

**STRATEGIC ACQUISITION OF LITTLE WATER CAYE
FOR THE CONSERVATION AND EXPANSION OF THE
GLADDEN SPIT – LAUGHING BIRD CAYE MARINE CORRIDOR**



**Proposal submitted by: Friends of Nature
Proposal to: Conservation International Global Conservation Fund**

**Submission Date: September 3, 2002
Addendum submission: September 15, 2002**

EXECUTIVE SUMMARY:

Friends of Laughing Bird Caye, a local community based organization was formed in 1990 by a coalition of fishermen, tour guides and hoteliers in response to the tourism development and other development in the area. In 2001 Friends of Nature (FoN), was formed through the amalgamation of Friends of Laughing Bird Caye and Friends of Placencia Lagoon. FoN is a registered Non-Governmental Organization that comprises representatives from five coastal communities located in the central/southern part of Belize. These communities are Hopkins, Siene Bight, Independence, Monkey River and Placencia Village has a combined population of approximately 6000 inhabitants. The Board of Directors of FoN represents the major interest groups in the area including tourism, fishing, aquaculture, the business community, educational institutions, and the village councils. The organization is recognized as having the most representative Board of Directors of any NGO in the country of Belize.

FoN's vision for the area is that regional ecosystems with their rich biological, social and cultural diversity are healthy and productive and sustained by empowered and prosperous resource users who live and work in harmony with their environment. Its mission is to manage, protect and promote the sustainable use of its surrounding geographical environment by involving and educating resource users for the benefit of present and future generations. FoN fosters initiatives that strengthen the relationship between environmental protection and building sustainable livelihood at the community level. The organizational motto is "protecting our natural resources by developing our human resources".

Friends of Nature has been given the mandate by the Government of Belize to manage the newly established Gladden Spit and Silk Caye Marine Reserve, a WWF designated "Highest Priority" Mesoamerican Barrier Reef marine biodiversity conservation area and Laughing Bird Caye National Park, a designated World Heritage Site. Little Water Caye is a small island (see Little Water Caye Acquisition Concept Paper submitted to GCF via CI Ecotourism Department) strategically placed equidistant and close to both marine reserves making it a ideal base for effective management and protection of the area. Friends of Nature (FoN) plans to use Little Water Caye as a strategic base for conservation and management of these two critically important marine environments.

BACKGROUND:

The Mesoamerican Barrier Reef is the largest reef tract in the Western Hemisphere and seven marine reserves along the reef have together been declared as World Heritage Sites. Friends of Nature is working with local and international partners to create an effective marine biodiversity corridor along the reef with Gladden Spit Marine Reserve and Laughing Bird Caye being critical components to this strategy.

Gladden Spit has been identified as a high biodiversity target site within a global research project being proposed by The Nature Conservancy (TNC) and World Wildlife Fund (WWF). WWF has included the Mesoamerican Reef as one of the “Global 200” Priority Ecoregions in the world. Within this ecoregion, the “Gladden Spit Seascape” which includes both Gladden Spit and Laughing Bird Caye has been identified as a “highest priority” regional biodiversity conservation area by a group of approximately 80 regional and international marine experts tasked with identifying priority conservation areas based upon their marine biodiversity significance. In fact, Gladden Spit Seascape was placed in the top ten “highest priority” list. The region contains the best example of true barrier reef morphology in the entire western hemisphere and is a hot spot of biodiversity, due to its interconnected, cross-shelf habitats and its unique spawning sites.

Gladden Spit and Silk Caye Marine Reserve (GSSCMR), is home to one of the Western Caribbean’s most biologically important spawning aggregations of fishes and the only known predictable aggregation site in the Western Hemisphere of the world’s largest fish, the whale shark (*Rhincondon typus*). The whale shark aggregation is the most dense and predictable recorded in the world, where up to 25 sharks have been seen at one time, gathered to feed on the fresh spawn of snappers (Heyman et al., 2001). The global status of the whale shark is currently assessed as Vulnerable in the *IUCN Red List of Threatened Animals* (<http://www.redlist.org/>) based on their declining populations which continue to alarm marine biologists around the world. The population research (Graham and Roberts, in prep) has contributed greatly to the global knowledge and conservation of this flagship species. Gladden Spit also harbors spawning aggregations of increasingly rare commercially important species including Nassau Groupers, *Epinephelus striatus*, Black Grouper, *Mycteroperca bonaci*, Mutton Snapper, *Lutjanus analis*, and many others. Gladden has been shown to harbor spawning aggregations of at least 26 different fish species at various times of year, including groupers, snappers, jacks, (Serranidae, Lutjanidae, Carangidae) and others (Heyman, 2001). It is also one of the few known spawning sites for Permit (*Trachinotus falcatus*). Snappers have been shown to approach the site from as far as 255 miles, using a tagging study. The density of spawning snappers appears higher at this site than any other studies have recorded to date, revealing between 5,000 and 10,000 dog snappers and a similar number of cubera snappers, during their peak spawning time.

Elsewhere in the Caribbean spawning aggregations have been fished virtually to extinction. Grouper spawning aggregations have experienced near total collapse in Mexico, Honduras, Puerto Rico, Cayman Islands, Bermuda, U.S. Virgin Islands, Dominican Republic and in parts of Belize. The conservation of Gladden Spit multi-

species aggregation, within the marine reserve will confer heightened conservation of many important species, over a broad regional scale.

In addition, the beaches of Laughing Bird Caye, the Silk Cayes and Little Water Caye provide important nesting habitat for the endangered green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), and the occasional leatherback turtles (*Dermochelys coriacea*). Loggerhead turtles (*Caretta caretta*) are in nearby waters, particularly during May when they are breeding in the offshore waters near Gladden Spit (Heyman and Kjerfve 2000).

Finally, both Gladden Spit and Laughing Bird reserves contains important queen conch (*strombus gigas*) habitat, both nursery and adult feeding areas. Gladden's deep reef banks are typical of other known conch mating grounds, so further research into this could greatly enhance protection of this species that is fast disappearing from the Caribbean. The reef geomorphology at Gladden is unusual given the configuration and depth of the reef promontory. The relatively compressed spur and groove morphology of the inner shelf fore reef (10-20m) is characteristic of high-energy environments. The high-energy and strong currents appear to provide the reef with some resiliency/ resistance to coral bleaching which is dramatically impacting other world-wide reef systems. The Laughing Bird Caye National Park is one of the only two marine protected areas in the region containing inner reef faroe - a critical component of the regional marine protected areas corridor. These inner shelf reefs are unique to Belize (within the region) and supports different species assemblages of fish, invertebrates and algae.

Immediate Threats to the area:

1. No viable management system is currently in place to effectively monitor, patrol and protect these two critical marine habitats. Gladden Spit, in particular remains a "paper park" Without effective protected area management in place the threats listed represent a major conservation concern to the creation of a marine biodiversity corridor in the region that will protect marine species. The strategic purchase of Little Water Caye, thus, represents a key conservation strategy to mitigate threats:
2. Over-fishing and unregulated fishing by commercial fishermen including night fishing is a major threat. Researchers have concluded that key fish species are much more susceptible to night fishing during the time of spawning aggregation. A petition to stop night fishing has been signed by fishermen of all five local communities working in partnership with Friends of Nature and is presently being presented to the Minister of Fisheries to become a part of the regulations of the reserve. It should be noted that 98% of night fishing is carried out by illegal fishermen from neighboring countries including Honduras and Guatemala. Having a base at Little Water Caye will allow Friends of Nature rangers with support from Government agencies to consistently monitor and prevent illegal fishing in the area including night time activities
3. Another major threat is poaching of endangered species (sea turtles) as well as illegal fishing of spawning aggregations (such illegal fishing of spawning

aggregations elsewhere in Belize has already led to the collapse of five of the seven known Grouper Spawning sites in the country) and illegal shark harvesting with nets.

4. Unregulated tourism use of the area from a fast growing dive industry is also perceived as a growing threat. The National Geographic film on Gladden Spit in 2001 helped to bring international attention to the area as a dive tourism site. With Cruise ships already bringing divers to this site in growing numbers, a loss of revenue from unregulated use without paying established user fees translates into a threat uncontrolled of access to the site.

Both these Protected Areas are legally declared and FoN has signed Memorandum of Understanding (MOU) with the Government of Belize to manage these reserves. Little Water Caye is presently does not form a part of either reserve. If FoN is successful in acquiring Little Water Caye the Minister of Fisheries has promised that he would immediately declare it and its surrounding area a Marine Reserve. This would result in an immediate expansion of the protected areas network in addition to providing a key site for the protection of these two critical sites that are already in existence. There are five villages that are situated around and are affected by these reserves. These five villages have a human population of approximately 5500 inhabitants.

This is the first time that this organization has approached the Global Conservation Fund for funding for any project.

PRE-FEASIBILITY ANALYSIS:

An option was signed with the owner of Little Water Caye Karl Hubert Kohlbecker on April 29th 2002 giving Friends of Nature five months of exclusive rights to purchase the caye. This option will expire on September 28th 2002. A deposit of \$25,000 was placed in as Escrow Account to be paid to the seller if FoN fails to come up with the purchase price before the due date. The total asking price for the caye is five hundred thousand US dollars (US\$500,000). If FoN can come up with the full amount there is no possibility of this deal falling through.

As manifested by the signed Memorandum of Understanding between the Government of Belize and FoN, and their commitment to declare Little Water Caye a marine reserve once it is acquired the Government has shown its commitment and its total support to FoN management of these protected areas. FoN carried out extensive consultations before the declaration of these reserves and has the support of all stakeholders involved. The organization is presently involved in consultation for the management plan. FoN's idea to purchase Little Water Caye and have it and its immediate environs declared a National Park has been met with strong support by the fishermen and other resource users in the area.

Friends of Nature very existence as an organization is because of the uniting of local communities and the various stakeholders in an effort to preserve the area. The local fishermen and tour guides formed the catalyst that brought the organization into being

and which keeps it moving. This widespread support has given the organization strength and huge political lobby. Indeed the only risk to protecting the area lies in not being able to acquire a base from which to carry out efficient and effective management activities.

Without ownership of Little Water Caye FoN lacks the ability to provide the level of management necessary and these two very important protected areas become two of a long list of *paper parks*, having the label of protected areas but serving little real purpose. With ownership on the other hand a clear mechanism for effective management will be instantly in place.

With its huge community support, and the clear commitment of Government to the organization, and its successful implementation of past projects, FoN clearly has the organizational capacity to successfully implement and manage this project. Appropriate indicators of project success will be an effectively managed and expanding network of protected areas where biodiversity is intact and the resource users enjoy the positive economic benefits resulting from the protection and sustainable use of the resources.

PROJECT DESCRIPTION:

Using funds from the Global Conservation Fund and the Oak Foundation, FoN plans to purchase Little Water Caye, a four acre caye strategically located between the Gladden Spit and Silk Caye Marine Reserve and the Laughing Bird Caye National Park.

The most important aspect of acquisition is that it provides the critical opportunity to carry out effective monitoring and enforcement activities on a consistent basis in a **“highest priority”** marine biodiversity area. Without this acquisition Gladden Spit will have no effective management and will continue to suffer from the indicated threats with devastating consequences for marine life and for the sustainable livelihood of local communities.

The overall goal of this project is to acquire ownership of Little Water Caye. The objectives of ownership are:

1. To have ownership of the last caye available for sale at a reasonable price in the area
2. To build a ranger station to serve both protected areas
3. To develop a science and research center in close proximity to the barrier reef
4. Provide an area of camping for fishermen and other local resource users.
5. Hold this caye in trust for the people of Belize, particularly the area's stakeholder communities

As Belize becomes more popular with investors as a tourist and retirement destination, the demand for private cayes by wealthy individuals continues to rise. Once purchased these cayes are no longer accessible for traditional uses. Fishermen who have used these cayes as camping sites because of their close proximity to key fishing grounds are

increasingly finding themselves *homeless*. These artisanal fishermen forms an important part of FoN providing consistent support and are indeed the cornerstone of the organization having played a key role in its development. FoN proposes to set aside a part of the caye for use by these fishermen as a camping area with proper facilities including environmentally friendly facilities. This will also give FoN a consistent flow of data gathered from these fishermen and will provide for consistent interaction between the staff and resource users. It should also be noted that key to FoN plan is the development of alternative income generating activities for these fishermen.

Acquiring Little Water Caye would strengthen local people sense of ownership of their reef-based natural heritage and give them a stake in the conservation of Gladden Spit and Laughing Bird Cayes marine resources.

The Conservation opportunities offered by the acquisition of Little Water Caye are:

1. The opportunity to **expand the protected area** of Gladden Spit and Laughing Bird Caye reserves by creating a larger marine protected area and thus contributing to the overall achievement of establishing a marine biodiversity corridor in the region. FoN is in the process of negotiating with Government to expand the protected areas of Gladden Spit and Laughing Bird Caye reserves through the strategic acquisition of Little Water Caye and has received initial positive encouragement from both Government and Government Agencies involved in protected areas conservation, to pursue this strategy. **It is the intention of Friends of Nature with expected support from GCF, to acquire Little Water Caye to establish both effective management of the existing reserves and also to expand the protected area status to include Little Water Caye and the surrounding marine environment.** While the specifics of the expansion is still not finalize it is important to note that even should the **immediate** expansion include only Little Water Caye and its immediate surroundings, an area of approximately three square miles, that this expansion is not only important in relation to its size but because of the crucial role that Little Water Caye will play in the overall management of the area. The value of this acquisition to effective management of these two crucially important protected areas cannot be judged only in terms of the physical expansion but for maybe more importantly to the value it adds to the already existing reserves. FoN will continue to work with the local communities and Government in a effort to expand the protected areas network. Effective management of the existing reserves will lay the foundation for future expansion. FoN is also presently carrying out studies in the Placencia Lagoon with a view of lobbying Government for its declaration as a protected area. This lagoon, once used by the Mayas is a critical habitat for mangrove, manatees and a variety of birds. It will also enhance the management of the existing reserves by extending the corridor linking the coastal plains and lagoons with the Laughing Bird Caye National Park, Little Water Caye Marine Reserve and the Gladden Spit and Silk Caye Marine Reserve.

2. The ideal location of the Caye provides opportunity to monitor both sites on a consistent basis and successfully mitigate the threats caused by illegal fishing, over fishing and loss of protected areas management revenue through no effective means to establish and collect park entrance fees, issue licenses etc. This is the only caye available for sale to a local conservation organization. The cayes situated within both reserves are considered too fragile for the construction of permanent ranger station and research facilities.
3. Having a station at Little Water Caye will lower protected areas monitoring and surveillance costs by more than 60% leading to more long term sustainability by increasing income from fees generated to go directly into protected areas management. Presently FoN is allowed to invest 80% of the fees collected directly into management of the area. The other 20% goes to the Protected Areas Conservation Trust which funds protected areas management throughout the country.
4. FoN is the only NGO working in at least five coastal communities. FoN has united all these coastal communities in the goal of protecting marine resources as a way to protect the livelihood of local people through the development of ecotourism and with carefully regulated fishing outside of designated protected zones. Local people support was instrumental in the declaration of the reserves spearheaded by FoN. Clearly proper management of this reserve is important for continued local community support in getting other vitally important marine protected areas declared and under management in the future. This project is crucial to the protection and conservation of the entire central/southern marine region of Belize. This is one of the few areas that can be managed while at the same time alternative income generating activities can be developed that will enhance the earnings of local users and help build a conservation constituency locally and nationally.

Project Stakeholders:

1. Friends of Nature (local Belize NGO given legal permission to manage Gladden Spit Marine Reserve and Laughing Bird National Park
2. Local communities whose traditional livelihood has depended on marine resources in the area. FoN's Board of Directors is made up of a variety of stakeholders including representatives from the fishing industry, tourism, agriculture, the educational community, and the Village Council Chairperson of all five communities. This cross section of stakeholders, the best in the country, is what gives the organization both its strength and it political lobby. The declaration of these reserves came as a result of lobbying efforts of local resource users. The regulations within these reserves came as a result of consultation with the communities, giving these two reserves the best community support of any reserve in Belize. Marine reserves in Belize allows for multiple uses which gives fishermen and women the right to fish within these reserves working under regulations and conditions developed through the process of consultation. Local resource users have already seen the benefit

that can be derived through a properly managed reserve and have formed a crucial element of protection for these reserves. They have worked side by side with technical staff and researchers and know first hand the information coming out of these researches. Community researchers forms an important part of FoN program for the management of these reserves. Furthermore communities realize that there are economic benefits both in ecotourism and fishing to be derived from parks that are properly managed. **Local communities stands firmly behind FoN in it effort to acquire Little Water Caye recognizing its vital importance in establishing effective and efficient management and the implication for local ownership of a key natural resource.**

3. International NGO's such as TNC, WWF, Oak Foundation, Tri-National Alliance for the Conservation of the Gulf of Honduras, University of Darwin. Oak Foundation has already agreed to fund \$150,000 USD to the purchase of Little Water Caye for the above said reasons. FoN has already raised \$25,000 through private donors. GCF is now being approached to help make this acquisition possible by providing the final funding to make this project happen.
4. Government of Belize/ Fisheries Department who has granted Friends of Nature legal co-management rights to carry out the protected area management of Gladden Spit and Laughing Bird Caye

Potential for Sustainability:

The collection of fees for the entrance to protected areas comes into effect with the signing of a Statutory Instrument by the Minister of Government responsible for declaration of the protected area. Once this has been completed and a Co-management Agreement or Memorandum of Understanding has been signed between the relevant Government Department and the Local Management Organization, the charging of fees can be implemented. Tickets are prepared and sold from offices and collected by staff stationed within the protected areas. The fee to be charged is set through consultation with the local resource users and allows for a fee for local users and for tourists. (In the case of Laughing Bird Caye Belizeans pay US\$1 and tourists pays US\$4). Presently 80% of the fees collected go directly to management of the reserve while 20% goes to the Protected Areas Conservation Trust which funds conservation activities throughout the county. Discussions are presently underway to change this system allowing managers of protected areas to use the entire fees collected for protected areas management.

While there is presently no revenue sharing with local communities FoN has designated a minimum of 5% of all fees collected to develop s Scholarship Fund to assist the children of local resource users. The organization also provides training in alternative income generating activities and has just completed a Dive Master Training Program which took 20 local youths, four from each community, mostly fishermen, and trained them to become dive masters. This project was very successful both satisfying a need for divers to service the growing scuba diving industry and training youth in a skill that allows them to use their natural skills and knowledge of the area while involving them in an activity

that is less stressful on the environment. Plans are underway to begin a series of training in other areas and skills.

Friends of Nature initiated the charging of entrance fees in June of this year for the use of Laughing Bird Caye National Park, one of the most visited sites for tourists coming into the area. It should be noted that the Placencia peninsula, where Friends has its headquarters in the village of Placencia, presently ranks third among tourist destinations in Belize. Plans are now underway to also begin collecting entrance and user fees for the Gladden Spit Marine Reserve beginning in January, 2003. Willingness to pay research surveys have concluded that most tourists are willing to pay to visit the reserve and a tentative user fee of US\$25 a day has been agreed upon with local tour guides and private sector partners in the area. The use of entrance fees and user fees to both parks is one of the pillars of Friends of Nature's plan for sustainability in protected area management. The problem is not getting tourists to pay to visit the area but rather controlling the quantity of tourist so as to mitigate as much as possible any negative effects. In National recognition of their potential earning capacity these two reserves are among the four sites chosen as pilot sites for the National Tourism User Fees Project. There is also widespread conservation interest in the area which means that Grants will form another important part of Friend's of Nature's sustainable management plan for these two reserves. also under consideration is the development of a small eco-lodge on the eastern section of Little Water Caye. Building on the successful model of Programme for Belize, the largest and most successful independent conservation NGO in the country, in their Rio Bravo Conservation and Management Area, Friends will carry out a feasibility study to put a small eco-tourism facility on the Caye to help raise further sustainable income for management of the ranger station and research facility. Thus, revenue from this eco-lodge would go directly towards the management of the reserves. With entrance and user fees being collected by Friends of Nature for direct protected area management of the reserve, new grants obtained to continue to support research capacity and income received from a model ecotourism facility on the Caye, Friends will be able to sustainably harness income on an ongoing basis towards management of these two critically important marine reserves.

How long-term Protection of area will be secured and sustained:

Long term protection of the area is dependent on financing, institutional capacity and the support of key stakeholders namely the local communities and the Government of Belize. The Government has shown its commitment by the signing of a Memorandum of Understanding giving Friends the legal mandate to manage the reserve. The Nature Conservancy, the World Wildlife Fund, the Coastal Zone Management Authority & Institute and the Oak Foundation have already committed to providing financial assistance for management of the reserve. If Gladden's fish spawning aggregations can be conserved and whale shark tourism can be properly managed, the uniqueness of the area can provide sustainable local/regional economic benefit and regional/global biodiversity benefits. Protecting the spawning biomass at Gladden serves three important conservation purposes: protecting critical habitat/food source for the whale sharks, ensuring the viability of major fisheries stocks thus conserving biodiversity of fish and

ensuring sustainable livelihoods of community fishermen throughout the region, and finally supporting the eco-tourism potential of whale shark aggregations, which has the potential to provide the core portion of the cost of conservation. The total value of the whale shark tourism at Gladden in 2001 was approximately US\$1.5 million (Graham, Univ. of Darwin, pers.comm.).

BUDGET

CATEGORY	OAK	GCF	Total
Purchase Price	\$150, 000	\$350, 000	\$500, 000
Legal Fees		\$ 15, 000	\$ 15, 000
Sales Tax (8% of legal fees)		1, 200	\$ 1, 200
Other Expenses related to purchase		\$ 1, 000	\$ 1, 000
Total	\$150, 000	\$367, 200	\$517, 200

CONCLUSION

As noted above, **the successful acquisition of Little Water Caye by Friends of Nature will place the organization in a key position to lobby for an expansion of the reserve to include the Caye and surrounding marine environment. That Friends can be successful in such an effort to expand the size of the protected area can be seen by the fact that it was Friends of Nature who lobbied successfully for the creation of both Laughing Bird Caye as a national park and Gladden Spit as a designated Marine reserve.** Discussion with the relevant government authorities has resulted in the Minister of Fisheries, who has the legal authority to declare Marine Protected Areas, giving his verbal commitment to declare Little Water Caye and its surrounding area a Marine Protected Area as soon as the organization has documented evidence of its ownership of the caye. He has also stated his willingness to work with the organization to expand existing reserve. It is worth noting that Friends of Nature, as a Belizean NGO with direct involvement of local relevant stakeholders on its Board of Directors, has a unique opportunity and ability to influence community and national attitudes towards conservation and win government support for its efforts to create marine protected areas. FoN continues to work closely with international conservation partners including WWF and TNC. Friends would like to expand that partnership and alliance to include Conservation International. Ownership of Little Water Caye would provide the foundation for the long-term monitoring, research and conservation efforts spearheaded by the organization. FoN has already raised \$150,000 USD towards the \$500,000 purchase of Little Water Caye with a deadline of September 30 to raise the outstanding amount or lose the NGO purchase option on the Caye. Without Little Water Caye there can be no truly effective management of Gladden Spit and Laughing Bird Caye reserves and this incredible area would remain little more than the paper park it is now. The important financial support the Global Conservation Fund can provide towards the acquisition of Little Water Caye will help to make the difference between a “paper park”

and an effective marine protected area with full management and monitoring – an area that has already been designated “highest priority” as a marine biodiversity conservation site in the Western Caribbean.

Literature Cited

- Heyman, W.D., B. Kjerfve, R.E. Johannes, R. Graham. 2001. Whale sharks, *Rhincodon typus*, aggregate to feed on fish spawn in Belize. *Mar. Ecol. Prog. Ser.* 215: 275-282.
- Heyman, W.D. and B. Kjerfve. 2000. The Gulf of Honduras. In, U. Seeliger and B. Kjerfve eds. *Coastal Marine Ecosystems of Latin America*. Ecological Studies Vol. 144. Springer-Verlag, Berlin.

Addendum: Implementation and Sustainability

1. Viability of Management System: Gladden Spit – Laughing Bird Marine Corridor

Sound management of the corridor depends on three main components:

- A sound monitoring program which provides feedback for adaptive management
- Top-notch enforcement
- Education and community outreach

In order to provide management for the two reserves, Friends of Nature implements the organizational chart shown below. Gladden Spit Marine Reserve is co-managed with the Fisheries Department while the Laughing Bird Caye National Park is co-managed with the Forestry Department. While the organizational structure indicates separation of the two park staffs, in reality, they all work closely together on the management of the entire marine corridor. Consistent monitoring and top-notch enforcement are crucial for the effective management of both reserves. Local fishermen believe that illegal fishing on the spawning aggregations, particularly at night, is the main cause of their depletion. These local fishermen and other stakeholders are willing to respect new and stronger regulations within the reserve, once they believe that Friends of Nature has the capacity through enforcement, to protect the reserves from illegal fishing.

The current on-site management system consists of the two reserve biologists (who presently serve as reserve manager) and five park rangers. All rangers hired by Friends of Nature are from the surrounding communities, and most of them are ex-fishermen that once worked these same areas. The annual salaries for the seven reserve staff members totals \$US 59,500. All of these corridor park staff are presently based in Placencia, since there is no base of operations within the area presently. Placencia is 12 miles from Laughing Bird Caye, and 28 miles to Gladden Spit and includes some of the roughest waters in Belize. Gasoline costs US \$3.50 per gallon and to maintain an active presence in the reserves from a base in Placencia would cost US\$ 61,320 per annum in fuel alone (more than annual reserve staff salaries). However, Friends has an annual fuel budget of only \$US 22,500. The commute from Placencia to these reserves means that more than half of our budgeted fuel account is presently spent on commuting, as opposed to monitoring and enforcement. As a result, Friends can only afford about 1/6th of the presence deemed needed for effective enforcement and monitoring. The added travel distance causes extreme wear and tear on expensive boats and engines, shortening their life span considerably and adding to both capital and operating costs. Boats needed to patrol and monitor these reserves cost between US \$30,000 - US \$60,000. Having to work from a base so far from the reserves is the central cause of the present inefficiency and lack of consistent presence and management within these world-class reserves.

Acquiring Little Water Caye as a permanent base would immediately increase management efficiency and effectiveness and lower the annual operating costs by as much as 60%. Little Water Caye is equidistant between Gladden Spit and Laughing Bird

Caye (see attached map) at the very center of the marine corridor. FoN plans to erect a 100 foot observation tower on the caye, that will provide a clear view of the entire area, giving the rangers the ability to track all movements within the reserve. Through radio contact with patrol boats, rangers in the tower can direct on-water patrols to investigate suspicious activities. Even without the tower, fuel costs for effective management will drop to \$26,000, an immediate savings of more than US \$35,000 in annual operating expenses. Most importantly, however, the presence at Little Water Caye will dramatically improve management effectiveness. The immediate savings would allow Friends to immediately hire an additional ranger. Plans are also under way to purchase a boat equipped with a cabin and radar that could provide safe night enforcement. Having a base at Little Water Caye also means that Friends will be able to provide a base from which both the Fisheries Department and the Maritime Wing of the Belize Defense Force will be able to carry out joint patrols with Friends of Nature. These joint patrols will be vital, particularly as Friends begins to tackle illegal night fishing in the area. Both of these agencies have committed to providing enforcement assistance. It should be noted that under the laws governing marine protected areas, all rangers have the powers of Fisheries officers, including the power of arrest. Most importantly the mere presence of the ranger station within the reserve corridor serves as permanent deterrent for illegal activities.

In partnership with The Nature Conservancy, FoN plans to carry out the most comprehensive monitoring program ever envisioned for a multi-species spawning aggregation. Though local fishers and researchers are aware that at over 25 species utilize Gladden Spit for spawning aggregations, the specific arrival, departure and spawning times, habitat niches, and behaviors have not been adequately described. FoN plans to dive at least 300 days of the calendar year, to monitor the multi-species spawning aggregation. FoN recently trained 23 new dive masters, who are committed to participating in these dives as community researchers. The monitoring program will serve as a model for the study, monitoring, and management of spawning aggregations in Belize, and throughout the region. FoN at Gladden Spit will therefore provide leadership and serve as a training ground for partners throughout the MesoAmerican Reef. Without Little Water Caye, the cost and logistics for this kind of research, monitoring, and training would be impossible. In addition to the spawning aggregation monitoring program, a permanent and constant presence within the corridor will allow biologists and rangers a constant vigilant look at the health of the reefs, and be able to see early warning signs of bleaching, and other unexpected changes in the environment.

The long-term management costs of the reserves will be addressed through:

1. Entrance fees and user fee structures, which are expected to generate approximately \$US 200,00 annually from the two reserves
2. Forming partnerships with international organizations (CI, TNC, WWF, MBRS, Oak Foundation, and others).
3. Receiving grants from local organizations (PACT, CZMA&I)
4. A strong membership drive to include recent wealthy immigrants, retirees, and investors who now live in the Placencia Area

The acquisition of Little Water Caye will increase management effectiveness by:

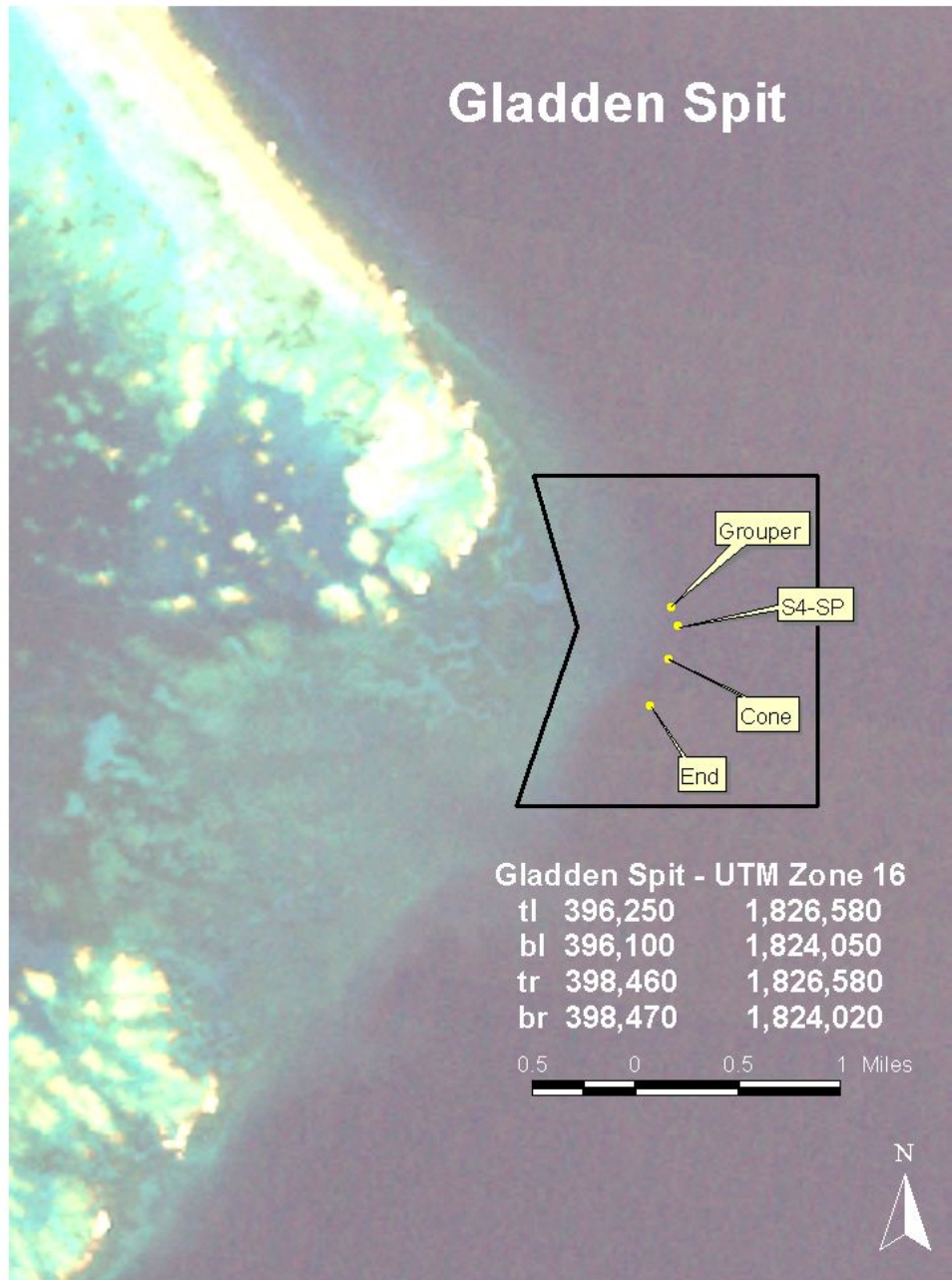
- Decreasing operational expenses and increasing revenues.
- Allowing FoN to provide constant presence within the marine reserve corridor
- Dramatically improve enforcement capability, and enforcement linkages with other government agencies.
- Providing a platform for monitoring that will inform adaptive management of both reserves and a learning center for all park personnel
- Serving as a national and regional model of a well managed marine reserve and the associated social, economic, and ecological benefits
- Leading to the immediate creation of a new marine reserve around Little Water Caye, and within the corridor.
- Serving as base for research where local, national and international scientists can study the resources within the reserves.
- Allowing FoN to rehabilitate and constantly monitor a conch breeding ground that is presently endangered with extirpation
- Providing a place to house special guests of the reserve, and thus promote donations for long term management
- Providing a base for local fishermen so that they become more a part of management, including data collection on their catches.
- Providing a base for world-class educational activities on spawning aggregations, whale sharks, marine reserve management, and reef ecology.

2. Sustainable Tourism Management

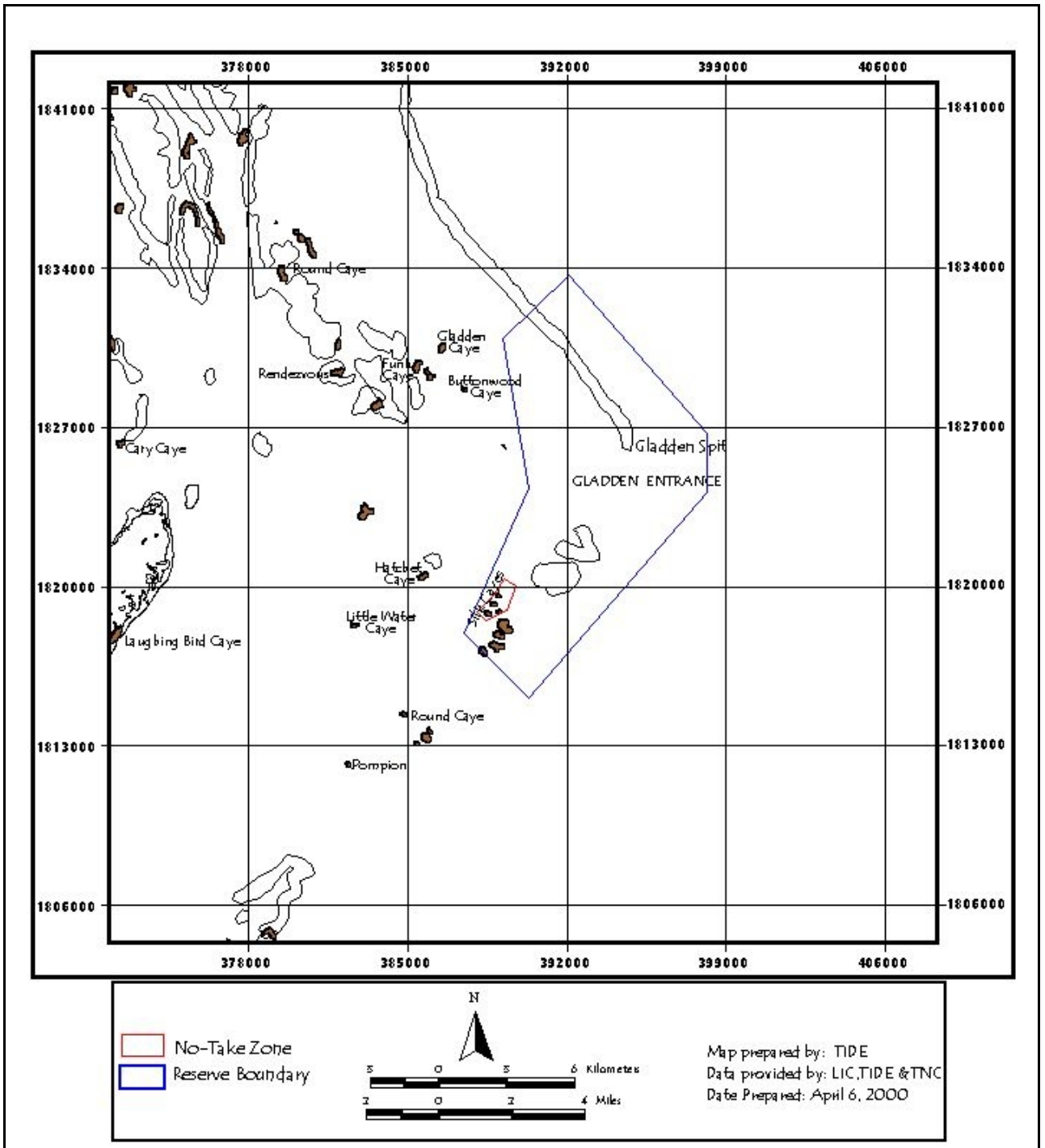
Tourism management plans are clearly stated in the management plans for both reserves. These plans have been developed with the assistance of The Nature Conservancy, and with extensive consultation with all stakeholders. The stakeholders themselves, therefore, having developed the tourism plans themselves, will generally comply with the regulations, and will provide additional eyes and ears to ensure that others also respect the regulations. Tourism management plans include clear guidelines for carrying capacities and the regulations governing all tourism activities. A base on Little Water Caye will allow the FoN to ensure that these effective plans are well implemented. Specifically, rangers will always be present to collect fees, and to monitor tourist and guide activities and licensing. The constant presence will allow adaptive management in guiding and controlling tourism development. These plans will be re-evaluated and updated as needed. For example, TNC and FoN have hired a consultant to advise on the best ways to implement tourism user fees, and Gladden Spit has been chosen by the National Committee on Tourism User Fees in Protected Areas as the site to evaluate the use of multiple fees. FoN estimates that tourism entrance and user fees should generate about US \$200,000 per year. Stipulated by law, 80% of those fees collected will go directly towards the management of the reserves. Placencia is the third largest tourist destination in Belize, providing a ready and consistent market. FoN plans to utilize increases in user fees to regulate the numbers of tourists coming to these reserves.

3. Legal Arrangements for the Acquisition of the Caye

FoN is registered as a 106 company under the Laws of Belize. This registration carries with it, the legal right to acquire and own properties. The title of the caye is presently in the name of Mr. Karl Kohlbecker, and once the sale is complete, the title will be transferred, free and clear, to Friends of Nature. The Minister of Fisheries has agreed that once this has been completed, he will declare Little Water Caye, and its immediate surroundings (which includes an exemplary coral reef) as a new marine reserve that will form part of the marine corridor.



Gladden Spit Reef Promontory, indicating the locations of spawning aggregations and whale sharks congregation, and the zone around these areas to protect them as part of the Gladden Spit Marine Reserve.



The Gladden Spit – Laughing Bird Caye Marine Corridor, indicating the central location of Little Water Caye

Friends of Nature Organizational Chart

