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**Little Feet Environmental Proposal - *An Assessment of the Marine Turtles of Banco Chinchorro Biosphere Reserve, Quintana Roo, Mexico***

***Section #1- Executive Summary (100 Words)*** *Little Feet Environmental, a British-based non-profit organization, are planning to conduct a research survey in the Banco Chinchorro biosphere reserve in Quintana Roo, Mexico. Being the largest atoll in the Northern hemisphere, the biosphere contains no permanent residents within its boundaries but is frequented by various fishing cooperatives. From personal communications with these cooperatives, it is becoming known that Hawksbills, Loggerheads and Green sea turtles nest on the atoll throughout various times of the year. There is a need for conservation projects within this region because nest will be compromised for food and turtles will be poached.*

***Section #2 – Project Information***

1. The origin of your work. (200 words)  
   *Persistent concern from local fishing co-ops has derived the initiative for this project; they have requested assistance in the protection of all nesting beaches thus, ensuring the protection of nests laid throughout the duration of nesting season. If conservation regimes are not put in place, almost all nests will be compromised for food and critically endangered sea turtle species may be harmed and even killed in the process. The fishing co-ops throughout Banco Chinchorro have pertained to sustainable fishing initiatives for years, such as \_\_\_\_\_\_\_; thus ensuring that they are able to sustain their way of living without compromising other species and their ecosystems. Their desire for a conservation project within Banco Chinchorro is reflected upon the need for others throughout the surrounding areas to comply with sustainable ways of living as well. The ultimate goal of the conservation project within Banco Chinchorro is to ensure that endangered sea turtle species have alternative nesting sites throughout the Atlantic as most other sites are being compromised and damaged by urban sprawl. Therefore, the need for conservation on these beaches is crucial if we expect to see an increase in hatchling success and reproductive rates in Mexico.*
2. The contribution of your work (What will your work achieve?) (300 words)

*This ecology project, with enough participation and research, will achieve nesting security and allow us to better understand the populations/colonies of sea turtle species that nest in Banco Chinchorro; the ultimate goal is to ensure that there are no threats being posed to sea turtles by local populations at any stage of their lifecycle. This project will make certain that that nests are no longer compromised for food and will also instill a sense of security for sea turtles as locals will be educated on the importance in the conservation of this species and the viable role they play within aquatic ecosystems. By implementing some basic and manageable conservation routines, we will see an increase in the rate of both hatchling success and adolescent development. Our conservation efforts will also aid in the maintenance of prime nesting beaches in an area that is currently uninhabited by people and where no urban development exists. Developing an ecology project within this location will also allow us to complete and contribute a significant amount of research and information about sea turtles in an area where very little or no research has been done before.*

*With the continuance of this project in the future, we will be able to fully understand the nesting, incubation and emergence portion of a sea turtles life within Banco Chinchorro; and because this area has still not succumbed to urban development, there is a heightened chance for an increased survival ratio in compliance to the number of hatchlings that will survive to adolescence/ adulthood and thrive within this area.*

1. Outcomes (Explain the key outcomes of this work and how these will make a long-lasting contribution to nature conservation) (300 words)  
   *We are able to express the affects and outcomes of our ecology project through three various regimes: Research, Education and Protection. Due to the fact that the research database for this area is minimal if not null, the research that we will be completing will allow us to better understand the composition of sea turtle species within Banco Chinchorro permitting us to implement more thorough conservation efforts in the future. The key outcomes of our research will be derived from monitoring specie classes, growth rates and nesting frequency. The collection of this research will provide us with some previously unknown insight to the structure of sea turtle colonies along these beaches.*

* *Nesting frequency will provide a definitive number for the rate of hatchling success. We will also document when and where certain species nest on these beaches providing us with a generalized population number.*
* *Recording tagged/ tagging sea turtles will enable us to track species and hopefully, document their return each season.*
* *We will also observe the effects if climate change on nesting beaches and based on the severity, foresee it’s effects into the future. This topic is highly relevant as rising temperatures create gender biased nests and divert the male: female ratio.*

*Working with local fishing co-ops throughout Banco Chinchorro (e.g. Chetumal, Xcalak and Mahahaul) we will be able to share our research that is collected and work with locals to develop educational sea turtle modules that can be implemented and tested within elementary schools. Instilling conservation and protection initiatives for both young and older generations will increase the percentage of lasting sea turtle ecology projects in the future.*

1. Activities and Methodology (Please provide information on the methods you plan to use and a list of your project's major activities with an associated timescale. Explain exactly what you plan to do and why it is needed) (500 words)

* *Beach analysis will be the first major activity for the ecology project, as this is the region where most research and information will be collected. The amount of debris and the effects of climate change such as erosion and tidal flow first need to be documented so that we can assess the prime nesting areas of the beaches in Banco Chinchorro and improve the areas that are distressed. This will be achieved through weekly beach-clean ups done by researchers, locals and volunteers.*
* *Nightly beach patrols will be done every evening and will carry out into the early morning at sunrise. The ultimate goal of nightly beach patrols is to spot adult females as they are coming up on shore to lay their nests. However, night patrols are crucial in the protection of sea turtle species as poachers frequent the beaches later in the evenings to avoid getting caught and being fined or imprisoned.*
* *When nesting season begins, all adult females once onshore to nest, will need to be measured and tagged if they currently have no identification. All of the information collected will be documented on tracking sheets that will disclose the date and time of turtle spotting, species, tag numbers, measurements of carapace and records of abnormal markings, wounds or abrasions. If a nest is laid, the amount of both fertile and infertile eggs will be counted and documented as well. If a nest is laid on an inhospitable part of the beach, the nest will be moved to a safer location. We will then generate a three-point coordinate marking system with flagging tape that will allow us to find the nest once the gestation period has ended; we will then be able to initiate nest excavations. Tracking sheets are an organized way to compare information throughout nesting season. As the turtles migrate throughout various points on the globe, an international database of information collected by research projects, much like ours, will allow other researchers to keep “tabs” on tagged sea turtle when they are not in nesting season.*
* *Nest excavations are a crucial component in helping us to determine hatchling success so that we can better understand the growth of sea turtle colonies within the area being protected. Once the gestation period for a nest has ended a two-day grace period will be given to allow hatchlings to escape the nest naturally. Once the two-day grace period has ended, the nest will be located using the three-point coordinate marking system and it will be excavated. On the same tracking sheet used to document information from the initial sighting of the adult female, the information recorded from the nest excavation will be added as well. This information will include the number of hatched eggs, the number of unhatched eggs, the number of infertile eggs, and the number of pipped eggs. Any hatchlings discovered in the nest, alive or dead, must be recorded as well. If dead, state reason (e.g. ants, maggots, crabs etc).*