



THE RISING TIDE

ANNUAL REPORT | 2014



LEADING COMMUNITY PARTICIPATION IN CONSERVATION

2014 was an important year for protected areas worldwide. The world's most important meeting on protected areas, the once-in-a-decade World Parks Congress, took place in Sydney, Australia. I was there as part of the Belize delegation to learn and to share TIDE's experience with Managed Access fisheries (see page 9) and landscape scale conservation in the Maya Mountain Marine Corridor.

Meanwhile, here in Belize, the National Protected Areas Secretariat launched a public awareness campaign to boost perceptions of our protected areas. The campaign slogan "Nature, Culture, Life" highlights the importance of protected areas for preserving not only biodiversity (nature), but also our Belizean way of life (culture) and the natural systems that sustain us with water, food and air (life).

Following this lead, TIDE's environmental education activities in 2014 focused on the

theme "Nature, culture, life: the value of protected areas" (read more on pages 18-19).

It was a great year for the protected areas that TIDE co-manages with the Government of Belize: Port Honduras Marine Reserve and Payne's Creek National Park. Read how we are using state-of-the-art technology to improve management cost-effectiveness on pages 5-6. See on pages 10-11 how grants from the German Cooperation, Oak Foundation, Summit Foundation, Mass Audubon and our very own Protected Areas Conservation Trust have enabled us to consolidate the management of these places and increase the benefits they provide to local communities. See on page 12 how all this hard work is paying off as endangered West Indian manatees make a comeback. It is indeed fulfilling to work at TIDE.

The regional importance of the Port Honduras Marine Reserve was recognised in December 2014, when it joined the prestigious list of protected areas under the Specially Protected

Areas and Wildlife Protocol of the United Nations Caribbean Environment Program, because of its important role in protecting endangered species, fish nursery grounds and local livelihoods. We are grateful to the Belize Fisheries Department for their support!

The launch of our new Ridge to Reef Expeditions program in summer 2014 was also great news for our protected areas as it enables international and local volunteers to contribute to our groundbreaking conservation research and action (read more on pages 20-21).

As always, I would like to thank my hard-working staff, dedicated board of directors and committed funders and partners for playing a key role in keeping the TIDE rising!



Celia Mahung
Executive Director



Mission:

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

Vision:

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

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RESOURCE PROTECTION

TIDE co-manages three protected areas and works with communities in the wider landscape to improve natural resource management. This diverse work includes ranger patrols, wildfire management, fisheries management, and watershed management.

Getting SMART About MPA Enforcement

2014 saw TIDE pioneer the use of SMART technology for marine ranger patrols.

What is SMART?

Spatial Monitoring And Reporting Tool – Geographic Information System software that allows park rangers to conduct more effective patrols.

By mapping illegal activities, rangers can target patrols to the places and times they are most needed.

SMART is used in over 60 countries, yet TIDE, WCS and the Belize Fisheries Department were the first in the world to use it in a marine setting.

How is SMART helping to protect the Port Honduras Marine Reserve?

TIDE rangers are using a handheld tablet with GPS and SMART to monitor the movements of fishers, rangers, and potential poachers, as well as endangered species, such as turtles and manatees.

Visualizing these data as maps is allowing our rangers to plan more efficient patrols, making best use of time and resources.

In 2014, our 716 patrols in and around the Port Honduras Marine Reserve resulted in six gill net confiscations, and four arrests for illegal fishing.

“Belize is the first country to use SMART for fisheries enforcement; PHMR rangers are playing a key role in developing the use of SMART for marine environments”.

–JULIA BAKER,
VOLUNTEER GIS OFFICER



Port Honduras rangers learning to use SMART.

Future of SMART

Continued use in Port Honduras Marine Reserve for effective intelligence based enforcement.

Implementation in our 60,000+ acres of terrestrial sites.

Data sharing and joint planning with other agencies.

The data model developed by TIDE and WCS for SMART in a marine environment is now available to conservationists worldwide. More countries can now apply this useful tool for marine conservation. Read more [here](#).

TIDE rangers and Belize Coast Guard working together.

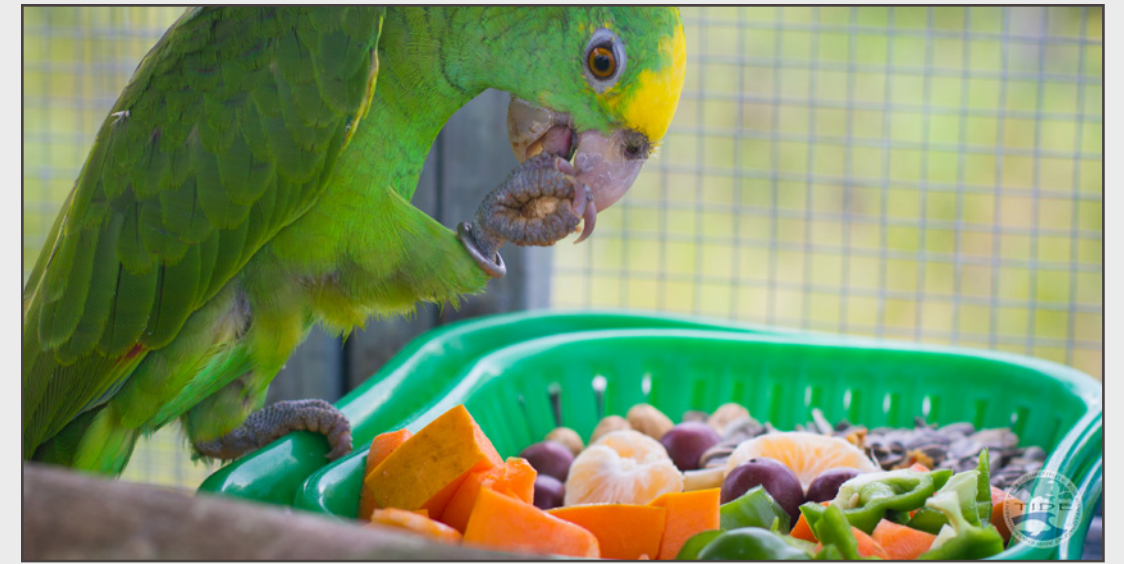


TIDE ranger removes an illegal gill net.



TIDE and the Belize Coast Guard Team Up

In 2014, TIDE and the Coast Guard began a partnership whereby Coast Guard officers are stationed at TIDE's field station on Abalone Caye and accompany TIDE rangers on patrols. This provides enhanced security, increasing safety for rangers and enabling more patrols at night, the time when most illegal fishing activity probably occurs.



Yellow-headed parrot in pre-release holding area kindly gifted to TIDE by Belize Bird Rescue.

Yellow-Headed Parrots

We teamed up with Belize Bird Rescue in 2014 to reintroduce six yellow-headed parrots into the wild, a first for the species!

Another 19 chicks successfully fledged from our nest boxes in Payne's Creek National Park.

Artificial nest boxes are substituting for natural nesting sites, many of which have been destroyed by fire or poachers.

Fire management and ranger patrols are protecting yellow-heads and their habitat for the long term. Read more [here](#).

RESOURCE PROTECTION

Wildfire Management

Participants came from TIDE, Ya'axché Conservation Trust, Thomas Gomez & Sons Ltd. and the Wood Depot (logging concessionaires), Belize Audubon Society, and Program for Belize.

Burn boss training topics included fire behavior, fire weather, safety, burn planning and fire effects monitoring.

Each participant led a prescribed burn during practical training.

Prescribed fires are controlled to allow plants and animals to survive while reducing fuel load and thereby preventing dangerous wildfires.

The trainees returned to their organizations qualified to plan and lead prescribed fires, enabling multiple protected areas to activate previously dormant fire management plans.

Our friends at the Everglades kindly created a wonderful video about this training. You can watch it [here](#).



Burn Boss trainees. TIDE protected area manager Mario Muschamp training fire managers from across the country to the advanced level of 'burn boss'.

RESOURCE PROTECTION

Managed Access

We have seen an increase the quantity and quality of catch data submission by Managed Access licensed fishers, thanks to fishers' forums, and fisher-to-fisher training in how to document and report catch.

Initial data from fishers indicate that the species with the largest catches coming out of the Port Honduras Marine Reserve are lane snapper, queen conch, sea cucumber, white grunt, goliath grouper, and lobster.

When we asked fishers to list commercial species in order of catch size, some differences were revealed between fishers' predictions and the Managed Access data. The differences suggest more work is still needed to improve the accuracy of fishers' reported data, and TIDE is working with fishers on this.

Accurate data will benefit fishers and ecosystems by enabling more efficient and sustainable fishing.

In 2014, lessons learned by TIDE and WCS in piloting Managed Access guided the design of a countrywide expansion of this cutting edge management tool.



Under managed access, only traditional users of PHMR are allowed to do commercial fishing.





SUSTAINABLE DEVELOPMENT

TIDE's sustainable development program increases income for local communities while reducing pressure on natural resources.

Conservation of Marine Resources in Central America: a project for the Mesoamerican Reef funded by the German Cooperation through PACT and the MAR Fund.

2014 was the midpoint of this five-year project that aims to conserve and sustainably develop marine and coastal resources. Major accomplishments to date include:

Outcome 1: Conservation of marine and coastal ecosystems.

Secured Abalone Caye field station by constructing a sea wall, without which the station would almost certainly have been destroyed by coastal erosion.

Improved facilities at Abalone Caye and TIDE HQ, including new docks, an office extension, new dive compressor, solar system and larger, faster patrol vessel.

Demarcated the MPA boundaries with buoys, and installed mooring buoys to prevent anchor damage to corals.

Extensive training for the ranger team, including law enforcement, sustainable fishing, public relations, boat navigation, engine repair, first aid, SCUBA and GIS.

Field trips to PHMR for 300 school children, parents and teachers.

Assessed fish stocks, including conch, lobster, sea cucumber and finfish, and mapped habitats in PHMR.

Promoted Managed Access, including at the World Parks Congress in Australia.

Supported 12 primary school teachers to improve standards in environmental education and provided field trips to PHMR for 300 children, parents and teachers.

TIDE rangers and community researchers with their RYA powerboat qualifications in front of the new patrol vessel.



SUSTAINABLE DEVELOPMENT

Outcome 2: Sustainable use of marine and coastal resources.

Trained 60 fishers in sustainable fishing through learning exchanges to Guatemala and the USA.

Created community development and sustainable tourism plans for the three PHMR buffer communities (Monkey River, Punta Negra and Punta Gorda).

Supported 25 members of fishing families to develop supplemental livelihoods in chicken-rearing, fruit-drying, and eco-tourism. This included business plan development, training, investment in capital equipment and business inputs, and on-going mentorship.

Trained and employed 15 TIDE community researchers.

Established tri-annual fishers' forums to facilitate communication between TIDE and the fishing community.

Constructed new docks at Punta Negra and Monkey River.

Provided high school scholarships to 22 children of fishers.

Launched Ridge to Reef Expeditions (see pages 18 -19), contributing to the marine reserve's financial sustainability, aiding conservation and creating local jobs.

High School Scholarships

For the 2014-15 school year, TIDE provided a record 50 high school scholarships (books and/or school fees) to talented but underprivileged children in Toledo.



TIDE is supporting 10 women from fishing households to develop a sun dried fruit business.



TIDE is supporting women in Punta Negra to establish a restaurant business.

RESEARCH AND MONITORING

TIDE's research and monitoring program provides evidence on which to base sound management decisions and policy recommendations. At the same time, we are training local people to become the next generation of Belizean conservationists. Below we highlight our major findings in 2014.

Manatees are Bouncing Back!

One of the primary reasons Port Honduras Marine Reserve was founded was for the protection of manatees, which were being slaughtered at alarming rates in the 1990s.

In 2014, TIDE partnered with Mexican research institute ECOSUR to study manatees in Port Honduras Marine Reserve and Payne's Creek National Park.

Out of 121 sightings, 10% were mothers with calves. This is fantastic news as it indicates a healthy, growing population.

While other areas of Belize have witnessed horrifying rates of manatee deaths from boat strikes in recent months, in Toledo at least, the population is doing well.

Boat strikes are still a threat, even in peaceful Toledo. By revealing the areas most frequented by manatees, the 2014 study enables us to plan new no-wake zones to control this threat. For more information, please read the full article [here](#).



Manatee in Port Honduras Marine Reserve.

RESEARCH AND MONITORING

Commercial Species

Lobster abundance has increased in the general use zones of Port Honduras Marine Reserve since 2012. This coincides with the implementation of Managed Access, which has limited commercial fishing to traditional users of the reserve. Find out more about our recent lobster studies [here](#).

Conch densities have been declining in Port Honduras since 2012, and are now at a critical low.

We observed a low abundance of juvenile conch in 2014, suggesting poor reproduction.

In 2014, the conch season closed early nationwide due to the quota of 850,000 pounds being met. Additional management measures may be needed nationally to protect this important fishery that generates millions of dollars per year for Belize.

Sea cucumber densities have dropped dramatically. In the general use zone, the mean density has fallen from around 50 per hectare in 2012 to less than 10 per hectare in 2014. In the replenishment zones, mean density has declined from over 170 per hectare in 2012 to 30 per hectare in 2014.

As with conch, there is presently a low density of juveniles, suggesting poor reproduction and warning of further declines in the near future unless management of this fishery is improved.



TIDE's research on queen conch in the Port Honduras Marine Reserve will inform national policy to protect this valuable resource.

Sea cucumbers are highly vulnerable to overfishing. In Panama, Nicaragua, and Venezuela, sea cucumber fisheries have collapsed within less than a decade of the start of commercial fishing. Sea cucumber populations are easily reduced below a critical density threshold, below which they cannot successfully reproduce. Once depleted, stocks rarely recover.

Sea cucumbers have been fished commercially in the Port Honduras Marine Reserve for about four years. Through monitoring, TIDE has shown that the sea cucumber population has undergone a dramatic decline in this short time. We have made management recommendations to the Belize Fisheries Department. It is not too late to ensure the long-term sustainability of the stock and avoid the mistakes made by failed sea cucumber fisheries elsewhere in the region. Find out more [here](#).



Sea cucumber recorded during a monitoring dive.

Lionfish

Lionfish is an invasive species to Belize. It eats and competes with native species, disrupting ecosystems, especially coral reefs.

Find out more [here](#).

Our research is showing that lionfish in Port Honduras Marine Reserve are relatively small and scarce compared with outer barrier reef areas in Belize. This is useful for informing management of the species, as it appears the brackish low coral density conditions in Port Honduras Marine Reserve are not ideal for proliferation of this species.

2014 was the third year that we gave away samples of lionfish and surveyed public perceptions at events. We are observing two market groups; one willing to pay in the BZ\$5-6 per pound range, and another, smaller group willing to pay BZ\$12-14 per pound. This is important information for marketing lionfish.

TIDE has been promoting lionfish consumption and surveying public perceptions in Punta Gorda for three years via Fish Fest and the Chocolate Festival of Belize.



Goliath Grouper

The goliath grouper is critically endangered. The protected areas managed by TIDE contain one of the last three major nursery grounds for this species in the world.

For more information, visit the full article [here](#).

In 2014, TIDE surveyed goliath grouper sales in Punta Gorda. The majority were captured in the Port Honduras Marine Reserve.

Our research confirmed that the vast majority of goliath grouper caught in southern Belize are juveniles. After consulting with fishers, we recommended to the Fisheries Department an appropriate size limit that can safeguard the species while considering the needs of fishers.



TIDE marine biologist, Tanya Barona, and research assistant, Marty Alvarez, measure goliath groupers on sale in Punta Gorda.

Hicatee Turtles

Research reveals that the hicatee population in the Rio Grande contains a healthy mix of young and mature turtles, but is small overall.

The rare discovery of a hicatee nest enabled TIDE to find out that these turtles have a nesting and incubation time of seven months.

Surveyed hunters acknowledged that the population is shrinking, and most hunters said they would support stricter laws to allow the species to recover.

Ridge to Reef volunteers helped construct a pond where two rescued turtles were reared and released back into the wild. The Belize Wildlife Referral Clinic played a crucial role, providing veterinary care. Find out more [here](#).

Using national TV, radio and billboard campaigns, TIDE built nationwide support for hicatee conservation. Show your support by liking the [Save the Hicatee River Turtle Facebook page](#).

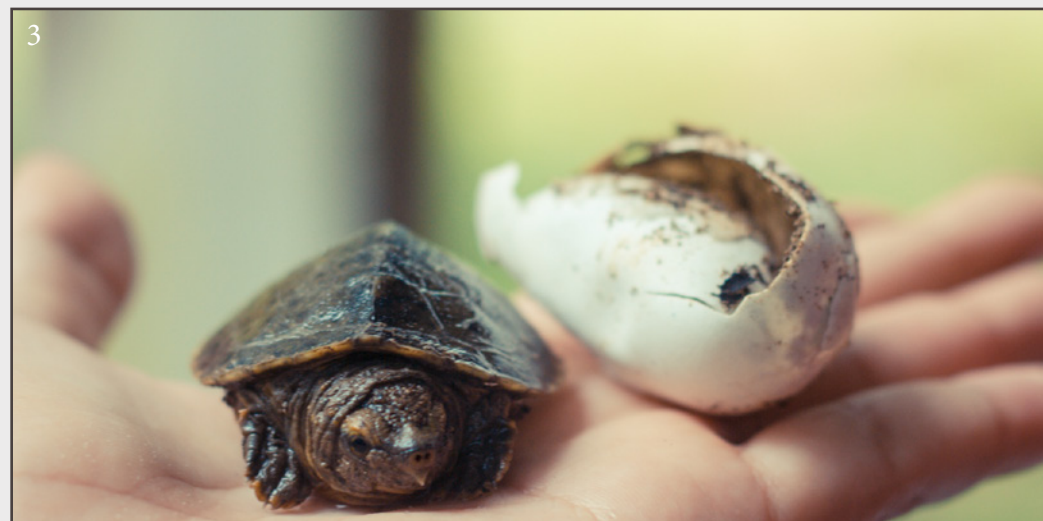
1. Terrestrial biologist Elmar Requena appears on the "Belize Watch" TV show.



2. Female hicatee turtle captured, tagged, and released during field research.



3. One of the hatchlings kept in the recovery pond and released into the wild.



Community Researcher Training

TIDE's community researcher program helps young conservationists pursue their dreams and builds capacity for environmental research by the community, for the community.

For more information, visit the full article [here](#).

In April 2014, we trained five new level one community researchers. Training included the PADI Open Water dive course, first aid, rigorous fish and coral ID, and various fieldwork methods.

1. Community researcher Jenny Ramirez changing a sediment trap for water quality monitoring.



2. Left to right: Instructor James Foley, Rasheed Arzu, Shanel Archer, Chris Schikler, Anna Mutrie, and Marty Alvarez during their PADI Open Water certification.



3. Community researchers during their confined dives for PADI Open Water certification.



4. Community researcher Willie Saldivar participating in a team-building exercise.





EDUCATION AND OUTREACH

TIDE's Education and Outreach Program empowers the residents of the Maya Mountain Marine Corridor to be better environmental stewards. It creates awareness of the ways in which ecosystems benefit people and the ways in which people can take care of ecosystems.

EDUCATION AND OUTREACH

Freshwater Cup

Find out more [here](#).

2014 marked another successful year for the Freshwater Cup environmental football tournament. More than 700 school children implemented 20 mini-projects to protect freshwater resources and the Belize Barrier Reef.



Freshwater Cup participants representing Bella Vista and Golden Stream.



San Miguel girls team talking to local TV station PGTV about what the Freshwater Cup means to them.

Summer Camp

Find out more [here](#).

The 2014 theme was 'Nature, Culture, Life', the new slogan of Belize's National Protected Area System. The camp raised awareness among the young participants about the importance of protected areas for biodiversity and people.

More than 160 children connected with nature through visits to some of Toledo's amazing protected areas, and deepened their understanding of their role in protecting our natural and cultural diversity.



TIDE summer camp raises environmental awareness through fun outdoor activities.

Youth Conservation Competition

View videos of the performances [here](#).

The theme of our 2014 conservation theatre competition was 'The Value of Protected Areas.'

Five contestants and their teammates performed in front of over 400 people.

1st place went to Independence High School student Andrea Chirinoz, who represented Southern Environmental Association. She and the other contestants won partial scholarships to assist with their university educations.



Elvire Coleman performs at the 2014 Youth Conservation Competition.

SUSTAINABLE TOURISM

TIDE Tours is helping to create a prosperous green economy in Toledo by bringing in hundreds of thousands of dollars in eco-tourism revenue for local guides and businesses each year.

2014 saw the launch of Ridge to Reef Expeditions, a conservation voluntourism program that is channelling human and financial resources to TIDE's conservation work. Our 2014 Ridge to Reef volunteers contributed to several of the achievements in this annual report and more:



- Satellite-tagging an adult female hawksbill turtle
- Manatee research (see page [12](#))
- Lionfish, conch, and sea cucumber research (see pages [13-15](#))
- Protecting sea turtle nests
- Hicatee turtle conservation (see page [16](#))
- Building a boardwalk
- Planting more than 500 trees to protect riverbanks and restore habitats
- Educating youngsters at Summer Camp (see page [18](#))

fromridgetoreef.com

Ridge to Reef Expeditions has a brand new website. See from testimonials and photos how much of an impact our expeditions are having.

Facebook

Also visit us on Facebook or Twitter for updates on what Ridge to Reef is currently doing.



Ridge to Reef summer 2014 expedition team diving.

SUSTAINABLE TOURISM

We ran a crowdfunding campaign to enable Belizean student Javier Alegria to join the summer expedition. Javier is now teaching biology at a high school in San Pedro.



Belizean volunteer Javier Alegria thanking his crowdfunders.



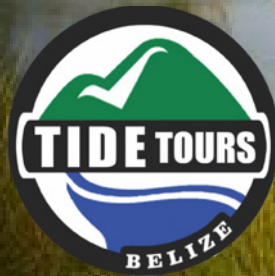
2014 Ridge to Reef Expeditions summer team.



Building a pond for hicatee turtles.



Tagging the hawksbill turtle.



TIDE Tours

Our new wildlife, culture and adventure tours reveal more of Toledo's secrets.

[Monkey River Wildlife Tour & Punta Negra Sweet Stop](#)

[Birding in Paynes Creek Camping Trip](#)

Discover more tours and learn about TIDE Tours [here!](#)

The natural choice for responsible travel.

SUPPORT TIDE

TIDE needs your support to ensure the incredible Maya Mountain Marine Corridor stays healthy for both people and wildlife. Make a gift to support TIDE's cutting-edge community based conservation work today. Give online at <http://www.tidebelize.org/tide/donate> or mail your donation to the address on the back page.

Thank you!

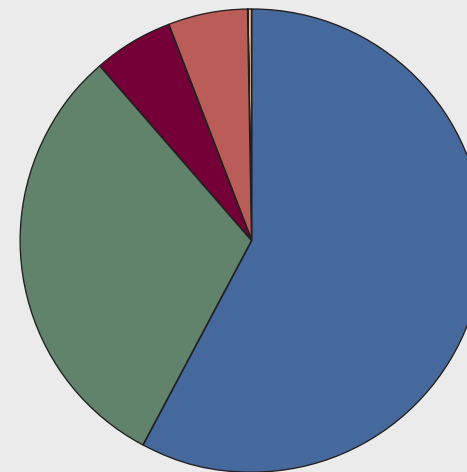


FINANCES

2014 expenses totaled US\$1,020,000, of which 57% was spent on the Port Honduras Marine Reserve, 25.5% on freshwater and terrestrial programs, and 17.5% on administration, fundraising, and communications.

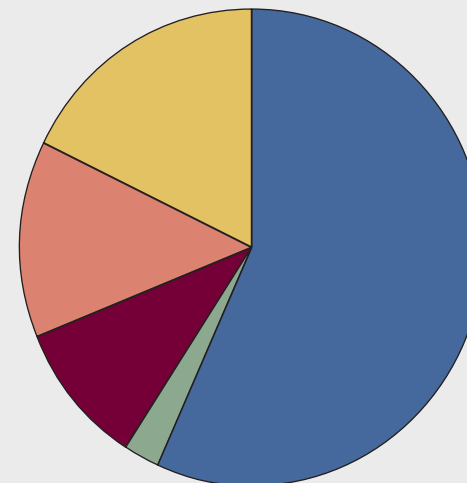
2014 income totaled US\$1,050,000. This came from private grants (58%), public grants (31%), and individuals, events, and earned income (11%). We are grateful for the support of all our 2014 funders, who included the Oak Foundation, German Cooperation, Summit Foundation, Government of Belize through the Tropical Forest Conservation Agreement, Massachusetts Audubon Society, PACT, Teach Green, NOAA through the Gulf and Caribbean Fisheries Institute, Ministry of Forestry, Fisheries and Sustainable Development, Environmental Defense Fund, National Fish and Wildlife Foundation, MAR Fund, UNICEF, Regional Activity Centre of the Specially Protected Area and Wildlife Protocol of the UN Caribbean Environmental Program, The Nature Conservancy, Conservation Leadership Program, New England Biolabs Foundation, Disney Worldwide Conservation Fund, US Fish and Wildlife Service, and Idea Wild.

2014 INCOME (US\$)



- Grants, Private - \$607,445
- Grants, Public - \$323,800
- Contributions (individuals & events) - \$57,736
- TIDE Tours (net)
- Endowment interest - \$58,149
- Miscellaneous (fees for services) - \$2,045

2014 EXPENDITURE (US\$)



- Port Honduras Marine Reserve - \$579,084
- Fresh Water Systems - \$25,933
- Paynes Creek National Park - \$98,132
- TIDE Private Protected Lands - \$136,191
- Administration, fundraising & communications - \$179,187

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