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DELIVERABLE 3.1: SOCIOECONOMIC BASELINE

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USAID PROGRAM FOR THE MANAGEMENT OF AQUATIC RESOURCES AND ECONOMIC ALTERNATIVES

DELIVERABLE 3.1: SOCIO-ECONOMIC BASELINE

Contract No. EPP-I-00-04-00020-00 Task Order 5

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I. EXECUTIVE SUMMARY

Bluff Beach is located on Isla Colón in the Bocas del Toro Province in Panama. The beach is a Municipal Reserve and an important nesting site for both leatherback (*Dermochelys coriacea*) and hawksbill (*Eretmochelys imbricata*) sea turtles, both categorized as Critically Endangered by the IUCN. Bluff Beach is also the site of a demographically complex community, comprised of two distinct sub-communities: a majority local indigenous community (Ngöbe-Buglé), with a history of 70-100 years in the region, and which lives in rustic conditions and uncertain tenancy on land titled by non-local owners; and a minority foreign resident community (North American and European retirees, investors, and business owners), with around two decades of history in the region, and which achieves a generally high standard of living on private properties that are off the municipal grid.

Over the past decade, the local community has reduced in size, primarily due to the lack of social and economic opportunities at Bluff, as well as to the pressure of an ongoing land conflict that has at times turned violent. Over this same period the foreign resident community has increased steadily, resulting from new retirement and tourism interest in the Bocas region, and especially in prime real estate such as the titled land at Bluff Beach. Due to the economic disparity, cultural disparity, and language barrier between them, there is much tension and little dialogue and collaboration between the two sub-communities, though shared economic and social activity could potentially improve this situation.

Historically, the nesting habitat at Bluff Beach has been subject to various high impact activities, including sand extraction for construction, production of a television program (a Colombian analogue of “Survivor”), and consumptive use of sea turtles (by the local indigenous community, but more so by the residents of nearby Bocas Town). However, increased citizen action and municipal attention has curtailed much of this activity in recent years, improving protection of the Municipal Reserve. Furthermore, since the Sea Turtle Conservancy (STC) began its monitoring work in 2010 – in conjunction with the local community’s conservation association, the Bocas Hawksbill Association (ANABOCA) – illegal take of sea turtles has diminished greatly.

ANABOCA members now work as full-time beach monitors throughout the nesting season (March to October). They have also, during the past two years, begun to run a tourist operation, bringing visitors on the beach to observe and learn about nesting sea turtles, under the guidance of the STC.

This step has brought ANABOCA closer to its long-term vision: to promote conservation of the community's natural resources, and particularly of sea turtles, by providing environmentally sustainable economic opportunities for its members, especially through ecotourism. However, ANABOCA's tourist initiative lacks most of the aspects of a stable and legitimate business, and thus remains no more than an informal operation dependent on suggested donations. This informality, along with widespread private interest in turtle tourism, significant private interest in the development of Bluff Beach, the Municipal Reserve's continuing to remain outside the SINAP (the National System of Protected Areas of Panama), and the absence of an administrative structure and management plan for the Reserve, all stress and complicate the effort to establish a stable and sustainable turtle tourism operation at Bluff. Without a means of providing structure and control for the turtle tourism initiative at Bluff, neither the nesting habitat nor the local community is guaranteed to see long-term support.

To this end, the STC is working, under funding from the USAID Regional Program for the Management of Aquatic Resources and Economic Alternatives, to establish an alliance of local stakeholders – community NGO's, scientific institutions, the municipality, and Panamanian national authorities – to serve as the turtle tourism administrative group for the Bocas region. This group would manage turtle tourism at Bluff in a transparent and collaborative manner, and promote it through public-private partnerships throughout the region. Specifically, during the 2012 funding year, the STC is: 1.) facilitating the formation and operational initiation of the administrative group; 2.) supporting the legal incorporation and organizational development of ANABOCA; 3.) providing training and assessment for the Bluff's first turtle spotters and guides; and 4.) facilitating development of the initial publicity and sales strategy for the turtle tourism initiative at Bluff. The STC and the turtle tourism administrative group believe that this initiative can provide not only greater economic and environmental sustainability for ANABOCA and the entire Bluff community, but can serve as an exemplar for sea turtle protection, environmental management, community empowerment, and sustainable tourism for the Bocas del Toro province in general.

Once the turtle tourism initiative is established and operational, the stakeholders hope to begin to see an improvement in the economic status and livelihoods of the participating individuals and households from Bluff's local community, as well as a measure of improvement in conservation, responsible tourism, and sustainable development in the Bluff region. The present study establishes a socioeconomic baseline for the Bluff community, with explicit focus on the local indigenous population, upon which such future development may be assessed.

II. BACKGROUND

Bluff Beach is located on the northeast coast of Isla Colón, in the Bocas del Toro Province of northwest Panama (see Figure 1). The region surrounding Bluff Beach is home to a demographically complex community, consisting of a sub-community of local indigenous families (of Ngöbe-Buglé heritage, hereafter referred to as the “local community”) and a sub-community of foreign residents (mostly retirees, business owners, and investors in real estate, hereafter referred to as the “foreign resident community”). The beach itself is a significant nesting beach for both the leatherback turtle (*Dermochelys coriacea*; around 200 to 300 nests per year) and the hawksbill turtle (*Eretmochelys imbricata*; around 100 to 150 nests per year), both of which are listed as Critically Endangered by the IUCN’s Red List. The beach also experiences rare and sporadic nesting by the green turtle (*Chelonia mydas*), though this species primarily nests at Tortuguero, Costa Rica. Since a 1997 municipal decree (Municipal Resolution No. 1, February 17, 1997) Bluff Beach has been categorized as a Municipal Reserve. As such, its existence is recognized by the SINAP (*Sistema Nacional de Areas Protegidas*, the National System of Protected Areas of Panama), but due to the fact that the decree was never published in the *Gaceta Oficial* (Panama’s legal ledger, where all judicial actions must be published in order to achieve public existence), it is not officially part of SINAP. This fact brings the dependability of its protection into question. Thus the current status of the Reserve has become a subject of debate and consolidated action amongst various interest groups in the region, including scientific and conservation NGO’s, the current mayor’s administration, and Bluff’s local resident community.



Figure 1: Isla Colón, with locations of Bluff Beach, main towns, and nearest other landmasses.

Historically, despite Bluff's status as a Municipal Reserve, the local government has invested very little money and infrastructure in its protection, administration, and management (e.g. some signage, some fencing, support for a rudimentary environmental study directed by a Panamanian NGO). Thus, both before and after its establishment as a reserve, in the absence of physical protection, island residents have regularly reported incidences of uncontrolled resource exploitation at Bluff.

Being a well-known and easily accessible nesting beach, Bluff Beach has been subject to illegal take of sea turtles (eggs, meat, and shell). The primary agents of this illegal take have historically been from outside the Bluff community, particularly individuals from Bocas Town and of either *moreno* (Spanish- and *guari-guari* or creole English-speaking population of Afro-Antillean descent, often referred to as "black Caribbean") or *mestizo* (Spanish-speaking population of mixed Spanish-indigenous descent, their families having immigrated to Bocas in past decades from Chiriquí province and other historically colonial regions of Panama) ethnicity. The indigenous community at Bluff has historically been only a secondary agent of illegal take of sea turtles.

Other forms of resource exploitation have also taken a heavy toll on Bluff Beach's structural integrity and quality as a nesting habitat. Until two years ago, sand extraction from Bluff Beach was commonplace (although it has been illegal since Municipal Accord # 2 of 1999, which established rules for use of the Municipal Reserve and penalties for non-compliance with those rules). Members of both Bluff's local and foreign resident communities have estimated extraction rates at 50-100 truckloads per day during the height of this activity. Most of this extraction was a result of the sudden demand for construction to provide for the rapid development of tourist infrastructure on the island. Many island residents who know the beach well claim that its size and dynamics have changed drastically in the wake of this activity.

Furthermore, two years ago a Colombian television program called *Desafío*, an analogue of the United States' series *Survivor*, filmed a more than three-month project on the beach during the peak of the leatherback nesting season (mid-April to the end of July). This activity had an acute and obvious impact on the beach. Many residents of Bluff and Isla Colón in general spurred an activist movement to attempt to remove the project from the beach. The program completed their three-month contract nonetheless, though their latitude with regard to film site selection and beach use was curtailed.

In the wake of this conflict, a number of members of Bluff's local community began to see and discuss the need for community-based conservation work, particularly to protect sea turtles and their nesting habitat at Bluff. From this discussion, *Asociación*

Natural Bocas Carey (Bocas Hawksbill Association, henceforth ANABOCA) took form. ANABOCA's vision is to promote the conservation of Bluff's sea turtles, as well its other natural resources, and to provide economic opportunities to incentivize this conservation, principally through ecotourism activity.

Bluff Beach has hosted a handful of impermanent sea turtle monitoring and tourism projects within the past two decades, none of which offered significant and stable income to the local community. The most noteworthy of these was managed by a local organization called CARIBARO, one of Bocas' first environmental organizations, which directed sporadic monitoring between 1998 and 2000.

Importantly, all past projects, as well as ongoing spontaneous "tours" organized by taxi drivers and others from Bocas Town, have taken place in the absence of administrative regulation. However, in 2011 ANABOCA's work received formal recognition from the current mayor's administration, in the form of a letter, bringing sea turtle work at Bluff one step closer to an administrative structure; a copy of this letter is shown in Appendix I. This letter assigns ANABOCA the following duties: 1.) coordinate any and all activities carried out within the Municipal Reserve; 2.) supervise sustainable use of the Reserve's natural resources, beach cleaning activities, and tourist capacity maintenance; 3.) support all sea turtle science activities at the beach; and 4.) denounce any illegal take of sea turtles within the Reserve.

Thus ANABOCA moved to begin work on a community-based sea turtle monitoring and conservation program in collaboration with the Sea Turtle Conservancy (STC), working directly with the STC's Panama Research Coordinator, Cristina Ordoñez. The STC has provided training for ANABOCA's monitors, following international protocols, and ANABOCA and the STC are now in their third year of data collection. Results from monitoring activities suggest that, since the beginning of this collaboration, illegal take on Bluff Beach has greatly decreased, thought to be primarily a result of ANABOCA's beach patrols (monitors patrol the beach from 8:00 p.m. to 4:00 a.m. each night of the nesting season, from March to October).

ANABOCA also runs a turtle tourism operation at Bluff, with certain members working as guides and coordinating their tours with the beach monitors. ANABOCA is currently in their second year of this tourism operation, and the majority of their tourist flow now comes directly from the three operative hotels in the Bluff region. The tourism operation has been successful in bringing income to ANABOCA and its members. Nonetheless, it remains very informal, lacking most of the characteristics of a legitimate business, including: legal incorporation (legally ANABOCA can only request donations for their work), business administration, adequate training for

guides and other positions, fiscal transparency, a pricing strategy, and a publicity program.

ANABOCA's vision is to establish a stable, community-based tourism business that can serve as a source of economic opportunity and conservation leadership at Bluff. The STC, USAID, and the turtle tourism administrative group share this vision, and believe that it holds great promise. There seems to be ample room for the growth and improvement of turtle tourism at Bluff.

Nonetheless, there exist a number of obstacles and stresses to the development of a well-controlled, transparent, and publicly managed turtle tourism operation at Bluff. First of all, not only does ANABOCA's tourist operation lack formality and transparency, but the group is composed exclusively of close relatives, and has thus far failed to open itself to a more diverse membership. Furthermore, given that sea turtle nesting remains virtually untapped as a tourism resource in Bocas, and given the density of the local population and the rapid expansion of the tourism sector, there is widespread private interest in the use of nesting beaches as tourist attractions which if pursued in an uncontrolled manner would have a serious impact on the region's nesting habitat, starting with the easily accessible habitat at Bluff.

In addition to private interest in turtle tourism, there is also a great deal of private interest in the residential and business development of Bluff Beach and the surrounding region. Indeed, the website of one of Bocas' leading real estate agents has a separate page just for Bluff listings ("Bluff Beach – *HOT!*"). One fifth of their current listings (9 of 43) are at Bluff Beach or along the Bluff Beach road, and some of these are being marketed by way of their proximity to sea turtle nesting activity ("*Bluff Beach itself is incredible, especially now during the turtle nesting season from April thru July when the Giant Leatherback Turtles lay their eggs on the beach. It's really an incredible site [sic] to see and would make a great attraction for tourists staying at the property*"), as well as their amenability to resort development ("*This would make an ideal property for a resort or residential Project*") (May 8, 2012, <http://bestbocasrealestate.com>). Currently, a fourth hotel in the Bluff region, previously operative but currently closed for sale and repairs, is slated to reopen in the near future, and at least two other sources of lodging are known to be in development. This heavy development interest looms as a potential threat to the quality of the beach as a nesting habitat, as well as to the tenuous foothold the local community retains in the region.

Finally, despite abundant private interest in Bluff Beach and its turtles, the Bluff Beach Municipal Reserve remains outside the SINAP. There exists neither a management plan for the Reserve, nor an administrative structure. These may be the most important of the issues facing well-controlled turtle tourism in Bocas: not only

does scant legal framework exist to prevent private individuals or businesses from exploiting nesting turtles for tourism, but until the Reserve is published in the *Gaceta Oficial* and put under the official protection of the SINAP, any research, conservation, and tourism programs at Bluff will be contingent on the Reserve's continual preservation under an insecure protective status.

Given these circumstances, the STC identifies as a regional conservation priority the development of a public body for the sustainable control and administration of turtle tourism in Bocas, with particular focus on Bluff, the most feasible and appropriate of the region's major nesting beaches for such a project. Under the USAID Regional Program for the Management of Aquatic Resources and Economic Alternatives, the STC is working toward this goal. The STC has facilitated the formation of an alliance of regional stakeholder groups – the STC, ANABOCA, Alianza Bocas (a community-based tourism network), the Smithsonian Tropical Research Institution, the Bocas del Toro municipality, the Panama Tourism Authority (ATP, in its Spanish initials), and ideally, once the area is put under the protection of the SINAP, the National Environmental Authority (ANAM, in its Spanish initials). This alliance, operating under the name of the Bluff Beach Municipal Reserve Advisory Group (*el Grupo Asesor de la Reserva Municipal Playa Bluff* in Spanish, henceforth the *Grupo Asesor*), will function as the sea turtle tourism administrative group for the greater Bocas region, as well as lead the effort to deliver the Municipal Reserve into the protection of ANAM and eventually serve as the Reserve's managing body under a co-management plan.

With funding from USAID, during 2012 the STC, on behalf of the *Grupo Asesor*, will be involved in the following activities to develop a sustainable turtle tourism program: 1.) facilitation of meetings to form, develop, and bring into operation an administrative structure for a turtle tourism initiative at Bluff; 2.) facilitation of ANABOCA's process of legal incorporation; 3.) provide training and assessment for turtle "spotters" and guides, using as a model the STC's Turtle Spotters Program, which has effectively managed sustainable turtle tourism on the nesting beach of Tortuguero, Costa Rica since 2004; and 4.) provide the initial publicity and sales strategy for this initiative.

III. METHODOLOGY

This study establishes a socioeconomic baseline for the community at Bluff. To this end, data were collected by various methods between March 1 and May 15, 2012.

An initial community meeting was held on March 16, 2012, with the goal of collecting information to compose a general profile of the community. A dialogue was facilitated, during which a prepared survey was read question by question by the

study coordinator to all attendees, and all responses were collected. (For the results of this meeting, see Appendix II: Community Profile.)

Following this, the primary method of data collection was begun: a questionnaire-based interview procedure. Interviews were conducted via in-person conversation with the head of each household (or business, as applicable), and with the input of additional members of each household or business as needed or offered. Interviews generally lasted one hour (+/- 15 minutes). Thus, the household (or business) serves as the functional unit, but demographic data were collected by individual. Data were collected in the order and wording of the questionnaire (see Appendix III), with explanations provided as needed. Responses were written on paper copies of the questionnaire, and later transcribed to a digital database.

As the Bluff community is not well demarcated, with neither an economically active community center nor a clear fringe, the process of delimitation of the study area was not self-evident. To resolve this, the interviewee pool was determined by intending to include all households whose members meet any of the three following criteria:

- 1) Currently involved in ANABOCA's work, either as members of ANABOCA or as supporting businesses sending them tourists;
- 2) Have permanent residence, or titled land with domicile, located directly adjacent to Bluff Beach, as demarcated by the full length of STC's current study area (the 4.3 km of sandy beach between the southern and northern coral rock outcrops that serve as its limits), or inland (accessible from Bluff Beach by established paths, and reported by ANABOCA to pertain more to the Bluff community than to the next community to the west, Colonia Santeña);
- 3) Regularly invited to and/or involved in ANABOCA meetings and other community activities.

See Figure 2 below, for the location of Bluff Beach, and a rough delineation of the area considered the Bluff community.

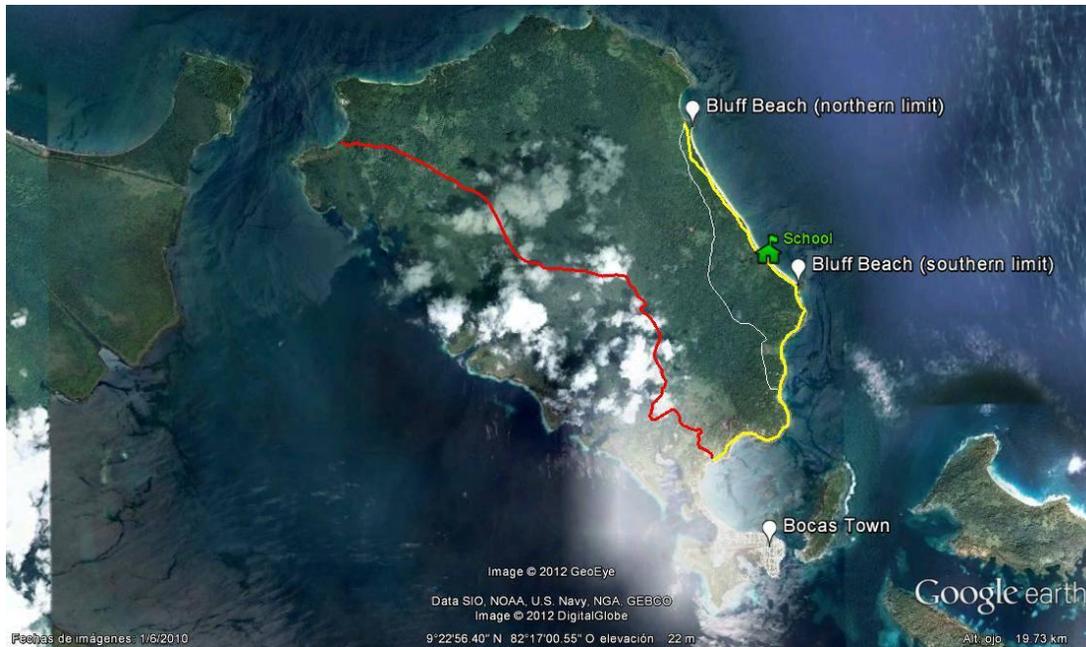


Figure 2: Map of Isla Colón, showing main highway in red, Bluff Beach road in yellow, and Bluff community region roughly delineated in white. Bluff school in green.

The socioeconomic condition of the Bluff community, and the data required to document this condition, reflect the community’s demographic complexity. The local sub-community was the focal group for this study, due to its direct involvement in ANABOCA, and this project’s goal of providing them with a conservation-based economic alternative to consumptive turtle use. Nonetheless, some data needed to be collected about all members of the community, in order to provide a comprehensive socioeconomic baseline. Thus, the pool of interviewees was divided into four subgroups, in order of decreasing anticipation of long-term socioeconomic impact of ANABOCA’s work. These four subgroups were as follows:

Subgroup 1 - the four principal Ngöbe-Buglé indigenous households involved in the coordination and direction of ANABOCA (hereafter referred to as Principal Local Households);

Subgroup 2 – other households of Ngöbe-Buglé descent (hereafter, Secondary Local Households);

Subgroup 3 – owners of the three hotels at Bluff, which during the 2012 season are providing the majority of the tourist flow for ANABOCA’s turtle tourism work (hereafter, Hotel Owners);

Subgroup 4 – households or individuals who reside at or own land at Bluff and who are not of local heritage (hereafter, Foreign Residents). (For locations of households interviewed, see Figure 3.)

The questionnaire upon which the interviews were based was comprised of three

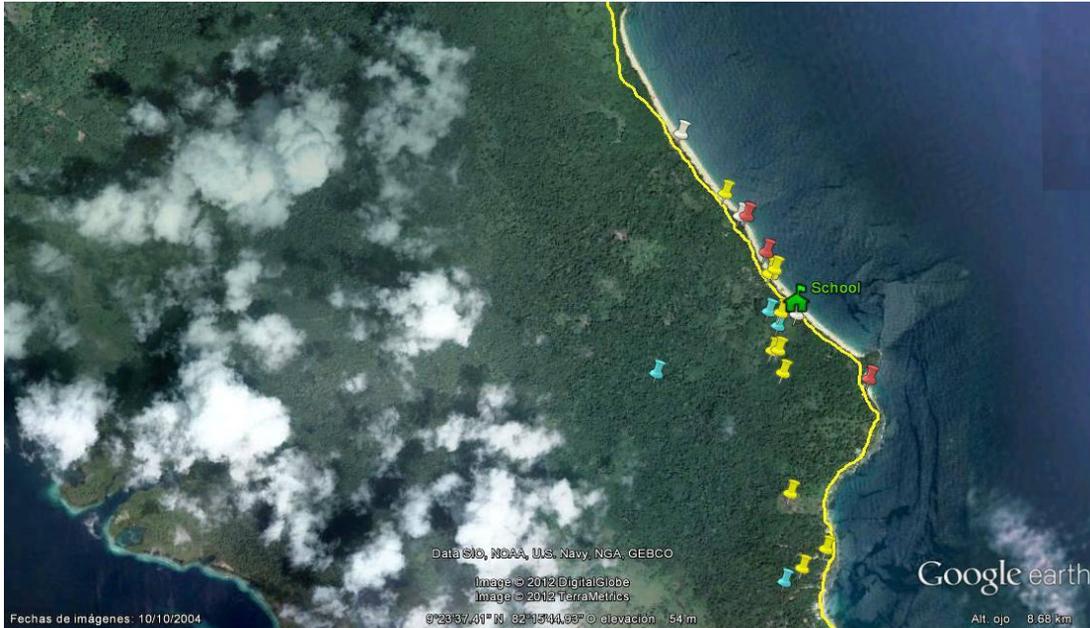


Figure 3: Map of Bluff Beach region, showing distribution of Principal Local Households (light blue), Secondary Local Households (yellow), Foreign Residents (white), and Hotel Owners (red), as well as the Bluff school (green) at center of community. Bluff Beach road in yellow.

sections (see Appendix III). Section 1 comprises basic demographic and economic data. Section 2 comprises more detailed economic information, allowing for the composition of an annual budget for each principal household. Section 3 comprises basic information regarding current tourist capacity and flow at Bluff hotels. These three sections were differentially applied, depending on the Subgroup of the interviewee, according to the following table:

| | Section 1 | Section 2 | Section 3 |
|--------------|-----------|-----------|-----------|
| Subgroup I | ✓ | ✓ | |
| Subgroup II | ✓ | | |
| Subgroup III | ✓* | | |
| Subgroup IV | ✓* | | ✓ |

* = Section 1 not administered to subgroup III or IV, due to irrelevance for future comparison.

Additional information was collected through minimally structured conversation in various forums. These included unstructured correspondence with Bluff community members, local NGO representatives, taxi drivers, business owners, members of the municipal government, and other stakeholders. Some information included also comes directly from the personal observation of the study coordinator (in which case this is noted). Finally, estimates regarding ANABOCA’s tourist flow and income are calculated both from ANABOCA’s internal records and from information gathered during interviews with hotel owners.

IV.RESULTS

In total, 19 interviews were completed during the study period, comprised of four Primary Local Households, nine Secondary Local Households, three households of Foreign Residents, and three Hotel Owners. (The results of the questionnaire responses are shown in Appendix IV.) Interviews completed with the local community represent an estimated 73.6% of the total local community in the Bluff region (103 of 140 known individuals). Eight of the remaining 37 known individuals pertain to three households that either declined or preferred not to be interviewed, or self-identified as occasional residents and non-participants in the local community. The remaining 29 people represent three households were unknown to the study coordinator until after the data collection period. (Of note, one individual was unavailable for direct interview, and his spouse preferred not to share his demographic information, thus he is included in the population analysis, and recorded as being uninvolved in ANABOCA, but is omitted from all other demographic analysis.)

Of the total number of locals included in the data collection, eight were directly involved in ANABOCA, 28 were members of households of those directly involved, three reported being previously involved, and 64 reported being entirely uninvolved (see Figure 4).

The number of foreign residents interviewed represents a minority of the total number of foreign residents leasing or owning land in the region (11 of more than 30; around 30%). Many land owners were inaccessible for interview during the study period, but those who reside permanently at Bluff or on Isla Colón were interviewed. The hotel owners interviewed represent all three operational hotels in the Bluff region.

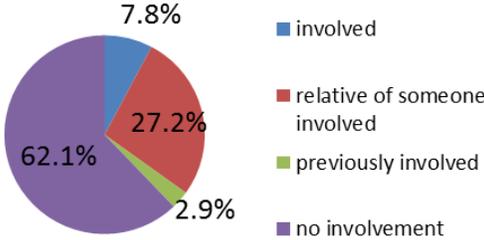


Figure 4: Involvement of interviewees in

Community Infrastructure

As evidenced by the Community Profile (See Appendix II), Bluff is a region of minimal public infrastructure. The majority of the community receives neither electricity nor running water from the municipality, the systems for both of which terminate about two kilometers short of the southern extent of Bluff Beach.

Although the municipality has promised to retrieve garbage from the community by case-by-case request from ANABOCA, there is no formal system of garbage collection. The nearest police presence, nearest public medical center, and nearest secondary school are all in Bocas Town.

The road to the community is an unpaved sand-dirt road, part of which passes along a beach and through brackish creeks. The result of the damage this poses to automobiles is that the cost per kilometer of a taxi ride to the community is about 1.6 times what it would be on the highway (about \$2.50 per kilometer for the eight kilometers to Bluff, versus about \$1.50 per kilometer for the 16 kilometers to the end of the highway). According to a public representative for the local taxi drivers' association, Bluff locals are usually charged \$20.00 round trip from the center of Bocas Town to the center of the Bluff community (though sometimes less than \$10.00 when traveling only one-way.) Nonetheless, the standard round-trip price to Bluff is currently \$24.20, and tourists are regularly charged more than \$25.00. Furthermore, all prices on-island are supposed to be 1.5 times higher after midnight. Given that Bocas Town is the nearest and only stable source of purchased food and other goods, as well as public and private services, all community members interviewed travel there regularly, either to make purchases, pay medical visits, participate in meetings, attend church, or meet other needs unable to be met at Bluff. Many locals travel by taxi by necessity (for example, when transporting food or other materials, or when travelling with infants).

Demographics

The Bluff Beach community is multidimensional and amorphous. In the study coordinator's observation, it is more definable as a community by way of geographic proximity than by way of social and economic dynamics. This is due to the rarity of inherent social interaction between and even within the two major sub-communities and other groups.

Geographically, the community is primarily distributed along the Bluff Beach road, and the area of highest density of the local community is directly adjacent to the school (see Figure 3, above). Despite the small population of the local community, it is informative to visualize its age distribution as a population pyramid (see Figure 5). This pyramid clearly demonstrates the classic expansive shape indicative of most poor and underdeveloped regions. From the households interviewed, a full quarter of the individuals are under 10 years of age (24.5%) and more than half are under 20 (57.8%). 57% of interviewees (59 individuals) were males, 43% (44 individuals) females.

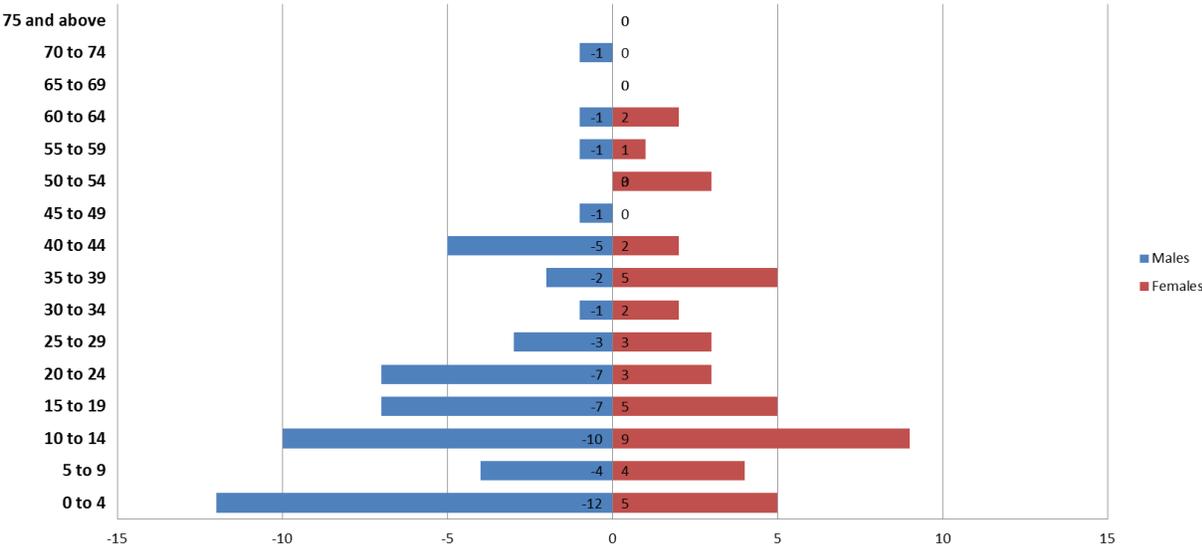


Figure 5: Population pyramid of interviewed portion (estimated 85.8%) of local population.

There are two indigenous groups native to the area that is today composed of the Bocas del Toro province and the neighboring Chiriquí province and Comarca Ngöbe-Buglé (a *comarca* is essentially Panama’s legal analogue to the United States’ Native American Reservations): the Ngöbe and the Buglé. Collectively, these two groups are referred to as the Guaymí tribes. Nearly all of the interviewees in the local community reported being Ngöbe, with the exception of a handful of members of one household (who reported being either Buglé, or of mixed Guaymí heritage) (see Figure 6).

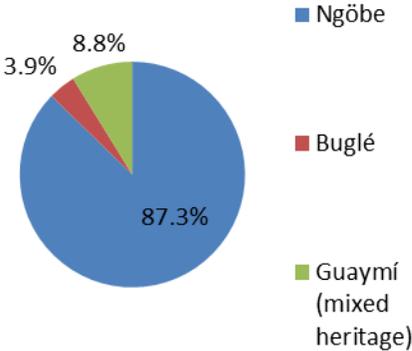


Figure 6: Ethnic groups represented by interviewees

About half of the interviewed population reported practicing no religion, with the other half exhibiting a fairly even division between the Catholic church, Jehovah’s Witnesses, and Church of Christ (see Figure 7.) Two individuals were recorded as practicing Mamatata, reportedly a hybrid of indigenous and Catholic beliefs.

The demography of the foreign resident population is complex: Of those interviewed for this study (six households total), four nations are represented. These six households represent about a third of the known foreign resident households in the region (6 of 16 known; 37.5%).

The foreign resident community can be seen as socioeconomically “superimposed” upon the local community: all are present by way of purchase or lease of titled holdings, and their properties compose a patchwork overlaid on land that was historically inhabited and farmed communally, without titles or fixed processes of land ownership, by the Ngöbe-Buglé families of Bluff. The economic gap between the two communities is obvious and extreme, and their economic

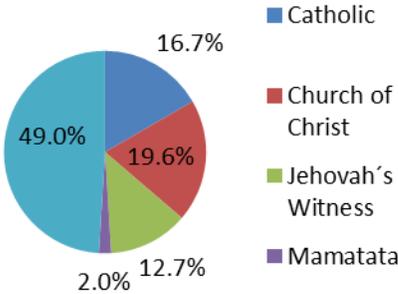


Figure 7: Religions practiced among interviewees

interaction – apparently their only intrinsic interaction – is asymmetrical, namely that of foreign employer and local employee. This economic gap, as well as the drastic differences in legal power and ownership that are its direct result, engender disparity in autonomy and social opportunities as well. Furthermore, pronounced cultural differences and the persistent language barrier (a minority of the individuals interviewed speak conversational or higher Spanish) lead to a lack of dialogue and understanding. The result of all of this is that misinterpretation, assumption, and gross stereotyping appear to serve as the standard of communication.

It is important to note that the stark disparity between these two sub-communities represents a major source of tension and a serious challenge for the Bluff community at large. Members of the foreign resident community regularly complain of the locals, with public drunkenness, lack of work ethic, lack of professionalism, and social and environmental irresponsibility being the most commonly heard frustrations. Likewise, members of the local community regularly complain of the foreigners’ aggressive attitudes, domineering economic behavior, and failure to communicate respectfully with the locals. Although all of these complaints may be justified in the case of certain individuals or incidences, none are accurate generalizations of either sub-community.

There exist few but nonetheless important examples of effective dialogue and collaboration between the two sub-communities. These include the occasional attendance by members of both sub-communities at some of the meetings organized by STC; the support that Bluff hotels provide for ANABOCA’s tourism initiative; long-term relationships between foreign resident-owned businesses and particular families; and some economic collaboration between locals and businesses (such as jungle tour guiding at Bluff hotels). The current effort to develop sustainably managed turtle tourism at Bluff holds much promise as another such activity that could unite the different sectors of the community.

Housing, Resource Management, and Standard of Living

Overall, the local community at Bluff lives in very rustic conditions (see Figure 8). Most households, despite having little infrastructure and space, have high occupancy. Household sizes ranged from two to 14 occupants, with an average of 7.9 occupants. The number of children per household (child herein defined as 15 years and younger)



Figure 8: Typical local housing at Bluff Beach

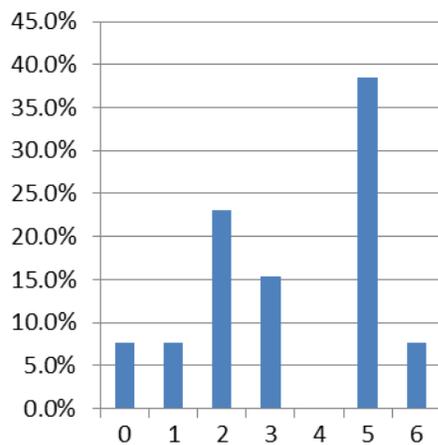


Figure 9: Number of children (15 or younger) in interviewed households

ranges from none (notably, only one household) to six, with an average of 3.5 (see Figure 9). Most houses are used by multiple generations of the same family.

The houses of nearly all households interviewed are wooden constructions (12 of 13 households; one household lives in a concrete structure built by the foreign resident whose house they maintain in his absence), of modest proportions, and on raised platforms. This is a typical

architecture for the region, seen throughout the Bocas Archipelago and along the coast of the adjacent mainland.

About half of the households interviewed, seven in total, used corrugated iron roofing (commonly and herein referred to as “zinc”), four used thatch, and two featured a mixture of the two (see Figure 10). Given the hot, humid climate of the Caribbean, many households said they preferred thatch roofing because it maintains a more amiable climate within the house. Thatch roofing is also much cheaper to construct. Of course, it is not possible to harvest rainwater with thatch roofing. Thus households that choose thatch roofing face a tradeoff between water quality and housing comfort and cost.

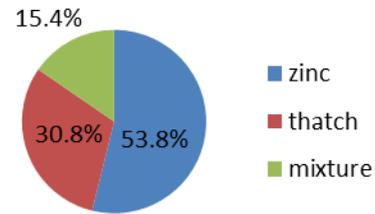


Figure 10: Types of roofing present in households interviewed

Those that have impervious roofing tend to construct rain water systems: only one household with zinc roofing lacked a rainwater collection system. About two-thirds (69.2%) of the households interviewed reported rainwater as their primary source of drinking water. The rest of the households collect drinking water from sources of more questionable quality, either wells or permanent creeks (see Figure 11). Of note, these numbers do not reflect the full reality of drinking water use in these households: they take into account neither each household’s total rainwater storage capacity, nor each household’s resultant dependence on secondary sources during dry periods. In the study coordinator’s personal observation, households’ capacities tend to range from a couple of 50-gallon drums to tanks of around 250-gallons. All households with rainwater systems (except that living as caretakers of a foreign national’s house who use his more ample system) stated that they rely on wells and/or creeks during dry spells. In most, but not all cases, households reported boiling or otherwise treating creek and well water before consumption.

For non-drinking water needs only one household reported using primarily rainwater.

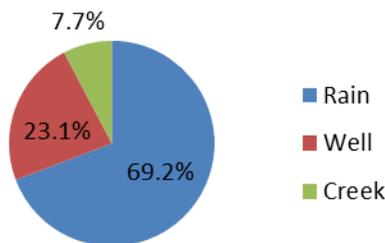


Figure 11: Primary sources of drinking water of households interviewed

One additional household reported partial dependence on the municipal water system, due to living at the southern limit of the community, closest to Bocas Town. The remainder of the households reported some combination of dependence on creek and well water (see Figure 12). In the study coordinator’s observation, when creek water is used to meet non-drinking needs, it is most commonly used *in situ*, with the resultant

gray (and occasionally black) water continuing downstream, past other households, and terminating in the sea.

Given that the community is not connected to a public electrical grid (with the exception of those houses at its southern limit), local households' electrical needs tend to be minimal. To meet these needs, most local households depend either on disposable batteries or on the opportunity to charge appliances at the house of a foreign resident or a friend with electricity. One household possesses a gasoline-powered generator, which it occasionally lends to the community for use at events.

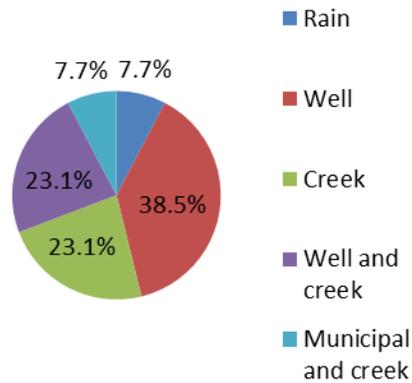


Figure 12: Sources of non-drinking water of households interviewed

Regarding waste, there is minimal formality with regard to disposal. Most organic waste is generally thrown in the immediate vicinity of its site of creation, sometimes being intentionally applied directly to food-producing plants. When land is cleared or cleaned, the vegetative remains tend to be piled, set aflame, and left to smolder *in situ*. Notably, there was no report of collection and processing of organic waste for agricultural use. In the absence of a garbage collection system, the local community reports households both burning and burying their synthetic waste. Many individuals also dispose of items by simply depositing them, individually or consolidated, in the surrounding environment.

Nearly all households dispose of human waste in a simple pit latrine, with the exception of two, which reported no formal site for collection. One of these households reported using the surrounding environment for disposal. The other reported using the nearby creek exclusively. Excrement and urine from children and livestock is frequently dispersed within the immediate home environment, and gray water is rarely if ever treated in a systematic manner.

Regarding management of wild natural resources, issues either reported by the community (see Appendix II: Community Profile) or observed by the study coordinator include illegal take of sea turtles, illegal take of terrestrial wildlife and its derivatives, uncontrolled lumber harvest, overfishing, and destruction of natural vegetation.

All foreign residents and hotel owners at Bluff achieve a high standard of living. Houses and hotels are mostly large, often with two stories (see Figures 13 and 14). Of those interviewed, all but two reported multi-story constructions of cement and wood, with impervious synthetic roofing, and satisfactory off-the-grid infrastructure, including rainwater collection systems that meet 100% of their needs (including during dry periods), modern bathrooms with septic systems, and internally generated electricity. The exceptions to this include one household that has only a cabin but lives on their business property in Bocas Town, and another that lives in a cabin while finishing construction of a larger house. All foreign residents and hotel owners interviewed are known to have one or more forms of private motorized transport.



Figure 13: Typical foreign resident housing at Bluff Beach (house at right is under construction)



Figure 14: Two of the hotels at Bluff

Ownership of Housing and Land

Property ownership within the local community is not an easily quantifiable matter: rather, this is a resolutely qualitative question of legal reality. Though the majority of households interviewed reported having built their homes (or sharing a home built by family), all households interviewed are reported by the municipality to be living on land titled and owned by someone else. No land owners are known to be indigenous.

Households outside the center of the Bluff community (see map of community distribution, Figure 2, above) tended to report caretaker status – the meaning of this ranged from permanent residence, to temporary or shifting residence, to co-residence as employees. In all cases, these households seem to have struck an understanding with the landowners of their respective locations, and though many built the houses they are currently living in, their tenancy is recognized as stable but subject to the owner’s will.

Households located at the center of the community, however, are living in a situation of overt conflict. The land on which they live is reportedly owned by a man in Panama City, hereafter referred to as the “central title bearer”, of whose ownership the local community was first informed 15 years ago. This site was historically the nucleus of a much larger Ngöbe community. Families living there today represent the last remnants of this community. Since the time of this land’s titling and purchase, inherent tension has persisted; indeed, this tension has resulted in numerous incidences of conflict. According to numerous sources from within both the local and the foreign resident communities, the local community was much larger up to only five years ago, prior to increased action by the central title bearer to forcibly remove the local households from his land. These included, perhaps most ostentatiously, his arrival, with chainsaws and police assistance, to fell and burn numerous actively inhabited houses. These destroyed houses are reported to have stood just to the south of the school, within an area that is today young second-growth forest.

Furthermore, according to one of the foreign resident interviewees, the land conflict in the center of Bluff is still more complex. This interviewee reports having helped a local family to title their land to prepare it for sale, then buying land from them, only to be later informed by the central title bearer that their land and the rest of said local family’s newly titled land already belonged to the central title bearer. This was reportedly followed by a failed attempt by the central title bearer to forcibly remove the foreign resident interviewee.

According to the local community, the conflict has played a part in the recent and drastic reduction in the size of Bluff’s local community. Reportedly due to various factors – forced removal, the general environment of hostility, insecure tenancy, and/or the desire to send their children to high school – many local households have left Bluff within the past decade, mostly to move closer to or into Bocas Town.

According to the municipality, the vast majority of land in the Bluff region is titled and privately owned. Many of the titling and purchasing activity has taken place during the past two decades, coinciding with Bocas’ emergence as a popular tourist and retirement destination. In some cases, land owners have developed or are currently developing land for residence and/or income-generation (e.g. the three currently operative hotels). In other cases, land is currently vacant, and either minimally developed or undeveloped.

Education

At Bluff, the only educational infrastructure is a minimally outfitted, one-room public primary school (see Figure 15). The only public secondary school on the island is in Bocas Town. The primary school has an accompanying building that serves as a cafeteria (local households rotate to cook lunch for attending students), as well as a rainwater collection system for communal use. The school has a single teacher, who teaches first through sixth grades simultaneously to around 15 students a year. (She also reports accepting five-year-olds from interested families, despite having no budget for a pre-school program.) She teaches from 8:00 am to 1:00 pm throughout the week, minus days when she must attend meetings, deliver administrative paperwork, or make and receive purchases of materials (as the school



Figure 15: School building at Bluff

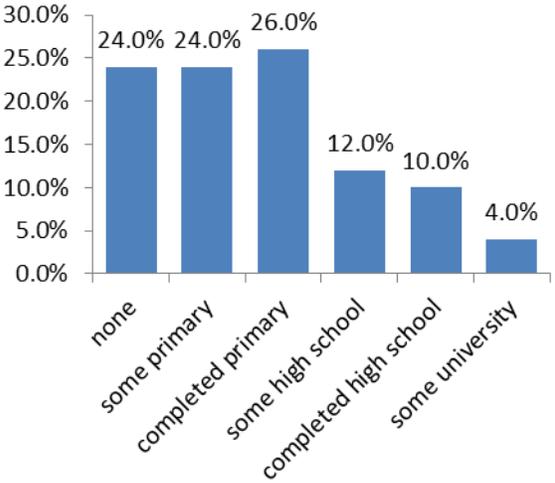


Figure 16: Foundation of unfinished primary school (intended wall posts covered in vines)

is a registered state institution, the sole teacher is also required to fill all the administrative roles of a typical, fully-staffed institution).

According to community members as well as the school teacher, the local community has struggled for years to achieve the current educational infrastructure. After a long period of time attempting to find funding for the construction of a schoolhouse (which is reported to have been finally built by the local Catholic church), the students' parents spent years pressuring the government to provide a salaried and permanent teacher (numerous temporary teachers, of varying reputation within the community, were assigned to the school and later replaced without notice). Notably, this school is the only municipally financed infrastructure in the community, and is thus seen by both the school teacher and the local community as an important symbol of support for their continued tenancy. At some point, the government agreed to build a larger school building, and began to move ahead with the construction, but the building was halted by the Central Title Bearer, whose title reputedly includes the land upon which the current school stands and the new school was to be built. Today, the construction remains unfinished (see Figure 16), and reportedly the permission to finish it remains in negotiation.

The overall level of education within the local community is very basic. In Panama, the traditional education system is arranged in the following order: kindergarten, primary school (first through sixth grade), secondary school (referred to in Spanish



as first through sixth year, herein referred to as seventh through twelfth grade), and the typical levels of university. Among interviewed adults (herein defined as 18 or older) nearly one quarter (24.0%, 12 of 50 individuals) report no formal education, and an additional half (50.0%, 25 of 50) have no higher than a sixth-grade education (see Figure 17).

Figure 17: Levels of education among adults interviewed

When compared between genders, there is a still more marked lack of education among women than among men: more than a third of women (36.4%, 8 of 22 individuals) reported no education, greater than twice the proportion of men reporting likewise (14.3%, 4 of 28), and

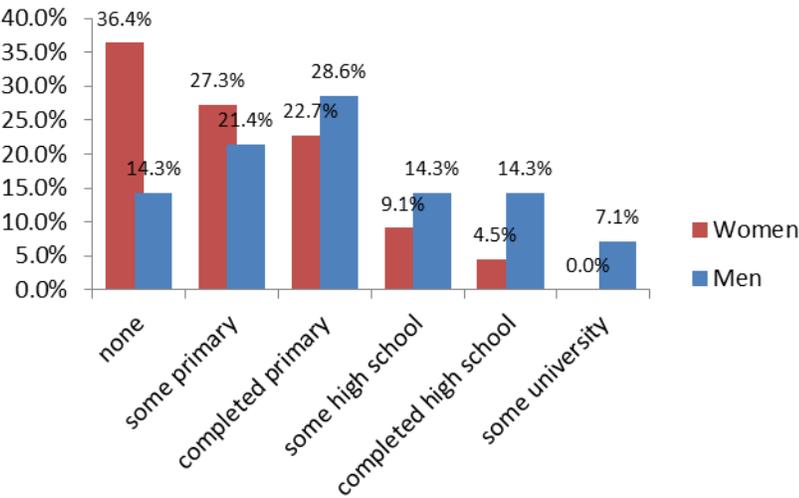


Figure 18: Highest levels of education among adults interviewed, by gender

women show an overall trend skewed more toward lower levels of education than that of men (see Figure 18). The lack of formal education is also especially notable in the oldest generation (herein defined as 50 years or older), for whom only two of nine people interviewed reported any education (one having completed some primary school, the other the full six years). These individuals were quick to note the lack of public education during the period of their childhood.

Among school-age individuals in the local community (herein defined as all individuals between five and 18 years of age, with ages five to six corresponding to kindergarten, through ages 17 to 18 corresponding to 12th grade), more than half (58%) report being below grade level for their age, with nearly a third (32%) being three or more years below (see Figure 19).

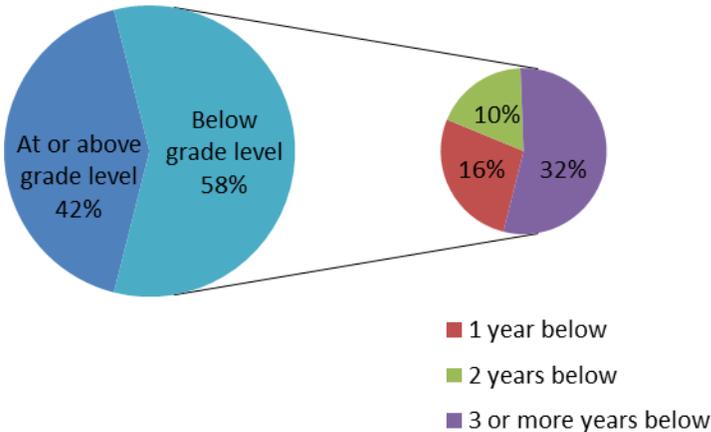


Figure 19: Percentage of school-age interviewees at or below grade level.

When elementary-aged individuals (5 to 11 years) and secondary school-aged individuals (12 to 18 years) are compared as separate groups, it appears that most students are falling behind grade level at the point of transition between elementary and secondary school (see Figure 20). Indeed, two thirds of

secondary-aged individuals (67.9%; 19 of 28) are behind grade level, as opposed to about one third of elementary-aged individuals (30%; 3 of 10). Furthermore, of those who are behind grade level, none of the elementary-aged individuals are three or more years below, as opposed to almost half (42.9%; 12 of 28) of secondary-aged individuals.

In the Bluff school teacher’s opinion, the data presented above reflect real problems. According to her, many students start off behind grade level because their parents refuse to start them in school at the legally required age of six, feeling they are too young. Having almost no support at home, due to most parents’ not being able to read, write or do basic math, they continue to fall still further behind as time goes on. In fact, the teacher does not even assign homework, preferring to focus on Spanish and mathematics and attempt to have students complete all of their necessary work during class time, where she can assist them. The teacher reports that nearly all of her students are behind their official grade level with regard to national curricular standards. Indeed, she describes her job as teaching first grade to second graders, second grade to third graders, and so on, whilst always trying to catch them up to

national standards by the end of sixth grade, so that they can “at least defend themselves” if they get the chance to go to high school (i.e. keep pace with the curriculum and meet national curricular standards). According to the teacher, the fact that the only high school is in Bocas Town – which is too far to walk and too expensive for most households to pay for daily taxi rides – serves as an insurmountable

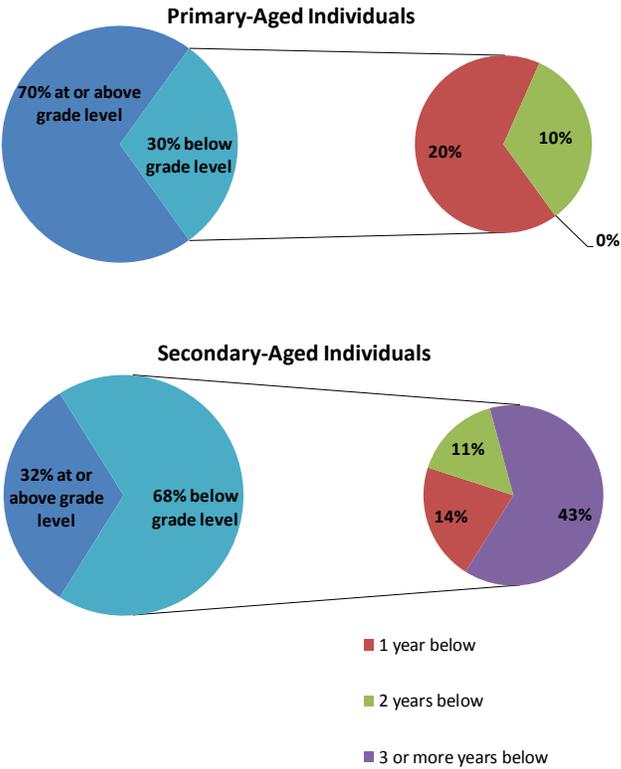


Figure 20: Percentage of school-age interviewees at or below grade level, divided into individuals of primary and secondary school age

barrier for most children of high school age. Thus, they complete sixth grade and then leave school entirely, staying at home in the case of girls or wandering the community and attempting to start finding work in the case of boys.

Regarding the foreign resident and hotel owners interviewed, one adult reported having completed high school as their highest level of education, and eight reported some university degree, including one reporting two Master’s degrees. Only one foreign interviewee has school-age children. Their children attend a bilingual private school in Bocas Town.

Economic Indicators

Bluff is a job-scarce community. Of working-age individuals interviewed (herein defined 16 and older), only 44.2% (23 of 52 total individuals) reported having worked for income during the 2011 calendar year, and only 73.9% of these, 32.7% of all working-age individuals (17 of 52) were able and/or willing to estimate the quantity of their income from this work. The working individuals who did not quantify their income generally characterized it as unknown, irregular, opportunistic, and/or minimal. Among income-reporting individuals incomes varied widely, with

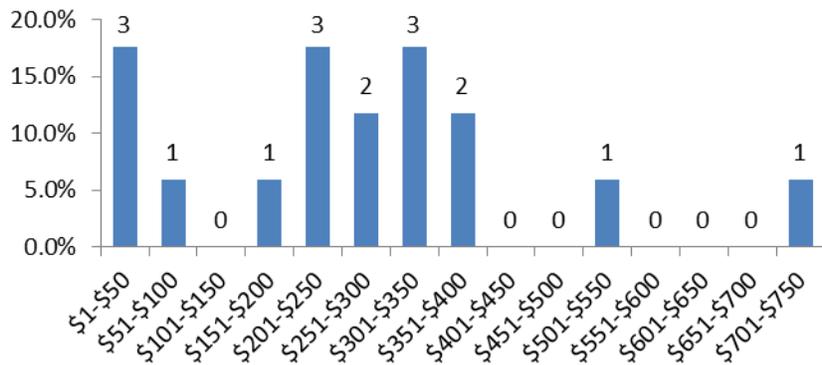


Figure 21: Income of interviewees who reported income for 2011.

an average monthly income of \$260 (min = \$20, max = \$733 - see Figure 21).

The average number of working individuals reported per household was 1.7

(min = 0, max = 4), and the average number of working individuals with reported income per household was 1.3 (min = 0, max = 4). For households that reported income, the average number of household members per paid working individual was 3.4 (min = 2, max = 8). For households that reported income, average monthly income per household was \$632 (min = \$205, max = \$1287), and average monthly income per household member was \$81 (min = \$19, max = \$138).

The majority of the stable, remunerated work in the region involves either working for a foreign resident-owned business or working on foreign resident-owned property. Caretaking for foreign-resident owned property is also very common, though the remuneration for this work is unclear. According to work reported for

2011, by percent of working individuals involved in each category, the most prominent sources of work were hotel service (22.7%), farm work (18.2%), pickup work (18.2%), and turtle tourism (with ANABOCA) (18.2%) (See Figure 22).

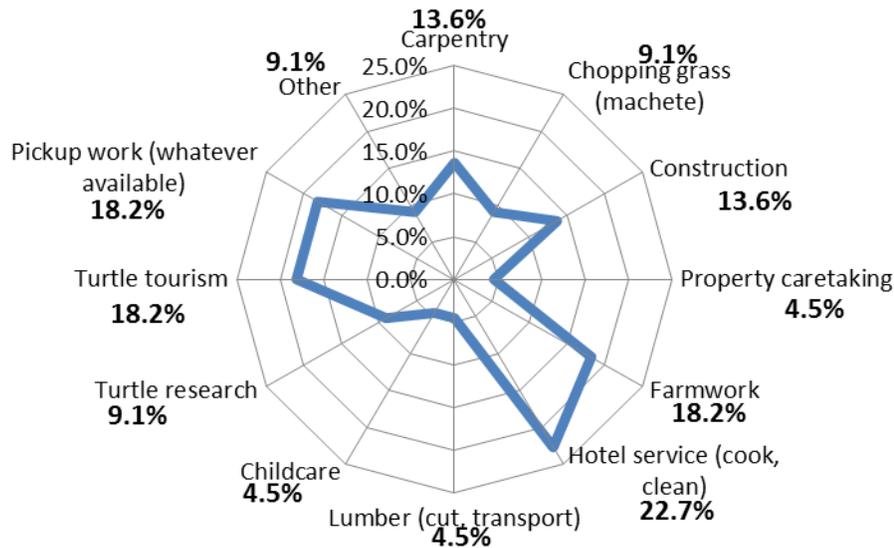


Figure 22: Percentage of working individuals involved in various categories of work (percentages sum to greater than 100% due to some individuals being involved in various categories of work).

By average biweekly income reported for 2011 (the most accurate means of reflecting income, as most people either report being paid biweekly or working short-term contracts that usually last about two weeks), the most prominent categories of work were carpentry (\$252), lumber work (\$200), hotel service (\$184), and construction (\$175). Importantly, by average biweekly income, turtle research (\$45, STC’s stipend for beach monitors) and turtle tourism (\$35, as calculated from ANABOCA’s 2011 tourism records; see Appendix VI) are among the lowest reported for all categories of work, despite being one of the highest categories by percentage of working individuals involved (see Figure 23).

Notably, three households reported no working individuals, and six households reported no working individuals with quantifiable income. Yet it is clear that all households are purchasing food and other goods on a regular basis. Some explanations for this apparent disparity may include property caretaking, fishing for market, family members who share or deliver food or income but whose presence in the household is occasional and thus unreported, and use of funds saved from work previous to the 2011 calendar year, all of which have been observed.

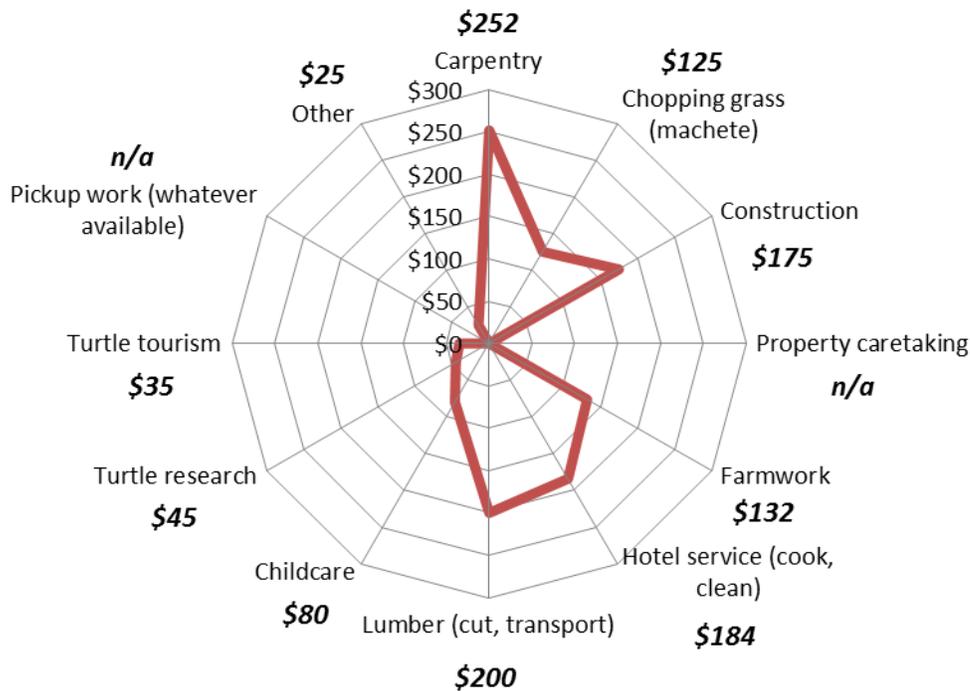


Figure 23: Average biweekly income of working individuals involved in various categories of work. (Pickup work is labeled not applicable (n/a), as it is a means of working not remunerable in and of itself; Property Caretaking should be considered an inaccurate figure – though its value is \$0 according to interview data, it is known to be remunerated in some cases.)

Despite job scarcity in Bluff, most community members engage in some form of occupation, regardless of remuneration. Though work and occupation were not explicitly differentiated in this study, some of the most commonly observed non-remunerated work in the community included subsistence agriculture, small scale agricultural production (for sale to local markets), caretaking of private land, fishing, and clearing/cleaning of land, construction for personal use, and volunteer turtle research. Notably, though all families produce some basic foods (plantains, bananas, taro, yucca, and chicken, among others), few if any households seem to produce a substantial and diversified portion of their diet, despite apparent access to ample land and resources.

For the four Primary Local Households, additional economic information was gathered, with the purpose of creating a rough annual budget for each household. Only three households were able to provide sufficient information for this budget to be constructed (households P10, P11, and P12). (See Appendix V: Principal Household Estimated Annual Budgets).

According to these budgets, the majority of these households' expenses are occupied by food (49.2%, 54.8%, 59.0% respectively), followed by domestic expenses and transportation. The remainder of expenses are composed of a mixture of lesser expenses, as well as construction expenses for the two households that have built houses during the past year (reflected in "Other" for Households P11 and P12), and school expenses for Household P10, which supports secondary school students (see Figure 24). It is also worth taking note that two of the three households report around 4% of annual expenses being spent on cell phones (P10, 4.1%; P12, 3.7%). This was attributed to physical damage resulting from travel and work outdoors in such a humid environment.

These budgets also allow a rough estimation of each household's disposable income.

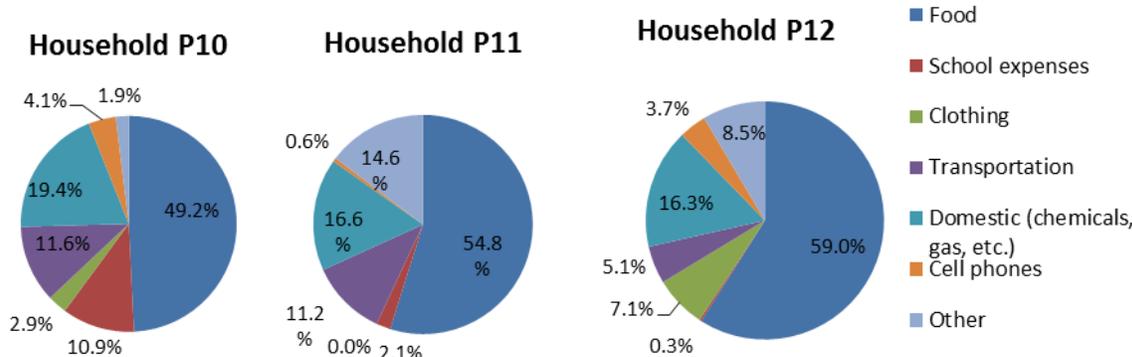


Figure 24: Percentage of income spent on various expense categories for three principal families

Two of these households' budgets result in a disposable income close to one quarter of annual income (P10 and P11, 24.1% and 24.5% respectively). The third household's budget is found to be slightly overspent (P12, -6.8%).

Notably, the disposable incomes of the first two households seem to be indicative of greater economic facility. This should be considered a substantively accurate comparative reflection of these households' economies, but the magnitude of these figures is likely inflated by numerous factors: the habit of regularly making and forgetting small and capricious expenditures; the rarity of bank accounts and other saving or investment practices (which likely promotes capricious spending); the uneven sharing and/or purposefully unreported spending of working members' income; and the imperfect nature of the interview process (collecting annual economic information during a single interview and without documentation for reference). Indeed, these households report that they cannot remember or estimate numerous other small expenditures, but that all money that is earned is consistently spent. Nonetheless, the fact that not all income is accounted for in these households raises the possibility that, with better financial practices and accounting, some

households may already have the ability to begin to collect savings for future security and investment.

Tourism

Tourism at Bluff has grown steadily over the past decade, tracking the growth in Bocas tourism in general. Furthermore, tourism in Bocas shows strong signs of continued growth, and investment in new construction and capacity is readily visible throughout the island. Thus, due to the projected expansion of the tourism sector, as well as the continued popularity of Bocas as an investment and/or retirement destination, development pressure at Bluff is high and continues to increase. At the current level of tourist infrastructure, the Bluff region's maximum hotel capacity is around 50 tourists (as estimated from information gathered during interviews with Bluff hotel owners). A previously operative hotel was recently sold and will soon reopen, and at least two other lodgings are known to be in planning. Thus, Bluff's tourist capacity is expected to continue to expand, and with it the pressure on Bluff's nesting habitat and the opportunity to benefit from properly controlled tourism as well.

In order to provide a baseline for ANABOCA's current business activity, information was collected from ANABOCA's 2011 tourism records, as well as from Bluff's three operative hotels (the source of the majority of ANABOCA's 2012 tourist flow). From this information it is possible to produce an estimate of ANABOCA's tourist flow and income production for the 2011 season, as well as a projection for the 2012 season. (For tables and calculations, see Appendix VI: ANABOCA Tourist Flow Estimates.)

It is important to note that, however inexact they may be, these calculations represent the best available means of gauging ANABOCA's economic activity to date. Due to a lack of formal business structure, accounting, and transparency, there is no formal record of donations received, distribution of funds, or earnings per guide for 2011, and only an incomplete record of donations received in 2012 up to present. Furthermore, no interviewees claimed quantifiable income from guiding during their households' respective interviews, and schedules of nights and tours worked by guides are neither fixed beforehand nor recorded afterward. (Thus guide earnings do not appear in the incomes cited in Appendix IV.) In future repetitions of this study, following ANABOCA's legal incorporation and the establishment of a stable and transparent administrative structure for Bluff turtle tourism, more comprehensive records will allow for proper accounting.

The total number of tourists recorded as having participated in turtle tours with ANABOCA during the 2011 season is 507, with peak activity having been during the

months of May to August (collectively representing more than 80% of total tourist flow for the season). ANABOCA's records do not track whether each tourist made the suggested donation (at present this is not a payment, as ANABOCA is not legally incorporated, and thus not legally able to receive payment), nor the amount donated per tourist. Thus, in Table 1, Appendix VI, estimated income for 2011 is calculated assuming that each tourist made the suggested donation, a seemingly fair assumption given most tourists' ignorance of ANABOCA's unincorporated status, as well as the tendency of deviations from non-donors and tipping donors to cancel out. Also, 2011 estimated income is calculated for four scenarios: assuming 100%, 75%, 50%, and 0% of tourists saw a turtle. Tourists who see a turtle are asked for a \$10 donation, while those who do not are asked for only \$5. Thus, this provides a range of estimated incomes for the 2011 season, with 75% reported by ANABOCA to be the most likely to be accurate.

According to these calculations, ANABOCA's total 2011 income was likely between \$2,535 and \$5,070. ANABOCA reports that 80% of each tourist's donation goes to a bank account managed on behalf of ANABOCA. Thus, ANABOCA is estimated to have banked between \$2,028 and \$4,056 in 2011. The remaining 20% of each donation is reported to go directly to the guide responsible for the tour from which that donation came. Thus, the guides are estimated to have earned collectively between \$507 and \$1,014 in 2011. Dividing these earnings between two, three, and four potential guides (as mentioned earlier, without any predetermined or posteriorly recorded guide schedule, it is impossible to say which and how many guides received what percentages of the total seasonal guide earnings), it is likely that guides earned between \$127 and \$507 during the 2011 tourist season.

These calculations result in a notably low monthly income relative to other common sources of income at Bluff. If we divide 80% of this across the four peak months, to reflect the monthly income likely experienced by the guides during peak season, this results in a monthly income between around \$25 and \$100 per month. For comparison, this range represents between 7% and 28% of the average monthly income (\$360) for hotel service work as calculated herein.

During the 2012 season, between March 1 and May 15, 295 tourists have been received, representing a total recorded income of \$2768 (ANABOCA began to record income in 2012, and though this record is imperfect, it provides a close approximation of actual income). This represents 4.3 times the estimated tourist count for this same period in 2011 (estimated at 69 tourists), and 4.6 times the estimated income (estimated at \$604, assuming 75% of tourists saw turtles). Thus, ANABOCA seems to have experienced a major increase in tourist flow between 2011 and 2012, primarily due to Bluff hotels' involvement in the promotion of their

operation. (Of note, the near parity of these two factors of increase also seems to provide validity to the figure of 75% as an estimated percentage of tourists seeing a turtle.)

This substantial growth in ANABOCA's tourist flow between 2011 and 2012 seems to be verified by estimates calculated from information gathered during hotel owner interviews. For each hotel, the following figures were gathered: average tourists per night, average nights per tourist, and percentage of tourists participating in ANABOCA's turtle tours (for calculations see Table 2, Appendix VI). From this information, it is possible to develop a rough projection of ANABOCA's tourist flow and income for the 2012 season. Treating May to August (the peak months of 2011) as representing 80% of the total year's tourist flow (as was the case in 2011), and accounting for ANABOCA's estimate that these hotels provide 75% of their 2012 tourist flow, the total tourist flow for the 2012 season is projected at 1,182 tourists. Finally, assuming again that 75% of tourists view a turtle, the projected gross income for the 2012 season is \$10,339. This represents 2.3 times the 2011 estimate. (Importantly, this projection is likely to be an underestimate, given that tourists from one of the Bluff hotels are regularly retrieved from this hotel's restaurant, and an undetermined and thus unaccounted proportion of these tourists are not actually guests at this hotel.) While there is great disparity between the factors of increase obtained from these two different calculations of ANABOCA's 2012 tourist activity, the calculations are in agreement that ANABOCA's tourist operation has experienced major growth between 2011 and 2012, having at least doubled in tourist flow.

Importantly, despite the increase in tourist flow from 2011 to 2012, there still seems to be room for growth. While no formal study has been executed to determine the beach's tourist capacity, a rough estimate suggests that ANABOCA's guides are currently operating at around three-quarters capacity (12 tourists per group x 1 group per night x 7 nights per week x 18 weeks during the leatherback nesting season between mid-March and mid-July = 1,512 tourists during the season, compared to the 1,154 projected to be received this year). Of note, this estimate only allows for tourism through mid-July, despite tourism having continued into October in 2011. This is because the STC recommends that tourism be prohibited with hawksbill turtles, which nest from May to October, given their high susceptibility to disturbance by human presence, and thus that tourist activity be largely concentrated within the mid-March to mid-July leatherback nesting season.

Furthermore, the STC, USAID, and the *Grupo Asesor* anticipate a considerable increase in the price of tours once proper training is provided for guides and spotters, thus raising the quality of the tourist product offered at Bluff's nesting beach. And

finally, if ANABOCA continues to work toward their longer-term vision, they will capitalize on the training and experience acquired through the turtle tourism initiative to begin to offer other tourist products (e.g. jungle tours, night hikes), which would not only increase income for ANABOCA members, but would also spread that income across a greater portion of each year.

CONCLUSIONS AND RECOMMENDATIONS

Bluff hosts a complex community, comprised of two distinct sub-communities which scarcely engage in communication or collaboration. The local community, a Ngöbe-Buglé population of both permanent residents and transient workers' households, lives in very pronounced poverty and in a state of social marginalization and unstable tenancy. Among households interviewed, living conditions are very rustic, and only two of 13 households are served by any municipal utilities; more than half (57.8%) of all individuals are under 20 years of age; all households are living on land owned by a non-local investor; nearly three quarters of individuals (74%) have no higher than a primary-school education; and average monthly income is \$260 among the working individuals, who represent less than half (44.2%) of all working-age individuals.

Simultaneously, the foreign resident community – a minority population of retirees, investors, and business owners of mostly European and North American origin – achieves a high standard of living, compensating through their private investment for the infrastructure and services that are not publicly available at Bluff.

The austerity of the local community can be viewed as both cause and effect of its scarcity of opportunities for personal and community development. It is also one of the main roots of the numerous causes of environmental degradation within the local community. Thus, the STC, USAID, and the collaborating alliance of regional stakeholders (collectively functioning as the *Grupo Asesor*) believe that programs offering economic alternatives to exploitative use of nature will also foster positive social development and an improved standard of living within the local community.

Given Bluff's viable sea turtle nesting habitat, as well as its proximity to and accessibility from Bocas Town, turtle tourism is thought to be the most promising such option for economic alternatives at this site. However, numerous factors challenge the establishment of such an operation, including: 1.) the lack of formality and transparency of ANABOCA's current tourism mechanism; 2.) wide private interest in turtle tourism activities; 3.) private interest in the development of Bluff Beach and its surrounding region; 4.) tension and poor understanding between Bluff's two sub-communities; 5.) the persistent lack of a management plan and administrative structure for the Bluff Beach Municipal Reserve.

In light of the current situation and its numerous challenges, the STC recommends the following steps toward the establishment of a controlled and successful turtle tourism initiative at Bluff:

- 1.) Continued development of the *Grupo Asesor*, a public administrative group composed of representatives from appropriate local stakeholders, whose goal is to control turtle tourism at Bluff in a way that: a.) minimizes impact on nesting turtles and their habitat; b.) provides economic opportunities and social empowerment for involved members of Bluff's local community, as well as improved dialogue and integrity for the Bluff community as a whole; and c.) achieves economic self-sufficiency for the alliance's administrative structure, tourism personnel, and the STC's beach monitors;
- 2.) The municipal and national governments' formal recognition of the *Grupo Asesor* as the sole group with the authority to administrate turtle tourism at Bluff;
- 3.) Development and direction of a training curriculum and regimen adequate to provide enough guides, "turtle spotters", monitors, and other operatives (according to staffing needs, as determined by the administrative group) to meet Bluff's tourist capacity (as determined by the biological parameters of the nesting habitat);
- 4.) Development of publicity and sales procedures adequate to meet the group's funding needs; and
- 5.) Establishment of a fund-distribution scheme that enables the group to achieve its goals of turtle protection, community empowerment and economic improvement, and fiscal sustainability.

Furthermore, apart from and subtending all needs directly related to the development of a successful turtle tourism initiative, the STC considers the protection status of the Bluff Beach Municipal Reserve to be an issue of paramount importance. It is recommended that the *Grupo Asesor*, along with any other interest groups in the region, lobby for the Reserve to be delivered into the protection of the SINAP. Once this is achieved, the Reserve must be provided a management plan that: 1.) lends adequate protection to Bluff's nesting habitat, and provides for the infrastructure and law enforcement that ensure that protection; 2.) provides for the STC's exclusive and long-term operation of all sea turtle research and conservation work carried out within the reserve; and 3.) establishes the *Grupo Asesor* as the administrative body for the Reserve, with its exclusive authority to administrate turtle tourism recognized

within the tourism program of the management plan. With protection of this caliber, Bluff's turtle population will be given the highest possible safeguard of their nesting habitat, and properly controlled turtle tourism will be feasible. In contrast, without this formal protection, all research, conservation, and tourism work at Bluff will remain in jeopardy, and Bluff's turtle population will depend on the maintenance of adequate nesting habitat in a reserve that hangs in legal limbo in the face of heavy development pressure.

Finally, the STC recommends that this study be repeated in 1-3 years, depending on the rate of growth of the turtle tourism initiative, in order to gauge resultant changes in the economic indicators, livelihoods, and conservation practices of the Bluff community. In the repetition of this study, it is recommended that consideration be paid to the following issues, which arose as challenges during the present study: 1) location and identification of households in a region with little community integrity and disparate population distribution; 2) justification of the study to households not directly involved with the turtle tourism initiative, to facilitate data collection from these important otherwise skeptical stakeholders.

V. APPENDICES

Appendix I: Letter of Recognition of ANABOCA, from Mayor



Appendix II: Community Profile

COMMUNITY PROFILE (information collected during community meeting on March 16, 2012)

| | |
|------------------------------------|--|
| General | |
| Country: | Panama |
| Province: | Bocas del Toro |
| Community: | Bluff Beach |
| Location: | Northeast Coast of Isla Colón |
| Terrain/topography: | Coast, hills going inland; some forest, some farmland |
| History of settlement: | Settled by families from the Comarca Ngöbe-Buglé, 70-80 years ago |
| Geology: | mostly poor soils, coral/limestone bedrock |
| | |
| Population | |
| Number of houses: | estimated 15-20 |
| Number of people: | estimated 60-80 |
| | |
| Natural Capital | |
| 1. Potable water | |
| <i>Where from</i> | some families use rainwater, tanks at home; wells, secondarily, especially during dry season; sometimes bleach is added |
| | |
| 2. Wastewater and treatment | |
| <i>Water treatment systems</i> | some houses have separate wells for washing, others no; some people always wash in the creeks; no treatments systems, everything runs off/percolates |
| | |
| 3. Waste | |
| <i>Sources of organic waste</i> | food; directly applied to plants, fed to pigs, etc |
| <i>Sources of synthetic waste</i> | food purchases and other purchases in Bocas Town |
| <i>Retrieval, to where</i> | None |
| <i>Local treatment</i> | burning, or burying |
| | |
| 4. Land | |
| <i>Distribution</i> | houses are constructed wherever; no titles, but whoever who has been there for a long time just stays there; some families have titled and sold land, but infrequently; each family manages its own land |
| <i>Titles</i> | None |
| <i>Conflicts</i> | land supposedly owned by a Jewish man from Panama City, who arrived 15 years ago with papers to prove it; since then, have been in conflict |
| <i>Communal lands</i> | |
| <i>Protected areas</i> | Bluff Beach Municipal Reserve, from the beach to the road, declared by the municipality, they don't know how long ago |

Appendix II: Community Profile (cont.)

| | |
|---|--|
| 5. Sources of energy | |
| <i>Public services</i> | None |
| <i>Local sources</i> | one community member has a gasoline-powered generator, lends it at times; otherwise use batteries |
| | |
| 6. Extractive uses of coastal marine resources | |
| <i>Resources used (mangrove, fish, lobster, turtle, sand, etc.)</i> | fish (home consumption only), lobster, shrimp, turtle (the community has never eaten turtle or eggs, only people from Bocas Town, for consumption and sale), sand (since many years ago, for a lot of buildings on the island, extracted day and night, only stopped 2-3 years ago), iguanas (blacks from Bocas), agouti, coconuts |
| | |
| 7. Non-extractive uses of coastal marine resources | |
| <i>Uses (tourism, education, research, arts, artisan production, history, celebration, cultural significance)</i> | research, tourism, surfing, relaxing and walking on beach, television commercials, weddings, a <i>Survivor</i> -type TV show from Colombia, one soap opera |
| | |
| 8. Sea turtles | |
| <i>Species</i> | Hawksbill, leatherback |
| <i>Nests per year</i> | Leatherback approx. 300; Hawksbill approx. 120 |
| <i>Local use/consumption</i> | The community doesn't kill or eat sea turtles; nobody knows why |
| <i>Use/consumption outside the community</i> | Mostly people from Bocas coming in to poach and rob eggs |
| <i>Recent changes in use/consumption</i> | Less since beach monitoring started |
| | |
| 9. Fishing | |
| <i>Fishing activity</i> | people only fish in a certain season, when the sea is calmest (starting in April or so); dive to catch fish, lobster, etc; for local consumption (some lobster sold) |
| <i>Changes in fishing effort required per unit yield</i> | almost everything has diminished; years ago, there were always sardines, turtles, lobster, now all very rare |
| | |
| 10. Activities of environmental protection | |
| <i>Current activities</i> | ANABOCA (has a variety of projects, formed to provide Bluff community a better income from turtles, after the turtle work done by Caríbaro, a conservation organization that paid the Bluff community very little), previously there was a little bit of environmental education at the school |
| | |

Appendix II: Community Profile (cont.)

| | |
|---------------------------------------|--|
| Physical Capital | |
| 1. Roads | |
| <i>Condition</i> | sand, dirt, rock |
| <i>From/to</i> | from Bocas Town to Mimitimbi (north of Bluff) in a good 4X4 car; to Boca del Drago (north extent of Isla Colón) walking or on horseback; Ministry of Public Works is supposedly going to pave the road all the way to Boca del Drago; walking path to Colonia Santeña, on the main highway |
| | |
| 2. Transportation | |
| <i>Modes</i> | |
| <i>Costs</i> | taxi, bike, horseback, motorcycle, hotel owners have private cars |
| | taxi costs \$10 each way to Bocas Town |
| 3. Health | |
| <i>Closest health centers/clinics</i> | private taxi trip to Bocas Town, public health center/hospital |
| <i>Most common uses</i> | fever, colds (taken care of locally); diarrhea/vomiting/stomach pains |
| | |
| 4. Housing | |
| <i>Number of houses</i> | estimado 15-20 |
| <i>Type of materials</i> | wood, with thatch and/or zinc |
| <i>% owned</i> | yes, many built their own houses |
| | |
| 5. Markets | |
| <i>Sales of local goods</i> | few, sometimes extra crops |
| <i>Consumption of foreign goods</i> | food, other goods |
| | |
| 6. Communications | |
| <i>Telephone</i> | only cell phones, bad signal (Más Móvil is the provider with the best signal) |
| | |
| 7. Education | |
| <i>Centers</i> | primary school, secondary school never finished |
| <i>Quality</i> | basic, some people prefer to send their kids to school in Bocas Town |
| | |
| 8. Basic sanitation | |
| <i>Services at home</i> | Latrines |
| | |
| Social/Cultural Capital | |
| 1. Ethnicity | |
| <i>Identities</i> | Ngöbe |
| <i>% of each</i> | almost 100% |

Appendix II: Community Profile (cont.)

| | |
|--------------------------------|---|
| 2. Religion | |
| <i>Beliefs</i> | Catholic, Jehovah's Witness, some others |
| <i>Churches</i> | None |
| | |
| 3. Languages | |
| <i>Spoken locally</i> | Spanish, Ngöbere |
| | |
| 4. Cultural activities | |
| Theater | None |
| Dance | None |
| Music | None |
| Sports | baseball, soccer |
| Conferences, assemblies | ANABOCA, First Great Assembly (2 years ago) |
| Etc. | not much, indigenous culture isn't practiced much anymore |
| | |
| 5. Established groups | |
| <i>Groups</i> | ANABOCA |
| <i>Number of members, each</i> | 12, more or less |
| <i>Ages of members, each</i> | majority youth (16 to 28) |
| <i>Ages of groups</i> | group is 2.5 years old |
| <i>Objectives, each</i> | community conservation and economic opportunities for the community |
| | |
| 6. Local celebrations | |
| <i>Activities</i> | Children's Heritage Celebration, once a year, with the school |
| | |

Appendix III: Copy of Questionnaire

| Encuesta - estudio linea de base socioeconómico, Playa Bluff, 2012 | | | | | | | | | |
|--|-------------------|--------------|---------------------|-----------------|---------------------|-----------|----------|------------------|--------------|
| <i>* todos datos de ingresos y gastos deben ser para el periodo de diciembre 2010 a diciembre 2011</i> | | | | | | | | | |
| SECCIÓN 1 (todos participantes): | | | | | | | | | |
| I. Familia y Indicadores Sociales: | | | | | | | | | |
| # | Nombre | Apellido | Sexo | Edad | Nivel Educ. | ¿Trabaja? | Religión | Identidad étnica | Nacionalidad |
| I | | | | | | | | | |
| II | | | | | | | | | |
| III | | | | | | | | | |
| IV | | | | | | | | | |
| V | | | | | | | | | |
| VI | | | | | | | | | |
| VII | | | | | | | | | |
| VIII | | | | | | | | | |
| IX | | | | | | | | | |
| X | | | | | | | | | |
| XI | | | | | | | | | |
| XII | | | | | | | | | |
| XIII | | | | | | | | | |
| XIV | | | | | | | | | |
| XV | | | | | | | | | |
| XVI | | | | | | | | | |
| XVII | | | | | | | | | |
| XVIII | | | | | | | | | |
| XIX | | | | | | | | | |
| XX | | | | | | | | | |
| II. Hogar y Recursos: | | | | | | | | | |
| Ubicación: | | | | | | | | | |
| Tipo de material: | | | | | | | | | |
| Area estimada (m ²): | | | | | | | | | |
| Area estimada de terrenos (m ²): | | | | | | | | | |
| Recursos agrícolas: | | | | | | | | | |
| Recursos de agua: | | | | | | | | | |
| Recursos de saneamiento: | | | | | | | | | |
| Recursos construidos: | | | | | | | | | |
| Recursos de inversión económica: | | | | | | | | | |
| III. Indicadores económicos | | | | | | | | | |
| a. Trabajo y ingresos: | | | | | | | | | |
| # | trabajo principal | meses activo | ingresos / quincena | trabajo secund? | ingresos / quincena | | | | |
| II | | | | | | | | | |
| III | | | | | | | | | |
| IV | | | | | | | | | |
| V | | | | | | | | | |
| VI | | | | | | | | | |
| VII | | | | | | | | | |
| VIII | | | | | | | | | |
| IX | | | | | | | | | |
| X | | | | | | | | | |
| X | | | | | | | | | |
| XII | | | | | | | | | |
| XIII | | | | | | | | | |
| XIV | | | | | | | | | |
| XV | | | | | | | | | |
| XVI | | | | | | | | | |
| XVII | | | | | | | | | |
| XVIII | | | | | | | | | |
| XIX | | | | | | | | | |
| XX | | | | | | | | | |

Appendix III: Copy of Questionnaire (cont.)

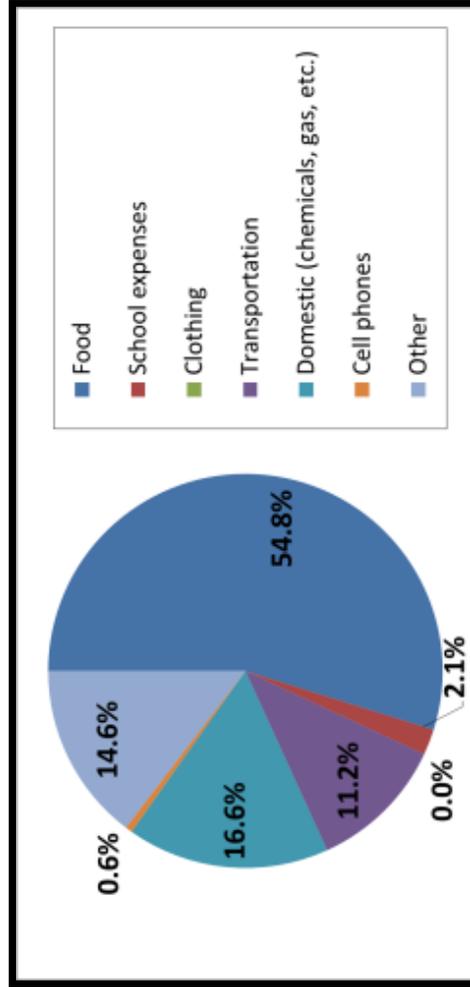
| | | | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|--|--|
| SECCIÓN 3 (hoteleros): | | | | | | | | | | | |
| I. Instalaciones | | | | | | | | | | | |
| Descripción de instalaciones: | | | | | | | | | | | |
| Actividades/infraestructura que pueda impactar a las tortugas: | | | | | | | | | | | |
| Actividades/infraestructura con propósito de evitar impacto a las tortugas: | | | | | | | | | | | |
| Negocios: | | | | | | | | | | | |
| Ventas/negocios ofrecidos: | | | | | | | | | | | |
| Meses activos: | | | | | | | | | | | |
| # estimado de clientes/mes: | | | | | | | | | | | |
| # estimado de noches/cliente: | | | | | | | | | | | |
| % estimado de clientes que hacen tour de tortugas (durante la temporada): | | | | | | | | | | | |
| ¿Trabajadores? | | | | | | | | | | | |
| ¿Publicidad? | | | | | | | | | | | |
| ¿Apoyo brindado al proyecto de ANABOCA? | | | | | | | | | | | |

Appendix IV: Summary of Information Collected from Interviews (cont.)

| INTERVIEWEE GROUP | FAMILY ID | MEMBER ID | Sex | Age | Level of Education | Religion | Ethnic Identity | Nationality | Work (in past year)? | Principal Work | Annual Income (\$) (as reported for 2011 calendar year) | Housing Material | Roofing Material | Land (ha) | Own land? | Cooking method | Principal source drinking water | Principal source non-drinking water | Human waste | Other resources of economic investment | % food produced | % food bought within community | % food bought outside community | Involved in ANABOCA? | |
|-----------------------|-----------|-----------|-----|-----|--------------------|----------|-----------------|-------------|----------------------|----------------|---|------------------|------------------|-----------|-----------|----------------|---------------------------------|-------------------------------------|-------------|--|-----------------|--------------------------------|---------------------------------|----------------------|--|
| Foreign Residents (F) | 11 | P11cF | 40 | 2 | - | N | P | - | Y | FW | 2,880 | w | t z | 4.0 | N | g | r | w | l | bank account | 60% | 0% | 40% | Y | |
| | | P11dM | 24 | 7 | - | N | P | Y | - | HS TT | 8,800 | | | | | | | | | | | | | | |
| | | P11eM | 23 | 8 | - | N | P | Y | - | | | | | | | | | | | | | | | | |
| | | P11fF | 18 | 6 | - | N | P | - | Y | OT | 600 | | | | | | | | | | | | | | |
| | | P11gM | 14 | 6 | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | | P11hF | 12 | 6 | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | | P11iM | 1 | - | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | | P11jF | 1 | - | - | N | P | - | Y | HS | | | | | | | | | | | | | | | |
| | | P11kM | 21 | 12 | - | N | P | Y | Y | FW | 3,168 | | | | | | | | | | | | | | |
| | | P11lM | 44 | 6 | - | N | P | Y | Y | | | | | | | | | | | | | | | | |
| | | P11m | 0 | - | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | 12 | P12aM | 30 | u | - | N | P | Y | Y | CO CA TT | 6,600 | w | t | | N | w g | r | w | l | - | 10% | 20% | 70% | Y | |
| | | P12bF | 24 | 6 | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | | P12cF | 4 | - | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | | P12dM | 2 | - | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | 13 | P13aM | 41 | 6 | - | N | P | Y | Y | FW | | w | t z | | N | w | w | l | - | - | 0% | 35% | Y | | |
| | | P13bM | 18 | 5 | - | N | P | - | - | TR (12) | | | | | | | | | | | | | | | |
| | | P13cM | 16 | 5 | - | N | P | - | - | TR (12) | | | | | | | | | | | | | | | |
| | | P13dM | 13 | 4 | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | | P13eF | 7 | - | - | N | P | - | - | | | | | | | | | | | | | | | | |
| | 14 | F14aM | 59 | u | - | C | U | - | - | | | c w | s | 0.4 | Y | g | r | r | m | off-the-grid infrastructure | - | - | - | n | |
| | | F14bF | 59 | u | Y | C | U | - | - | | | | | | | | | | | | | | | | |
| | 15 | F15aM | 41 | 12 | A | C | U | Y | Y | OT | - | c w | z | 0.4 | Y | na | na | na | na | condos in Bocas | - | - | - | n | |
| | 16 | F16aF | 61 | u | - | C | U | Y | Y | OT | - | c w | z s | 0.3 | Y | g | r | r | m | real estate agency | - | - | - | n | |
| | | F16bM | 65 | u | - | C | U | Y | Y | OT | | | | | | | | | | | | | | | |
| | 17 | H17aF | 54 | m | - | C | S | Y | Y | HO | - | c w | s | | Y | g | r | r | m | off-the-grid infrastructure | - | - | - | t | |
| | 18 | H18aM | 60 | u | - | C | C | Y | Y | HO | - | c w | s | 2.0 | Y | g | r | r | m | off-the-grid infrastructure, farm | - | - | - | t | |
| | 19 | H19aM | 43 | u | - | C | H | Y | Y | HO | - | c w | z s | 23 | Y | g | r | r | m | restaurant, jungle tours, frog breed- | - | - | - | t | |
| | | H19bF | 41 | u | - | C | H | Y | Y | | - | | | | | | | | | | | | | | |
| | | H19cF | 4 | k | - | C | H | - | - | | - | | | | | | | | | | | | | | |
| | | H19dF | 6 | 1 | - | C | H | - | - | | - | | | | | | | | | | | | | | |

Appendix V: Principal Household Estimated Annual Budgets (cont.)

| Work and Member | | Food | | | | Other Income and Expenses | | | | Annual Financial Info | | | | |
|-----------------|---------------|----------|---------------|---------------------|---------------|---------------------------|---------------|-------|---|--|------------------|----------------|------------------|---------------------------------|
| 11a | Annual Income | Produced | Bikekly value | Bought within Comm. | Bikekly value | Bought outside Comm. | Bikekly value | Sales | Annual Income from Sales | Resources Bought | Bikekly Expenses | Other Expenses | Bikekly Expenses | Value Produced |
| 11b | \$2,880.00 | banana | \$28.80 | - | home food | \$195.00 | - | - | domestic agrochem school construc. gas gasoline | \$25.00 medical \$7.50 taxi \$7.50 cell mins \$12.50 | \$32.08 | | \$32.08 | \$13,552.00 |
| 11c | \$4,600.00 | plantain | \$67.20 | - | | | | | | | \$40.00 | | \$40.00 | \$11,248.00 |
| 11d | | | | | | | | | | | \$2.00 | | \$2.00 | \$8,534.00 |
| 11e | \$600.00 | | | | | | | | | | | | | \$2,714.00 |
| 11f | | | | | | | | | | | | | | Food 54.8% |
| 11g | | | | | | | | | | | | | | School 2.1% |
| 11h | | | | | | | | | | | | | | Clothing 0.0% |
| 11i | | | | | | | | | | | | | | Transportation 11.2% |
| 11j | | | | | | | | | | | | | | Domestic (chem, gas, ...) 16.6% |
| 11k | | | | | | | | | | | | | | Cell phones 0.6% |
| 11l | \$3,168.00 | | | | | | | | | | | | | Other 14.6% |
| 11l | | | | | | | | | | | | | | Disposable 24.1% |



Appendix V: Principal Household Estimated Annual Budgets (cont.)

| HOUSEHOLD P12 | | Annual Financial Info | | | | | | | | | | | | | | | | | | | | | |
|---------------|---------------|-----------------------|---------------|------------|----------------|------------|---------------------------|-------------------|---------------|------------|-----------|-----------------------|-------------------|----------------|-------------------|----------------|--|---------------------------|--|-------------|--|-------|--|
| Work and | | Food | | | | | Other Income and Expenses | | | | | Annual Financial Info | | | | | | | | | | | |
| Member | Annual Income | Produced | Bought within | Comm. | Bought outside | Comm. | Biweekly value | Sales | Annual Income | From Sales | Resources | Bought | Biweekly Expenses | Other Expenses | Biweekly Expenses | | | | | | | | |
| 12a | \$6,600.00 | banana | plantain | home food | school | domestic | taxi | - | - | - | - | - | - | - | - | | | | | | | | |
| 12b | \$6,600.00 | yucca | banana | yucca | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | |
| 12c | \$7,048.10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | |
| 12d | \$448.10 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | | | |
| | | Value Produced | | Income | | Expenses | | Disposable Income | | Food | | School | | Clothing | | Transportation | | Domestic (chem, gas, ...) | | Cell phones | | Other | |
| | | \$6,864.00 | | \$6,600.00 | | \$7,048.10 | | \$448.10 | | 59.0% | | 0.3% | | 7.1% | | 5.1% | | 16.3% | | 3.7% | | 8.5% | |

