or third-level schools, raising their prospects for a higher standard of living than that of their parents. Positive effects of TIDE's conservation activities have been felt direct-

ly by local communities. As a result of TIDE's monitoring of marine reserve areas, local fishers are benefitting from a rise in the populations of marine resources and are now able to sustainably harvest larger quantities of conch, lobster and several species of fish, which are also major food staples in the area. Additionally, TIDE is supporting the Monkey River Tour Guide Association in a new lobster shade project that will help improve lobster production for 23 fishers involved in the program.

As for gender equality, there has traditionally been a disparity between male and female participation in conservation efforts in the Maya Mountain Marine Corridor. In order to close this gap, TIDE has made a conscious effort to hire women as park rangers, performing the same duties as men. Additionally, the organization facilitates women's entrepreneurial activities by promoting small tourism businesses owned and operated by local women and was the first organization in the region to provide scuba certification to its female employees.

## POLICY IMPACTS

It was a result of persistent lobbying on behalf of TIDE that legislation was passed to establish the Port Honduras Marine Reserve and grant co-management authority to TIDE in 2000. Shortly thereafter, the Belize Forestry Department recognized TIDE's continued conservation success and created a co-management agreement for Payne's Creek National Park in 2004. Since then, TIDE has assisted the Belizean government in planning and managing protected areas and has demonstrated leadership in its involvement in the national fire policy, participating actively in all meetings, attending advanced training, and providing training for local communities. In 2009, TIDE received the 'Co-Manager of the Year' award from the Forest Department for outstanding performance in the co-management of Belize's protected areas, specifically Payne's Creek National Park.

Another of TIDE's major policy successes was its role in negotiating the first debt-for-nature swap agreement between the Government of Belize and the Government of the United States in 2001. Accord-



ing to this plan, the United States government and the Nature Conservancy collectively provided approximately USD 5.5 million toward forest conservation in Belize. In return, the Belizean government issued BZD 7.2 million in obligations to TIDE and other conservation groups for the protection of 23,000 acres of forest. This exchange facilitated the writing off of approximately USD 1.4 million of debt that Belize had held with the US government. TIDE's obligation under the agreement was to purchase 8,000 acres of vulnerable forestlands and to manage the approximately 11,000 acre Golden Stream Corridor Preserve which had been under government control. This agreement enabled TIDE to begin acquiring private lands and building nature trails and other tourism infrastructure. TIDE then held a series of meetings with small communities that had been practicing cultivation in some of these private holdings. The meetings were used to address the land issues and management issues, with the ultimate goal of phasing out the use of the land and developing alternative activities for the farmers.

TIDE is currently serving a two-year term as chair of the Belize National Spawning Aggregation Working Group. This working group is a coalition of seven non-governmental organizations (NGOs) which was established in July 2001 in response to a nationwide survey of spawning aggregations of the Nassau grouper that revealed very low numbers of spawning fish. In 2002, the Working Group successfully advocated for the protection of eleven of the Nassau grouper spawning sites and for the introduction of a four-month closed season.

Past policy impacts include TIDE's cofounding in 1996 of the Tri-National Alliance for Conservation of the Gulf of Honduras (TRIGOH), a joint project of Guatemalan, Honduran and Belizean NGOs, as well as the organization's partnership in the Caribbean Regional Environment Program (CREP) - a 13 country, USD 9 million European Union project which was designed to strengthen regional cooperation and build greater awareness of environmental issues in the Caribbean Forum of African, Caribbean and Pacific States (CARIFORUM).



# Sustainability and Replication



## SUSTAINABILITY

TIDE measures its sustainability not only in financial terms but also in terms of community participation. The organization believes that as long as the buffer communities are committed to protecting their natural resources the project will be sustainable. This is one reason why TIDE devotes a large amount of its programming to education and outreach and attempts to get schoolchildren involved and interested in environmental causes from an early age. Through the Community Stewards program and its other education and outreach programs, TIDE has succeeded in obtaining a high degree of community participation by raising awareness among local people of environmental issues.

In addition to receiving support from a large number of international donors, TIDE also ensures its financial sustainability through ecotourism activities. TIDE Tours was founded as an earned-income venture to generate financial support for TIDE's education and outreach programs and to provide job opportunities to local communities, as TIDE believes that providing alternative livelihood opportunities is a critical component of sustainability.

## REPLICATION

Helping local people to understand the multiform value of biodiversity conservation is one way in which TIDE hopes to spread its message to other nearby communities. In fact, TIDE owes much of its success to its ability to disseminate environmental information and research to wide and varied audiences.

TIDE's fly-fishing training and certification program was so successful that conservation NGOs in Costa Rica, Guatemala and Honduras requested the organization's help in setting up similar programs.

TIDE has also initiated its own learning exchanges, hosting and sponsoring TIDE staff and community members' participation in multi-country workshops on sustainable fishing and community-based reserve management. Examples of international exchanges include peer-to-peer exchanges with Guatemalan fishers and other protected areas. In 2009, TIDE's community stewards and several staff members took part in a particularly successful exchange with the Foundation for Ecological Development and Conservation (*Fundación para el Ecodesarrollo y la Conservación - FUNDAECO*), a community-based organization in Eastern Guatemala which works to conserve the Gulf of Honduras including the Cerro San Gil Protected Area.



## PARTNERS

Since its inception in 1997, TIDE has collaborated with many local, national and international organizations in order to work more effectively toward its conservation and socioeconomic goals. In particular, TIDE maintains fruitful working relationships with Belizean government entities such as the Forest and Fisheries departments, the local police department, the Belize Defense Force and the Belize Coast Guard.

At the beginning of its conservation activities, TIDE worked closely with The Nature Conservancy to negotiate the first 'Debt-for-Nature' swap in Belize. Since then, The Nature Conservancy has provided assistance to TIDE in the form of scientific expertise, finances, management skills, and promotion and awareness. Rainforest Alliance has also helped to raise funds for TIDE's private lands through its 'Adopt a Rainforest' campaign.

With financial assistance from the Massachusetts Audubon Society, TIDE was able to quickly schedule upgrades and repairs to the solar energy system at the Abalone Caye Ranger Station. This ranger station, with its visitor center and surveillance tower, is home to

TIDE rangers while they are on duty in the Port Honduras Marine Reserve as well as to scientists, interns and volunteers conducting monitoring and research.

TIDE's community-based partners include the Southern Alliance for Grassroots Empowerment, the Punta Negra Sea Gals Cooperative, the Monkey River Tour Guide Association, and the Southern Environmental Association. Additionally, TIDE shares its conservation goals and vision with the Belize Zoo, Programme for Belize, Ya'axche Conservation Trust and the Belize Audubon Society.

TIDE also has a close relationship with other organizations operating in the region, including Protected Areas Conservation Trust, the MesoAmerican Reef Fund, Oak Foundation, The Summit Foundation, USAID's Regional Environmental Program for Central America (PROARCA), Fundación AVINA, Wildlife Conservation Society, Conservation International, and many more.

TIDE also received grants from the UNDP-GEF Small Grants Program (2004-2010) in order to launch and expand its community stewards program.



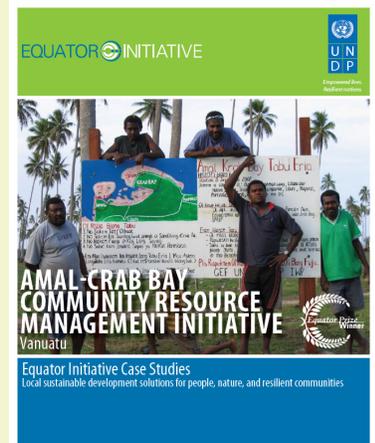
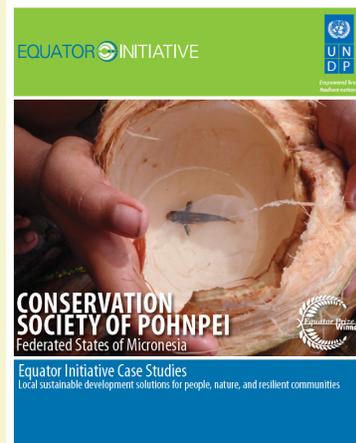
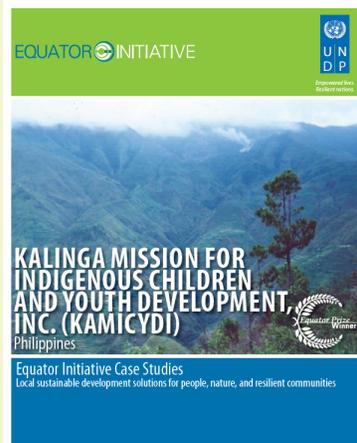
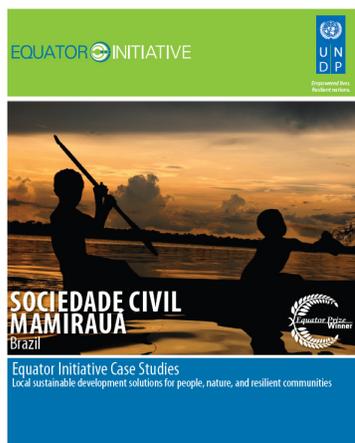
*“We can still boast that many of the natural resources of Southern Belize are still intact. However, if we do not stop and think about how human actions negatively impact our environment, all this natural wealth of ours could be lost forever”*

*Celia Mahung, TIDE*

## FURTHER REFERENCE

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- TIDE website: <http://www.tidebelize.org>
- TIDE video (Vimeo): <http://vimeo.com/27016817>

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Equator Initiative  
 Environment and Energy Group  
 United Nations Development Programme (UNDP)  
 304 East 45th Street, 6th Floor  
 New York, NY 10017  
 Tel: +1 212 906-6691  
 Fax: +1 212 906-6642  
[www.equatorinitiative.org](http://www.equatorinitiative.org)

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