

THE MULTIPLE RELATIONSHIPS AMONG LOCALS
AND THE SOUTHWEST COASTS IN PUERTO RICO

By

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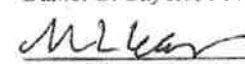
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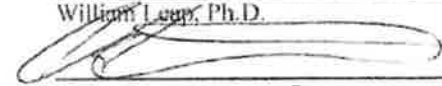
In


Anthropology

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To Doreen Massey 1944-2016

To the residents of Guánica and Lajas in Puerto Rico

To open up spaces for interventions among those who self-identify as Puerto Rican

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ABSTRACT

Anthropologists and other scholars have a renewed interest in “space,” “place,” and “landscape.” They recognize that one of the greatest challenges in social theory involves identifying the multiple social relationships that occur simultaneously in a geographic area. While sociocultural anthropologists have focused on meaning-making processes to study multiple social relationships, cultural and critical geographers have paid attention to issues of scale and time to explain the centrality of social spaces.

This ethnographic research examines how the on-site activities of different groups of residents based on their social backgrounds relate to a beach and a phosphorescent bay on the southwest coast of Puerto Rico. Three groups of residents, technical experts, and short-term visitors are compared based on age, employment, place of residency, and education. Ethnography is both a method and a theory building tool that supplements the frameworks of uneven geographic development and of the global sense of place. Over 17 months of fieldwork, I conducted participant-observations in sea-based events and chosen coastal locations, completed 20 life-story interviews, and did archival research of science, history, and literature.

Different groups of Puerto Ricans use and experience Manglillo beach and the phosphorescent bay of Bahía Fosforescente in qualitatively different ways -- constantly affected by power dynamics and inequality. Three main findings explain these complex and long-standing issues of access and use. First, Manglillo beach and Bahía Fosforescente transformed

from open-access areas in protected areas into recreational hubs with multiple uses. These areas have attracted residents as a major segment of visitors over the past 40 to 60 years, since the 1970s for the beach and the 1950s for the bay. Second, I observed variation in the local spatial understandings among residents informed by their on-site activities of sea bathing and gathering in groups, which I recognize as “recreation as socializing.” Third, other communicative strategies beyond language use help residents explain the changes occurring on the material and social attributes of these areas.

An important contribution of this study is the finding that the social uses change the characteristics of the geographical areas, or “social spaces.” Another involves finding openings or possibilities in the political realm to work from the premise of the “social spaces” informed by the qualities of heterogeneity and relationality. Additionally, the political and economic context of Puerto Rico highlights that the coastal property rights are unique, and these have influenced the transformations at Manglillo and Bahía Fosforescente.

In times of “crisis,” this kind of anthropological research is urgent. Since 2015, Puerto Rico has been facing a series of legal, social, and political-economic issues that have resulted in a large out-migration, high public debt, and a potential humanitarian crisis that may reduce basic services for residents. These issues may additionally impose limits to, or even erase, the multiple uses of and access to the Puerto Rican coasts by residents and others.

ACKNOWLEDGMENTS

“The best dissertation is a done dissertation.”

Like any other project, a combination of people, ideas, and places co-constituted this longitudinal anthropological project.

Among the most important life-lessons in graduate school has been offered by my main advisor, Dan. While at distance in Puerto Rico and on campus in DC, he trusted that like I am doing, everyone else is doing the best they can. This sense of compromise tainted with a good dose of simplicity and practicality are in my view among the best traits that facilitated me completing this thesis or writing project. I am grateful for your encouragement for me to finish and set a defense date. I realized that you are standing in the door, holding it, and waiting for me to pass en route to get my degree. There are no words that can express my gratitude and joy for your presence in accompanying me in this process.

Additionally, I asked linguist Dr. William Leap to join my committee. My journey as a writer has had it twists and turns mainly in my years of graduate school. As a professor, Bill underlined having no doubt that it was a matter of time and gaining adequate skills for me to learn academic writing. Thank you. This kind of unconditional support is rare in academia. I also appreciate connecting me with Angela Dadak and Ed Comstock in the Literature Department.

My committee reflects my belief in the need to insert the anthropological and ethnographic view in public and contemporary debates in and outside the United States.

A group of sociocultural anthropologists accompanied me in this journey. María Pérez has been an ally, friend, and role model of what it means to pursue an academic career as a woman of color studying ethnographically land-water areas, or caves, both in Latin America and the Caribbean. Alessandra Rosa, a Puerto Rican woman studying Puerto Rico, was one of my “online” buddies to review some of the early versions of this dissertation. Philip Kao provided

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My family, nuclear and extended, have been instrumental for me while completing this project. My aunts, uncles, and cousins (and their partners plus the new generation) in Puerto Rico became another source of energy, *vacilón*, and unconditional love. San Juan and New York turned into major hubs of what I recognize now as a Puerto Rican “intra-migration.” While eight of 17 cousins are now living in the United States, some of my closest high school UHS friends returned to San Juan. From New Jersey, DC, or wherever I may be, I am grateful to have the doors open to spend time with my brother José, wife Tara and my nephews, Víctor and Viola.

The National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) and American University have provided partial funding for completing this study.

PREFACE

“De playa en playa”

Author: Caymmi Rodríguez

Song¹ from Puerto Rico about socializing while visiting beaches
<https://www.youtube.com/watch?v=KmwAbQiAVHY> to listen to it
3:42 minutes Plena and Bomba Mix
Grupo Atabal de Puerto Rico

[Coro] Me la paso de playa en playa.
Ven conmigo a pasarla bien.
Me la paso de playa en playa.
Si quieres fiesta, prepárate.
[Repíte]

[Música]

Mira ya amaneció, en el cielo no hay nubes, sólo hay sol
Ven vámonos a gozar, animate conmigo a disfrutar.
Ah, ya la gente se activó, música, aquí el party se prendió.
Ven vámonos a gozar, sin miedo ponte a cantar con mi coro que dice, qué cómo dice.

[Coro]

Que yo me voy de Piñones a Rincón, de la Guancha hasta San Juan.
Ya yo llamé a mi gente. “Wee!” Todos dicen que van.
El sol calienta, y en la arena mis tambores sonarán, que sonarán.
Hay aviso de tsunami “cuidao,” porque llegó Atabal.

[Coro]

Tú te pones a vacilar, y los tambores a sonar, y tu verás.
Que yo me voy para Rincón, que yo me voy para San Juan voy a gozar.
Yo se lo dije a Tito, “Yo te invito.” Y tú vas pa allá.
Ya hay aviso de tsunami “cuidao,” porque llegó Atabal.

[Coro]

Mira ya amaneció, en el cielo no hay nubes, sólo hay sol
Prepárate a bailar, sin miedo ponte a cantar, mi coro es qué dice, cómo es qué dice.
[Coro]

¹ I obtained authorization in August 2015 to use in this manuscript and presentations by composer of this song.

GLOSSARY

Bahía Fosforescente -refers to a large size southwest bay in Puerto Rico with coastal bioluminescence in Lajas. This type of bioluminescence occurs on its surface waters due to the movement of microorganisms called “Pyrodinium bahamense” that are not harmful for humans and/or fish.

Bioluminescence - refers to a phenomenon in which living organisms emit light for a variety of purposes including a biological and chemical functions.

By-Pass - refers to the construction of a human size hole or ‘open-fence’ in an area located on the coasts meant to be enclosed for example to follow the goals of biodiversity conservation in a protected area.

Fomento or Fomento Recreativo - Compañía de Fomento Recreativo de Puerto Rico

Magueyes - refers to a large size cay near the *poblado* of Parguera in Lajas. Today, this is satellite campus of the Department of Marine Sciences of the University of Puerto Rico-Mayagüez.

Manglillo - refers to a mangrove area in Guánica that is currently used for bathing, recreation, and beach uses in the southwest of Puerto Rico. Historically, this coastal tip was a reference point for sailors.

Poblado - a sociocultural unit for referring to particular small size areas than *barrios* and municipalities

Southwest - refers to two coastal municipalities of Guánica and Lajas (east to west).

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LIST OF ACRONYMS

AEELA - Asociación de Empleados del Estado Libre Asociado de Puerto Rico, Association of Employees of the Commonwealth of Puerto Rico

CARICOM - The Caribbean Community Secretariat

CIEL - Centro Interdisciplinario de Estudios del Litoral or Center for Coastal Studies University of Puerto Rico Mayagüez Campus

CPN - Compañía de Parques Nacionales de Puerto Rico, or Puerto Rican National Park Service

DC - District of Colombia, or Washington DC

DRNE - Departamento de Recursos Naturales y Ambientales de Puerto Rico, or Puerto Rican Department of Natural Resources and Environment

DMS - Department of Marine Sciences University of Puerto Rico Mayagüez Campus

IRB - Institutional Review Board

MAB - Man and the Biosphere Program, UNESCO

MPA - Marine Protected Area

NPS - US National Park Service

NOAA - National Oceanic and Atmospheric Administration, Department of Commerce

Para La Naturaleza - Puerto Rico Conservation Trust, or Fideicomiso de Conservación.

Parques Nacionales - Puerto Rican National Park Service

PRTC or Turismo - Compañía de Turismo de Puerto Rico, or Puerto Rico Tourism Company

PR - The Commonwealth of Puerto Rico, or the Unincorporated Territory of the United States

SCORP - US Statewide Comprehensive Outdoor Recreation Plan, US National Park Service.

UNESCO - United Nations Educational, Scientific, and Cultural Organization

UPR - University of Puerto Rico

UPRM - University of Puerto Rico Mayagüez Campus

US or USA - United States of America

CHAPTER 1

INTRODUCTION

Overview of the Project

Anthropologists and other scholars have a renewed interest in the triad of the concepts of “space,” “place,” and “landscape” (Giesecking et al. 2014; Low 2014); this interest emerged after what has been coined as the “spatial turn” in the 1990s (Lawrence and Low 1990; Lawrence-Zúñiga and Low 2003). Specifically, this group recognized that one of the greatest challenges in social theory involves identifying the multiple social relationships that occur simultaneously in a geographic area. While sociocultural anthropologists have focused on meaning-making processes around the world to study multiple social relationships, cultural and critical geographers have paid attention to issues of scale and time to explain the centrality of social spaces (D. Harvey 2006b; Massey 2005; Smith 1984). In sum, social scientists and scholars in the humanities focus on the role of “social space(s),” or disentangling multiple social relationships, by analyzing the interactions of ideas and/or activities by people and how, in turn, these engagements form social relationships between people and their surroundings.

Typically, scholars examine either human activities or ideas to capture social spaces. To achieve this, I agree with sociocultural anthropologists applying different theoretical lenses to the concept of “social space(s)” that offer entry points that, when informed by ethnography, equip analysts to disentangle the layers of the multiple social relationships. While I disagree with many sociocultural anthropologists, I align myself with a small number (Ganapathy 2013; Sayers 2014) as well as with critical geographers (D. Harvey 2006b; Massey 2005; Smith 1984). This group broadens current thinking about social spaces by looking at people’s background in the context of power dynamics and issues of social inequality. For example, this group applies a

political-economic perspective to situate people's actions in place in regards to their role in history (or in time), which tends to privilege some groups and not others. Also, scholars interested in social spaces applying political-economy insist on examining issues of time, scale, and social difference.

Among political economists, the uneven geographic development² framework has gained importance from the 1980s through the present. Neil Smith, David Harvey, and Doreen Massey³ have insisted on the benefit of applying the framework of uneven development and history (time) to explain the impact on the ways in which people form multiple social relationship in place (D. Harvey 2006b; Massey 1994, 2005; Smith 1984). In the United States, Smith and Harvey remain lead figures for thinking about social spaces impacted by uneven development, emphasizing the importance of history and cities. In the United Kingdom and Latin America, Massey looks at multiple social relationships by examining the following: social difference, the relational quality of space, time, and local and regional scales. I believe that examining uneven development can expand current thinking about social spaces.

Within the United States, anthropologists Daniel Sayers and Sandhya Ganapathy have examined social spaces by applying uneven development and the global sense of place and space, respectively (Ganapathy 2013; Sayers 2014). This means that both Sayers and Ganapathy relate to the work of Smith, Harvey, and Massey, which shows a renewed interest in social space (Giesecking et al. 2014). For example, Sayers analyzes the role of social difference by looking at race and ethnicity of those residing within a swamp area between the 1600s and mid-1800s in the United States. Sayers' team used material culture to show the diasporic modes of

² In this manuscript, I will refer to uneven geographic development as "uneven development."

³ I also read a Spanish book describing the framework of global sense of place, in Spanish titled *Un sentido global del lugar* (Albet and Benach 2012).

communitization in which three groups of Native Americans, Maroons, and channel workers settled as well as went in/out of the swamp to work in wage labor in what is today a protected area in the North Atlantic. Unlike Sayers, cultural anthropologist Ganapathy examines the current ways that Alaskan Natives (locals) understand their surroundings in another part of the United States -- Alaska -- which tends to be different from the ideas among managers and others (translocal) in another protected area that leverage pressures for oil development.

Following this group of anthropologists and critical geographers, my dissertation study anchors in sociocultural anthropology to apply the concept of social spaces as it is understood by the residents of a US territory, Puerto Rico. I compare three groups of residents and how individuals from these groups relate to the beaches and the phosphorescent bays located in the southwest of the main island of Puerto Rico. Looking at people's on-site activities, I situate these within a contemporary society marked by uneven geographic development (D. Harvey 2006a; Massey 2005; Sayers 2014; Smith 1984) and facing a financial crisis. In doing so, this study applies a political-economic perspective that centers on examining the social difference among groups of residents of Puerto Rico looking at age, gender, residency, employment, and education.

In terms of the concept of social spaces, this ethnography pays attention to the on-site activities defined as the observed human actions occurring at beaches and phosphorescent bays in Puerto Rico. As an undefined US territory, I conceive that Puerto Rico has a colonial legacy -- first with Spain and from 1898 to the present with the United States (Trías-Monges 1999). In this study, the on-site activities of residents are connected to their understandings about the multiple uses⁴ occurring in the southwest coastal areas; the multiple uses identified by participants include

⁴ A phrase employed by environmental organizations to define these abundant and different types of uses is "multi-uses" or "multiple uses" -- see, for example, the UNESCO Biosphere Program and marine protected areas (Pittman et al. 2010).

recreation, biodiversity conservation, scientific research, and public uses. The findings from this ethnography show a preference among residents for recreational uses and other social uses listed by participants: biodiversity conservation, scientific research, and public uses. Recreation is defined as a leisure-oriented activity, different from tourist activities (Stonich 2000; Stronza 2001), or what others conceive as the Puerto Rican and Caribbean “economies of resort” (Pantojas-García 2006). In this study, I define recreation as non-extractive, leisure, low-cost or free, and voluntary activities. In sum, I trace on-site activities and their meanings for listed social uses occurring in these chosen sites among socially distinct groups of residents.

As Puerto Rico has been characterized as a Caribbean archipelago (Áyala and Bernabe 2007), the chosen two nearby coastal areas of Manglillo beach and the bay of Bahía Fosforescente reflect this quality of areas with archipelagic features. These areas are located in approximately 12 miles of coasts within the municipalities of Guánica and Lajas (Guevara-López and Soriano-Miranda 1996). Also, Guánica’s coasts show a peninsula, or an area surrounded by sea water on three sides. Additionally, the Lajas coasts offer a nearby marine environment located in an approximately three nautical mile area, filled with approximately 30 islets and cays -- ideal for scuba diving.

In this study, ethnography is both a method and a theory building tool (Nader 2011) in order to supplement the frameworks of the global sense of place (Massey 2005) and of uneven geographic development (D. Harvey 2006b; Sayers 2014; Smith 1984). To develop this anthropological study, I traced the occurrence of on-site activities in a beach and a bay as well as compared these sites over a period of 17 months of fieldwork. For this, I applied three interwoven methodologies to develop an ethnography (Nader 2011): participant-observations in

sea-based events and chosen coastal locations, 20 life-story interviews, and archival research of science, history, and literature.

Three main findings emerged from this anthropological study. The first finding supports that each of the sites of Manglillo beach and Bahía Fosforescente (phosphorescent bay) transformed from open-access areas in protected areas into recreational hubs with multiple uses, attracting residents as a major segment of visitors. This change happened in the past 40 to 60 years, approximately since the 1970s for the beach and the 1950s for the bay. The second finding shows a variation in the understanding among residents in relation to their on-site activities of sea bathing and gathering in groups, which I recognize as “recreation as socializing.” The third finding reveals how the material and social attributes of the southwest coastal areas of Puerto Rico provide other communicative strategies beyond language use to situate a person’s understanding of their on-site activities.

The implications from this study suggest that a renewed interest in the concept of social spaces among scholars must recognize that different groups of residents in southwest Puerto Rico use and experience Manglillo beach and Bahía Fosforescente in qualitatively different ways, constantly affected by power dynamics and social inequality. Also, this investigation emphasizes the value of ethnography to assess how people relate to their surroundings. Lastly, residents expressed gaining a sense of wellbeing from having “open access” or public access and use of these coastal areas throughout their lives. In times of “crisis,” this kind of anthropological and ethnographic research is urgent. Shortly after this study ended data collection in 2015, and continuing to today (2017), Puerto Rican society began to face a series of legal, social, and political-economic pressures that may pose additional limits, or even erase, the multiple uses of and access to the Puerto Rican coasts by residents and others.

Main Research Questions

For this study, I developed a group of four research questions to guide my thinking of “coastal spaces” as multiple or heterogeneous and their relationality, looking at what people do and how they define their social uses of two areas of southwest Puerto Rico -- Manglillo and Bahía Fosforescente. Specifically, I compare what socially distinct members of three local groups mean when they refer to “the southwest Puerto Rican coasts.”

A seminal question guides my investigation: **How do people define “the coasts” through their on-site activities in Manglillo and Bahía Fosforescente?** Given my choice of conducting oral history, specifically life-story interviews, I decided that this question could be used as a more general prompt. For example, “Can you describe one or two examples from your life that define your relationship with the Puerto Rican southwest littoral?” “What areas have you visited from Tamarindo to Pitahaya?” I began my interviews with these open-ended questions and often my interaction with participants involved follow-up questions. “With whom did you go?” “Which activities have you done while visiting these areas?” “For what purposes have you visited these areas?”

My goal was to identify how people conceive a broadly defined southwest, and which sites they prefer to go to or avoid (if any). As such, I remained open and sought to identify the terms most repeated among residents in their recollection of their uses of the southwest Puerto Rico coasts. But as participants reiterated their preferences to visit southwest beaches, I decided to take a more coastal- and sea-oriented type of exploratory approach. I began with attention to beaches, coral reefs, and bioluminescent bays; but I eventually limited my project to the beaches and bioluminescent bays given the abundant and rich materials I gathered from pilot work in 2011 and during fieldwork in 2013 to 2015.

In this research question translated as a broad interview prompt, I address my interest in formulating an ontological inquiry about the coasts. By ontological, I refer to my goal of examining social and material changes or transformations to the coastal areas, over time and currently (Kohn 2007, 2015). This object of study also emerged from what participants indicated in regards to their uses of the southwest coasts of Puerto Rico. Their narratives about their experiences were fluid and open-ended, which I interpret as linked to their regular visits and observations made through their direct contact with the coasts.

To study what people meant by the southwest Puerto Rican coasts, a basic premise is that the participants' on-site activities in the chosen areas of study relate to the assigning of meanings to these human activities; this process of forming a social relationship through on-site activities connects to the assignment of meanings that happens elsewhere when people visit other coastal areas. In the southwest, I observed the on-site activities of sea bathing and gathering in groups. During informal and formal interviews, residents expressed that these on-site activities reflected their meanings associated with at least four main social uses: recreation, biodiversity conservation,⁵ scientific research,⁶ and public uses.⁷ My focus on the role and importance of the social practices of Puerto Rican residents allowed me to ground my philosophical and academic

⁵ One of my former advisors from Rutgers, Dr. Genese Sodikoff, has been influential in thinking about "biodiversity conservation" as practiced in particular countries and territories, and environmental actors, such as non-government organizations; she has done anthropological work in Madagascar about biodiversity loss and tourism (Sodikoff 2012). This connection with Dr. Sodikoff came about as a recommendation from my undergraduate advisor at the University of Michigan, Dr. Rebecca Hardin, who also concentrates on issues of protected areas in Africa.

⁶ I have engaged in regular conversations in the past eight years with a colleague studying caves in Venezuela and Cuba, Dr. María Pérez, who is now a faculty member at West Virginia University. In doing so, I have developed a special interest in "science studies" and have been introduced to semiotics, actor network theory, and exploration such as cave science or speleology.

⁷ Another advisor at Rutgers, Dr. Bonnie McCay, has been influential in understanding coastal property rights, which affects my conception here to be "public uses" rather than "public rights" to follow discussion in this body of literature and especially in anthropology.

inquiry about ontology (Kohn 2007, 2015) in order to explain what happens to the attributes of chosen coastal areas over time and in a given moment. As many repeat, the coasts are, arguably, among the areas that are most rapidly changing (Acheson 2015). I push this assumption further to consider the role and importance of the coasts defined by what I observed is paradigmatic of them, being heterogeneous or plural, and relationality, by virtue of their meanings to on-site social activities and uses that transcend socially distinct groups. The social uses of the southwest coasts, as my 2011 pilot research confirmed, seemed both varied and common among different segments of the Puerto Rican population, both residential and transient. I focus on the ways members of different social groups narrated these linkages between on-site activities and social uses given their visits to specific areas of the southwest coasts of Puerto Rico.

In this study, I analyze the ways participants narrated their activities taking place on-site in Manglillo and Bahía Fosforescente. In doing so, I collected another two types of sources -- observations and documents -- to confirm these social uses occurring on the coasts. I examine whether these on-site activities reflect social uses of these coastal areas. Participant were asked to explain their understanding of “change” or transformations occurring on the southwest coastal areas, now and over time. In observing change or transformations, both material and biophysical changes were investigated in relation to the appearance of the selected areas. Also, both social and cultural kinds of changes were identified, such as the introduction of new social activities and uses in the areas of study. After the pilot stage, I directed my attention to the recreational uses -- defined as non-extractive, leisure, low-cost or free, and voluntary activities – because these participants of this study repeated this listed as their assigned meanings. Participants consisted of namely visitors or residents of Puerto Rico, who are represented by three socially distinct groups. Most concretely, I look at the linkage between on-site activities and the

meanings relative to multiple social uses in conjunction to perception of changes to the social and material attributes of two areas located on the southwest coasts of Puerto Rico: Manglillo and Bahía Fosforescente.

My choice of these two areas of Manglillo and Bahía Fosforescente was not arbitrary. The geographical reference of these two places emerged from the responses of participants in this study. In terms of geography, these two areas are part of an approximately 12-mile littoral reflecting two coastal municipalities -- Guánica and Lajas -- in the archipelago of Puerto Rico (Áyala and Bernabe 2007). These two municipalities, or the legal designations for these territories, are geographically contiguous and located on the southwest of the main island of Puerto Rico. Although Manglillo is not next to Bahía Fosforescente, they lie relatively nearby each other, approximately less than three lineal coastal miles apart.

From the findings, a group of seven to nine areas in this southwest littoral of Guánica and Lajas were identified by residents as the most popular sites. Within this group, Manglillo and Bahía Fosforescente were among the two most repeated types of coastal environments that people mentioned, formally and informally, in this study. These two types of the coasts -- beaches and phosphorescent bays -- also reflect the participants' inclinations to connect on-site activities with recreation and other public uses. Beaches and bioluminescent bays, especially those on the southwest, are well-known among residents for offering activities that are low-cost or "free." Moreover, participants insisted that, over their life time, they noted an abundant number of similar coastal sites, but decided to visit and engage in on-site activities at only a handful of them. Given the repetition of these two out of approximately seven coastal sites, I analyze them in relation to similar sites located on the southwest. I focus on participants' observations of Manglillo and Bahía Fosforescente as they have rapidly shifted in terms of their

social and material attributes. Participants repeatedly mentioned engaging in regular visits to these two sites and a small group narrated visits during their entire life, extending from childhood through adolescence and adulthood.

To develop my understanding about how people's actions affect the transformations on the attributes on two coastal areas, I compare different types of sources: oral, written, and observational data. In doing so, my findings reveal that changes in the chosen areas of study connect to what residents understand about each of these areas separately -- as a beach and as a bay. This is what I refer to as the local "scale" in terms of a coastal type. Also, I observed the regional scale when participants connected the studied areas as being nearby within the same region in Puerto Rico, as part of the southwest, and washed by the Caribbean Sea. Most notably, residents and visitors of these two coastal areas indicate that both Manglillo and Bahía Fosforescente are meaningful to them. In noting the social and cultural importance, participants shared in what ways these two places have been, continue to be, and most likely will remain salient in their everyday life in Puerto Rico as well as for their friends and family.

To expand the initial question and explore what people mean by the coasts as "social spaces," I developed another question to specify my object of study of the on-site activities and whether the meanings assigned to these activities reflect specific kinds of social uses that are typical of other coastal areas in Puerto Rico and elsewhere. **How do multiple activities affect -- and how are they affected by -- the relationships or the interactions among people, and how do they in turn affect the social and material aspects of these geographical areas?** My object of study is not what I (the researcher) mean by the coastal areas. I examine how others (participants living in Puerto Rico and of Puerto Rican descent) through their on-site activities affect the inherent attributes of a beach and a bay. This second research question allows me to

examine in-depth the role of on-site activities by visitors in these two types of coastal environments, and whether these activities connect to the assigned meanings by residents to social uses that, in turn, affect the attributes of the coasts for its social and material dimensions.

This second research question raises important aspects of my anthropological project. First, I compare the ways different socially distinct groups -- residents, experts, and short-term visitors -- engage in their on-site activities in the chosen areas of the southwest coasts. Second, I create a separation in terms of analysis between on-site activities and their assigned meanings to the main listed social uses. This consideration emerged from the pilot stage in 2011 and from completing other unrelated coastal investigations in which I was the principal investigator in 2004, in 2007, and concurrently to this study in 2014 to 2015. These research projects, which apply anthropological and ethnographic approaches, guided me to observe the co-occurrence of more than two on-site activities, often by the same person. Also, I noted that participants establish a link between what they do, or what I define as on-site activities, through the person's sociocultural meanings to what I categorize as the main social uses happening in a specific area. These social uses and activities are common to other coastal areas of the world. In general, I focus first on the social practices or actions initially defined as on-site activities, and later explain their sociocultural meanings to ascribe them in several social uses relative to participants' activities in Manglillo and in Bahía Fosforescente.

By addressing this second question about the nature of the activities and the main social uses on the southwest Puerto Rican coasts, I look at a sub-question oriented to examine the impacts of people's activities on the coasts, and vice-versa. Do specific on-site activities affect inherent attributes of the areas or do they co-constitute the social and material aspects of "coastal spaces"? This sub-question addresses the bi-directionality of my inquiry about the effects of the

activities on the attributes of the coastal spaces, and from the coasts to the character of the social activities. Hence, I refer interchangeably to social relationships or interactions to reflect this two-way direction. It also illustrates a more grounded, or “real-life,” approach to capture what happens in these areas. I am attentive to the ways people through their social practices are affected, for example, by the materiality of their surroundings and vice-versa. Several scholars (Orlove 2002; Orlove and Catton 2010; Raffles 1999, 2002) have highlighted that both the social and material aspects affect what, how, and when people engage in actions in a specific area. These activities or actions in turn form an individual’s spatial understandings. The direction here is important for describing the types of changes at social and material levels for the geographical areas of study. For instance, the way in which day-long trips to a beach affect a person’s ability to engage in sea bathing. Also, I examine how night-time boat trips to the bay affect a person’s uses of this bay, for example, for sea bathing. The coastal types and their individual experiences led me to concentrate on both, a bay and a beach. Assuming this two-way direction at the outset helped me to compare the chosen types of coastal environments in terms of their distinct material attributes, and not limiting my project about the coasts to one of them. Overall, I designed this comparison by choosing these two nearby coastal types located in southwest Puerto Rico, looking at material and social aspects along with common denominators. For example, a common trait for Manglillo and Bahía Fosforescente is that they are part of two protected areas, which is valuable for analytical purposes in the future⁸.

Thinking about the importance of theorizing about the coasts, I was curious as to whether the quality of “space” as being multiple or heterogeneous and relational that Massey proposes, in

⁸ This trait of being part of a protected area is not integral to this research project and it is intentionally left as background. However, I am certain that it can serve future investigations, especially for those interested in the coasts and oceans in Puerto Rico.

turn affected the changes indicated by participants in this project on these two land-water and sea-water environments. **In what ways do the multiple activities taking place allow room for collaboration and/or create conflict when defining coastal spaces?** This third research question explores whether the variety and abundance of on-site activities and social uses allows for conflicts and/or collaborations among residents in one or both studied areas. This open-ended perspective emerge from my chosen primary theory of global sense of place (Massey 2005). Existing local and anthropological literature has documented conflict in coastal areas, mostly in other parts of Puerto Rico than the chosen studied ones. Among anthropologists, conflict and tensions are understood as common events on the coasts (Johnson and Griffith 2010). For example, the Puerto Rican beaches have been central hosts or nodes for protests and other types of social mobilization among residents in the past and present. Similar to other instances in Puerto Rican beaches (Misión Industrial de Puerto Rico 1987), Manglillo provides evidence of conflict in the form of a letter in a newspaper by a permanent resident in response to closing this beach with a fence by the government (Muñiz-López 1987). An individual's act of writing a letter of protest can be recognized as a more isolated action than other organized forms of mobilization. In Puerto Rico, two examples of larger coordinated, or organized, forms of protest by residents include the beach camps in Carolina (Rosario 2013) and international alliances in Vieques (McCaffrey 2009). For the bay, I do not find evidence of conflicts, although the Parguera *poblado*⁹ and Parguera Natural Reserve shows evidence of similar instances of opposition or tensions among different groups (Fiske 1992; Valdés-Pizzini 1990).

⁹ Parguera is a small residential area of 2,000 individuals, or 200-300 families. Given the difficulties I faced when following the United States Census in 2010 for a grouping of small size residential areas in these two coastal municipalities, I follow Rafael Torrech and his concept of *poblados*, which refers to the social importance of this term among residents of Puerto Rico with regard to how they organize their life at this local level when compared to larger units of *barrios* and legal labels of municipalities.

By looking at commonalities, I propose to expand Massey's thinking about the "space" defined as multiple or heterogeneous and relational. My interpretation of this framework has helped me to explain the role of multiple social relationships between different groups of residents and the Puerto Rican coasts, and whether these social processes affect the current and future political realm for residents and these popular areas in Puerto Rico (Massey 2009). This motivation is also common with those scholars applying the lens of political economy (Smith 2008) and political ecology (Paulson and Gezón 2005). How do the premises of heterogeneity and spatiality, which are central to the formation of multiple social relationships, relate to finding openings and challenges for social change in the political realm in today's unequal world? As indicated by this sub-question, I am interested in the potential need to change "the game," or the political climate of Puerto Rico, looking at the main interlocutors who tend to be interested in controlling access and uses of the southwest coasts. This politically-minded goal addresses "real-life" implications from this research project that can affect public debate and public officials' thinking about "coastal spaces." More specifically, finding political opportunities and limitations for my proposed spatial and multi-scalar thinking involves maintaining the premise about the coasts built upon heterogeneity and multiplicity, which is rare in the local political sphere of Puerto Rico, especially in the processes of environmental governance and management of the coasts. For instance, the governance and management of coastal and marine environments in Puerto Rico, specifically of Manglillo and Bahía Fosforescente, historically tend to ignore certain "ecosystems," such as the beaches and the bays, as compared to land ones and the coral reefs. Also, other environmental categories, such as endangered species, tend to be considered, and discussions tend to move away from the inclusion of beaches and bays and in general of the coasts. Moreover, local research and public debates about the current state of the Puerto Rican

coasts tend to praise some types of knowledge, largely the research and scientific kinds (García-Quijano and Valdés-Pizzini 2014), and often not those connected with residents' on-site activities (García-Quijano et al. 2012; Valdés-Pizzini and García-Quijano 2009). As it will be shown, the findings from this study explain residents' activities and their meanings in relation to social uses, which mostly do not correspond to those produced by global environmental actors. While the UNESCO Biosphere program connects recreation uses to achieve preservation of "wilderness" land or forest nature (Cronon 1996; Darling 2005), the residents of or visitors to Manglillo understand the same place basically as a public beach with "open access" (Acheson 2015; Schlüter et al. 2013) by connecting their on-site activities to the recreational and public uses.

The fourth and final research question is implicit both from my selected theory and my anthropological training and ethnographic approaches. I address the role of sociocultural meanings to develop social relationships with the coasts through on-site activities and uses of the southwest coastal areas. I look at the ways people establish their social relationships with the Puerto Rican coasts through their on-site activities and the assignment of meanings to two or more of the four listed uses of recreation, biodiversity conservation, scientific research, and public uses. **What local-global processes influence the assigning of sociocultural meanings to the coasts, now and over time?** Originally, I focused on the assignment of meanings relative to their existence across "scales," which are part of the same continuum ranging from local to global levels. Later, and informed by Massey's lens of the global sense of place, I shifted my attention to considering a political-economic theory of uneven geographic development (Massey 2005; Sayers 2014; Smith 1984) that can situate the findings of social and material changes on the Puerto Rican coasts as the population of this archipelago finds itself among the most unequal

societies in the world (Criollo-Oquero 2015). The global to local attention, which is an assumption of my primary theoretical framework, allows me to focus on the ways on-site activities through their meaning formation linked to main social uses -- both of which are thought of as social processes -- to produce changes on the coasts. These changes are embedded in a society marked by the widening of inequalities for people of diverse backgrounds, and in the case of the Puerto Rican coasts, also facing a financial crisis for the past eight years and with the highest public debt in the world (Fletcher 2015). Also, I focus more specifically on local and global scalar issues extending to “time,” considering historical and diachronic events as well as relative and relational traits of thinking about “space.” My “scalar” attention, ultimately, involves a primary focus on the role of social positions, or social difference, to examine the local and regional “scales” through the on-site activities and their linked meanings among diverse groups of residents or visitors to the southwest coasts of Puerto Rico living in contemporary uneven societies.

In sum, the four research questions summarize my interpretation of the lens of the frameworks of uneven geographic development and the global sense of place. This political-economic perspective includes my attention to the dialectics or the conflicts among three groups of residents as well as to the similar understandings about the bay and the beach and the effects of the ambiguous political status of Puerto Rico on the coasts. These theoretical frameworks offer me a more flexible and comparative approach by building upon the assumption of uneven geographic development and other premises regarding the character of the concept of “space” (Massey 2005). In this direction, the responses to these four research questions and sub-questions help me to examine broadly what residents do and how they define the “coastal spaces” looking at their recollections about their activities occurring in Manglillo and Bahía Fosforescente.

Ultimately, I translate philosophical and academic thinking about “coastal spaces” as they become part of everyday life applying the lens of an ethnography (Nader 2011). In doing so, I situate my findings in the political and contemporary context of Puerto Rican society and their attention to coastal areas, especially to the southwest littoral or coastal and sea water environments (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006).

In sum, I interpret what people described me about the coastal spaces in general, and of what they as residents of Puerto Rico do during their visits to some areas in the southwest, specifically in Manglillo and Bahía Fosforescente. In doing so, I develop a direct and multi-layered approach to what people do and how these actions connect with the social and material changes of Manglillo and Bahía Fosforescente. By paying attention to the issues of public access and uses of the coasts, I analyze both among people of diverse backgrounds residing in Puerto Rico and at the local-regional levels located at the southwest littoral and in nearby marine environments.

Central Theoretical Conceptual Framework

This anthropological study defines the character or nature of the coasts as “social spaces.” I begin by introducing the two theoretical frameworks that inform this ethnographic and anthropological study: the uneven geographic development and the global sense of place. Then, I continue by describing two aspects of the coasts as “social spaces” that become important in this study: the relational dimension and the multiple or heterogeneous characteristic. As it is explained in chapter 2, this section focuses on key aspects of my interpretation of the related theoretical frameworks of uneven development and global sense of place. Aiming to define “social spaces” by having the qualities of relationality and multiple or heterogeneous, three

theoretical aspects become salient in this analysis: the philosophy of science¹⁰ in regard to the concept of “space” defined as relative and relational, scales, and time. When considering these three concepts, I refer to them together as the relational construction of the coasts thought of as “social spaces.” This includes also presenting a synthesis of the social production and the social construction of the coasts defined as “social spaces.” This synthesis is applied in chapters 4, 5, and 6 while presenting the ethnographic data for Manglillo and Bahía Fosforescente.

In this study, the Puerto Rican coasts fit patterns observed applying the “uneven geographic development,” or “UGD” (Massey 2005; Sayers 2014; Smith 1984). This means that the Puerto Rican society is affected by the premise of the accumulation of “capital” within a particular political-economic system of “late-capitalism” that builds upon an uneven distribution of material and nonmaterial processes in a society (D. Harvey 2006a; Smith 1984). By looking at the linkages between sociality and spatiality, I examine how language use and nonlinguistic forms of communication allow analysis of how social and material attributes of the coasts transform power dynamics and social inequality through the onsite activities by residents. Within the UGD, I focus on analyzing linguistic and nonlinguistic forms of information shared by participants who are visitors and residents of Puerto Rico (see chapter 3). Language use (Leap 2011) offers entry points to connect residents’ on-site activities and their meanings through words. Nonlinguistic forms of communication¹¹ (Kohn 2007, 2015) place emphasis on the observations made by residents to explain the rapid and multiple transformations to the social and material attributes of the chosen sites of the southwest Puerto Rican coasts. By connecting

¹⁰ Scholars interested in the philosophy of science define three types of “space”: absolute, relative, and relational.

¹¹ In this case, I refer to the Perceian triad of icon, index, and symbol; in this analysis, I focus on icon and index tools.

sociality and spatiality, I connect people's actions to their understanding of the social spaces, in this case the coastal areas of the southwest of Puerto Rico, which are constantly affected by power dynamics and social inequalities in societies embedded in uneven distributions of material and nonmaterial processes, such as, the contemporary world (D. Harvey 2006a; Massey 2005; Sayers 2014; Smith 1984).

As documented in newspapers and the internet, scholars propose that the residents in Puerto Rico live in a society that is among the most unequal, following the premises of “uneven geographic development” (Criollo-Oquero 2015; Smith 2008; Massey 2005), and also facing a financial crisis¹² (Fletcher 2015). Also, a group of local scholars¹³ proposes that Puerto Rico is among the most unequal societies in the world in terms of the widening of the economic gap and its effects on the different segments of the population (Criollo-Oquero 2015). This political-economic context affects the characteristics of “space,” or what I conceive as the relational construction of the coasts as “social spaces.” I translate the unequal distribution of the material and nonmaterial processes to be closely connected with the role of the relationality as well as plurality or heterogeneity of “social space.” I connect the activities occurring on-site as they are narrated by linguistic use by residents and of the transformations observed by residents to the attributes of a coastal place through nonlinguistic forms, or ontology. Three aspects direct this anthropological study: how a person's on-site activities define their understanding of the space,

¹² The Puerto Rican society faces a financial crisis due to an eight-year recession and due to having among the highest public debt in the world (Fletcher 2015).

¹³ I contacted a faculty member in a local university who is part of this group, and I learned that this group is about to publish a report on the topic of social inequalities in Puerto Rico. The report will focus on characterizing which kinds of social inequalities exist among residents of Puerto Rico and its relation to “well-being” as an indicator that many other societies apply to measure life standards such as health services, food, employment, and education.

how sociality is affected by the material and social attributes of the space, and how the concepts of variety, relationality, and spatiality transform power dynamics and social inequality.

In terms of the on-site activities occurring at Manglillo and Bahía Fosforescente, I find that residents engage and list sea bathing and gathering in groups. Participants connect their on-site activities to their meanings of associating them with multiple uses of recreation, biodiversity conservation, scientific research, and public uses. For instance, I observe that diverse groups of residents engage in the same kinds of on-site activities, such as sea bathing and group social gatherings. Moreover, based on their social background different individuals tend to assign different combinations of the meanings assigned to the on-site activities in relation to the multiple social uses. For example, I find that visitors connect sea bathing activities with either or both leisure and recreational and public uses. This local meaning differs from those of scientists and managers who connect sea bathing with either or both recreational and biodiversity conservation uses.

Although I am aware of the particular meanings assigned by the official or legal organizations having rights and ownership over the Puerto Rican coasts, staff from these institutions currently indicate a consensus on the occurrence of the multiple social uses or what is known as “multiple uses or multi-uses.” Often this consensus relates to a strategy in biodiversity conservation known as “marine protected areas” or MPAs (Pittman et al. 2010). Yet, this is not a study about “property rights” in the formal sense of defining the coasts as “resource,” or intending to theorize about the enclosing of the public or open-access of the coastal areas (or of the tragedy of the commons). Also, neither is this a study of coastal areas located within “marine protected areas” -- albeit these chosen locations fit this description. I am interested in examining the effects of issues surrounding “property rights” on the coasts in terms of what people

understand have limited their ability to access and use the southwest coasts of Puerto Rico. In this regard, the chosen southwest coastal areas can be considered peculiar, both in terms of their legal (Acheson 2015) and of their biophysical environments (Schlüter et al. 2013), because they are changing rapidly and have a quality of being multiple in terms of their inherent character (Massey 2005), as will be discussed in this manuscript.

Taking a processual approach, Massey and others direct their attention to what people do, or on people's actions, to be either interactions or processes. This is what Massey refers to when she states that social practices can be traced in similar ways to "stories" or "trajectories." When applying these two theoretical frameworks, I define the coasts as "social spaces" by emphasizing two attributes of the relational and multiple or heterogeneous. This is why I define the relational construction of the coasts as "social spaces." Like Massey, the conception of "space" as a noun is what I have in mind when defining the coastal spaces as having at once relational and multiple or heterogeneous characteristics. For this, I examine on-site activities and their meanings in relation to the social uses, thought of as "social processes." As these activities now form a process, I follow Massey to propose that the on-site activities build the basis to trace the social relationships that groups of residents develop while visiting the two coastal sites. To apply my interpretation of these frameworks of the uneven development and the global sense of place, I develop a synthesis of the social production and social construction of the coastal spaces (see chapter 2).

The chosen theoretical frameworks raise three aspects in terms of re-thinking of the coasts as "social spaces" in this anthropological study: the philosophy of science in terms of the concept of "space" having the relational characteristic, scale, and time. For example, Massey develops a theoretical framework of the global sense of place that defines space as having multi-

scalar and spatially-oriented traits. In this sense, I construe that Massey's inclusion of thinking about space both as multiple or heterogeneous and relational is meant to advance the triad of concepts that describe "space" stemming from the philosophy of science (D. Harvey 2006a). Thinking about "social spaces" involves paying attention to the relational dimension of "space," which involves acknowledging the possibility that at least two processes occur at once. As David Harvey (2006) explained, when he gives a lecture his message as is presented to the audience is one of the two processes. The other process is when or if a person from the audience is thinking about his breakfast; hence, this person from the audience is not likely to listen to the information presented by Harvey. Although Harvey and the audience are physically in one place, this context is not ruling out the possibility that the person from the audience can be thinking about their breakfast or about something else. This example shows the relational dimension of "social space," because even if people are using and accessing the same place, they have at their disposal aspects of their lives and of their socio-demographic that might "shift" their experience of the same geographical area.

Drawing upon Massey's work on the global sense of place, I limit my social analysis to address local and regional "scales." First, I compare at a local scale a beach and a bay, which are two coastal types. In this case, these coastal types or areas are located in a nearby coastal littoral area. In general, the chosen coastal areas can be related to similar areas around the globe, all of which are affected by this uneven distribution of material and nonmaterial processes. Also, I examine a regional scale because both Manglillo and Bahía Fosforescente lie in the same small littoral area, extending from east to west in the municipalities of Guánica and Lajas. Further, these sites are located on the southwest region of the main island of Puerto Rico. Moreover, as

these sites are located in the Caribbean Sea, visitors and residents can potentially associate this beach and the phosphorescent bay under a regional trait associated with the Caribbean Sea.

Another consideration in these frameworks is the relational dimension of the coasts in terms of the issues of time, including looking at both historical or planned changes occurring at Manglillo and Bahía Fosforescente. Like any other social process that is open-ended, this study compares the historical as well as “diachronic” events happening on the same place over time and to the present day in Manglillo and Bahía Fosforescente. Unlike Harvey and Smith who focus on history, in the global sense of place framework Massey underlines the importance of analyzing “time” by applying a more flexible or fluid definition to meet her goal of tracing activities as “trajectories” or “stories.” This view is beneficial to the ethnographic approach, because of maintaining the open-ended stance, critical view, and iterative dimension that is inherent in qualitative research and field based investigations. Additionally, the opportunity to compare historical events with diachronic ones allows for the narratives of participants, other sources of written/linguistic information as well as other non-linguistic forms of communication to be central in this analysis. Ethnography as a theory building tool can potentially shift the lens of the uneven development and/or the global sense of place by using a comparative and holistic approach to research that is inherent in this approach.

Last but not least, thinking about “social spaces” can consider the qualities of heterogeneous or multiple as a basic premise for the global sense of place (Massey 2005). In this analysis, I intend to focus only on this second premise¹⁴ of the global sense of place, and apply it to thinking about its effects on the case of the southwest Puerto Rican coasts. To address the

¹⁴ Massey explains three premises in her book *For Space* (2005) to define social spaces: 1) space as open-ended, 2) space as multiple or heterogeneous, and 3) space as relative.

premise of heterogeneity and plurality of “space,” I focus on the role of on-site activities and their meanings assigned to the social uses that are broadly defined as “social practices.” I establish that both social activities and uses affect the rapid transformations of the social and material aspects of the coastal spaces. Given the dynamic and multiple kinds of changes mediated by assorted activities and uses as well as to the changes to the attributes of a place occurring on coastal spaces worldwide, I emphasize analyzing the co-existence of on-site activities and of their sociocultural meanings in reference to the combinations of at least four social uses. My goal is to establish the interconnections between activities or uses and the changes on the social and material attributes of the coastal spaces. In both instances, Massey’s work underlines these two social processes by looking at on-site activities and the ontological changes on the attributes of a place to define “social spaces” as having a heterogeneous or plural nature.

In sum, I develop a local spatial understanding about the coasts. For this, I establish that the activities of “recreation-as-socializing” -- or of residents’ sea bathing and group social gatherings -- denote primarily two uses of the coasts: recreation and public uses. Residents insisted that the southwest coasts served both leisure and voluntary activities coupled with the claims over the rights of public access to the beaches and bays in the southwest. Both characterizations were common to most participants or members from the three studied groups of residents, experts, and short-term visitors. This pattern was also repeated among temporary and permanent residents, scientists, and business owners or tour guides, as well as San Juan residents who came to the southwest area. The frameworks of the uneven development and of the global sense of place allow me to combine the social production of the coastal spaces defined as “recreational hubs” that attract many residents to engage in on-site activities, and the four main

social uses associated by residents identified through the lens of the social construction of the coastal spaces. In this sense, the application of these frameworks reveals the processes of how, when, and in what ways rapid and varied transformations to the social and material qualities of these two areas of the southwest become notable for the visitors to them.

The participants of this study point out the low cost of a boat trip to experience “coastal bioluminescence” and residents’ use of an open by-pass fence to enjoy a mangrove beach. Through several ethnographic examples per site outlined in individual data chapters and a discussion chapter for both, I describe this linkage between what activities occurred on-site and their meaning with regard to the multiple uses, as well as to note how residents explain the rapid and varied changes to the social and material dimensions of Manglillo and Bahía Fosfosrescente. Existing issues relative to the access and uses of the southwest Puerto Rican coasts by residents are relevant to emphasize that human and coastal interactions are embedded in power dynamics. Local and global processes constantly affect the formation of these spatial understandings, which present different appreciations of the Puerto Rican coasts through what they do on-site and of their assigned meanings of the main social uses all occurring simultaneously in the same grouping of areas in the southwest of this Caribbean archipelago.

Novel Approaches in Anthropology

To advance thinking about spatiality in processual ways, I combine the lens of uneven development (Ganapathy 2013; D. Harvey 2006a; Sayers 2014; Smith 1984) and Massey’s work on the global sense of place (Massey 2005) to present an interdisciplinary investigation centered on the term “space.” One of the main goals of this investigation is to define the concept of “social space,” and explain the complex relationships between people and their surroundings,

which is common among scholars interested in landscape, place, and space across fields in the social sciences and the humanities (Giesecking et al. 2014; Lawrence-Zúñiga and Low 2003). By critiquing scholars ignoring “space” or defining spatiality in sterile or static ways like Massey and others, this study proposes a multi-scalar and spatial approach to think about the character of “social space” defined as heterogeneous and multiple. In doing so, I trace the on-site activities in relation to the meanings assigned by residents -- language use -- (Barlow 2011; Hunston 2002; Leap 2011; Torrech 1994) and what residents observe and express through nonlinguistic forms of communication (Kohn 2007, 2015) in regards to the changes to the social and material attributes of chosen areas, in this case located on the southwest Puerto Rican coasts.

Additionally, I argue that the attention to the local and regional scale, issues of time, and applying a spatial-driven theory goes in a different direction than that of many critical geographers and anthropologists also interested in applying a political-economic perspective (Raffles 2002) or the triad of space, place, and landscape (Giesecking et al. 2014; Lawrence-Zúñiga and Low 2003; Low 2014). Among those scholars theorizing about the uneven world, Sayers, Ganapathy, and Massey add to the debate about uneven development the importance of analyzing social difference by situating people of different backgrounds in societies affected by uneven distribution of material and nonmaterial process within a late capitalist period (D. Harvey 2006b; Smith 2008). Massey is different from those addressing the character of the political-economic system (Smith 2008) and time (D. Harvey 2006a; Smith 2008); she adds the urgency to capture the local and regional scales as well as of “time,” both historical and diachronic events to situate people of diverse backgrounds.

My approach to the relational construction of “space as multiple” referring to “coastal spaces” offers contributions at theoretical and methodological levels to the discipline of

anthropology. For example, I follow Laura Nader's definition of ethnography to conceive that ethnography is both a method and a theory building tool that enables me to consider the frameworks of uneven development and of the global sense of place (Nader 2011). Both frameworks focus on the dialectics, or tensions in this case, among different groups of residents: permanent and temporary residents, technical experts, and short-term visitors. Also, ethnography offers room to analyze language use and nonlinguistic forms of communication in terms of how people relate to Manglillo and Bahía Fosforescente in their everyday life.

By explaining the role and the importance of both spatiality and heterogeneity, this study analyzes the development of diverse types of social relationships built upon on-site activities and their meanings often associated with multiple social uses occurring in specific areas of the southwest Puerto Rican coasts, which are areas embedded in everyday life. My view of the concept of the coasts as "social spaces" allows room to describe both the differences among various groups and the commonalities within sub-groups of residents of Puerto Rico. As I will demonstrate later in this manuscript, diverse groups of residents living near the southwest Puerto Rican coasts interact with Manglillo and Bahía Fosforescente through their on-site activities and through their meanings associated with multiple social uses occurring in these areas at different moments of their lives. These interactions or visits affect the formation of social relationships with others and with the coasts. Also, it offers room to analyze how this ultimately changes the characteristics of coastal areas, such as Manglillo and Bahía Fosforescente.

My application of an ethnography coupled with geography-based frameworks of the uneven development and the global sense of place offer a new perspective about the role and the importance of the relational construction in social life. As shown in this study, the relational

quality of “space as multiple” serves as the meeting points¹⁵ of the multiple social uses, defined as social processes and interactions, that are always situated in history and embedded in the spatial politics of societies that are marked by power dynamics and the deepening of social inequality. This perspective offers room to explain the ways in which diverse types of social relationships, in effect, change the inherent attributes of the coasts, forming differences across groups and commonalities within sub-groups of residents in Puerto Rico.

The benefit of applying the lens of global sense of place involves the attention to multi-scalar issues including those of local and regional “time” or “history,” as well as such qualities of space from the philosophy of science as the “relational” dimension. Moreover, the findings from this study pay attention to the fact that in their engagements with the coasts residents note two other spatial qualities that reflect heterogeneity and plurality: coastal types and the Caribbean Sea. First, participants commented frequently on the coastal traits that are reflected in their local spatial understandings of these two sites, meaning that they talked about “recreation-as-socializing” either at a beach or a bay of southwest Puerto Rico. This is what I refer to as “coastal types.” Also, participants of this study also established regional spatial characteristics: they located Manglillo and Bahía Fosforescente to be geographically located on the southern and southwestern tip of the main island of Puerto Rico. They give attention to “calm, shallow, and tranquil” sea waters of the Caribbean Sea. Regardless of the social background, the participants in the groups of residents, experts, and short-term visitors of this study shared a deep-rooted sense of “space” that I recognize to be “coastal-” and “sea water-”oriented to underline the commonalities of these participants while commenting on what they do on-site at Manglillo and

¹⁵ A recent review in anthropological investigations proposes that “ethnographies of encounter” capture a wave interested in this notion of a “meeting point” in order to challenge the boundedness of culture and decolonize the field since the 1980s (Faier and Rofel 2014).

Bahía Fosforescente. Thinking about the widening of social inequalities and their impact on Puerto Rican society facing a financial crisis, or the uneven geographical development framework in which I situate these findings, I assume that I would find more examples of “enclosing” the commons, in this case on the coasts. As briefly outlined here and in more depth later in this analysis, I find a more complicated picture that challenges the nature or character of the social relationships between people and the coasts as exemplified by the findings on the southwest littoral of Puerto Rico.

Among the most important contributions of this study is the demonstration that the social uses, defined as social relationships and interactions, change the characteristics of the geographical areas, or “spaces,” specifically of the coasts. Anthropologists interested in spatial theory have remained less interested in either the coastal or sea water environments (Lawrence-Zúñiga and Low 2003). This ethnographic study adds to the existing body of literature to underscore the value of thinking about “the coasts” as an important area in everyday life (Acheson 2015; Schlüter et al. 2013; Valdés-Pizzini 2009).

Another implication of the relational construction of space as multiple involves finding openings or possibilities to work from the premise of the centrality of “space” in terms of these two qualities of multiple or heterogeneity and relationality in the political realm (Massey 2005). This premise states that politics may need to also engage in the consideration of relational quality of “space” to situate the ways activities affect the rapid and varied transformations of the coastal attributes in the contemporary world. This consideration is ever more urgent due to the widening of the uneven geographical development, affecting some groups and not others, in terms of its distribution of material and nonmaterial processes. Puerto Rican society presents among the most unequal context in the world, coupled with a financial crisis, which complicates the access and

uses of the coasts, not only now, but in the near future if something shifts in this Caribbean archipelago.

A small number of anthropologists have underlined the importance of this notion of “social spaces” for indigenous and/or African-descent groups¹⁶ in Latin America. Puerto Rico, given its ties to Latin America through Spain, and its interconnections with the Caribbean (Harrison 2008; Slocum and Thomas 2007), offers interesting intersections within the anthropological field to this body of literature. In what ways, residents of Puerto Rico can be similar to the lived experiences of indigenous and/or Afro-descent groups in Latin America and the Caribbean? Would race and ethnicity, migration, and/or cultural attributes among residents of Puerto Rico affect in the same degree than their direct contact with their surroundings to forming their social relationships with the coasts defined as “social spaces”? What kinds of actions have taken residents of Puerto Rico in relation to the coasts, specifically beaches and bioluminescent bays?

Dissertation Overview

This dissertation thesis study has seven chapters that describe key aspects of the ethnographic research study. The first chapter offers an overview of the ethnographic study. The second chapter discusses key theoretical ideas of the chosen frameworks of the global sense of place and uneven geographic development; the basic premise on the chosen frameworks lies in a renewed interest in re-thinking the concept of “social spaces.” The third chapter outlines the

¹⁶ Massey proposes that her global sense of place framework can have real world application in the political realm (Massey 2009), which is parallel to the work of Arturo Escobar and Marisol De La Cadena and what Saar calls as the “political ontology.”

method of ethnography and its related aspects of field locations and local Puerto Rican and regional Caribbean contexts. The fourth, fifth, and sixth chapters present the findings divided into each of the chosen sites individually, the beach of Manglillo and the phosphorescent bay of Bahía Fosforescente, and then a discussion chapter of these two selected sites together. I finish this manuscript with a short conclusion section

CHAPTER 2

KEY THEORETICAL IDEAS ABOUT THE COASTAL SPACES

Introduction

In this chapter, I present the key theoretical ideas regarding the concept of “social spaces” to define the chosen coastal areas of Manglillo and Bahía Fosforescente as multiple¹⁷ or heterogeneous and relational. This concept allows me to examine the linkages between a person’s on-site activities as expressed in their language use and through nonlinguistic forms of communication. People connect their on-site activities with their assigned sociocultural meanings to explain their understanding about a coastal place. Also, participants engage in nonlinguistic forms of communication to explain the effects of their on-site activities by connecting the ways in which the social and material attributes transform these places.

In this study, I apply two theoretical frameworks¹⁸ of uneven geographic development and the global sense of place. Both frameworks constitute the central theoretical framework (see chapter 1) of this project, and for the most part they help me explain the tensions, conflicts, and dialectical processes for how the on-site activities form multiple social relationships or interactions and the changes perceived by the residents on the two chosen areas. I add analytical attention to another two concurrent processes to explain the formation of the multiple social relationships among residents and the southwest Puerto Rican coasts. These two concurrent

¹⁷ Massey defines that “social spaces” provides entry points for the appreciation of “...space as the sphere of heterogeneity” (Massey 2005).

¹⁸ I refer to global sense of place as a “framework,” because it has different concepts that have been applied individually. Using a handful of concepts from the global sense of place, I focus on the second premise of space-as-multiple in conjunction with another quality for space of relationality. Another two types of framework are mentioned in this chapter: uneven geographic development and political ecology.

processes are the commonalities or shared understandings,¹⁹ and the peculiarities of Manglillo and Bahía Fosforescente in light of the political and economic context of Puerto Rico.

A Renewed Interest on Social Spaces: An Ethnography of the Coasts

Originally, scholars analyzed “spatial forms,” or “spatiality” emphasizing the background aspects in social theory using the triad of concepts of “space,” “place,” and “landscape.” Later, their attention shifted to issues of “time,” “scale,” and local practices (Bender 1993, 2002; Giesecking et al. 2014; D. Harvey 1996, 2006a; Massey 2005; Paulson and Gezón 2005). Definitions and epistemologies around the manifestations of spatialization turned more sophisticated, specifying both the conceptualizations and relevant consequences of “space,” “place,” and “landscape” in social theory. Anthropologists have been interested on key concepts of spatial theory, such as, the connections among “space” and “place” for several decades to offer more grounded theories and concepts in the spatial turn within the humanities and social sciences (Crumley 1993; Giesecking et al. 2014; Lawrence and Low 1990; Lawrence-Zúñiga and Low 2003; Sauer 1925). While for other fields, the triad of “landscape,” “space,” and “place” have been differentiated, anthropologists have insisted on the potential interconnections and more grounded types of approaches to a research inquiry, for example, of the benefits of the ethnographic approach (Low 2014) and the synthetic approach of social production and social construction of space and place (Low 2009). I follow this group, namely as a cultural anthropologist applying an ethnography --defined here as both a method and for theory building (Nader 2011)-- as well as combining the lens of social construction and social production to

¹⁹ I considered for some time Bakhtin’s original definition of chronotope defined as “time-space” (Bakhtin 1981).

think “social spaces” in terms of the ontological aspects defining them as relational and heterogeneous.

Anthropologists have established linkages between the concepts of “space” and “place” in several ways. Most anthropologists prefer to focus on “place” and “place-making” for noting the importance of the locality and locals on the makings as well as the production of space (Escobar 1996, 2010, Ganapathy 2008, 2013; Orlove and Catton 2010; Raffles 2002). A more recent wave underlines the importance of “social spaces” (Carrier and West 2009; West 2006), or of the social production of “space” (Lefebvre 1991). This recent wave of environmental anthropologists emphasizes the importance of global processes in terms of the imaginative, political, historical, and cultural dimensions of definitions of certain areas like the Artic Refuge (Ganapathy 2008, 2013), protected areas (West, Igoe, and Brockington 2006; West 2006), and regions of the world, such as Melanesia (Rodman 1992), or its countries such as Papua New Guinea (West 2005, 2006). A smaller group of fishery anthropologists have underline that “social spaces” represent an important category of analysis (Brubaker and Cooper 2000).

Within the ‘spatial’ turn, I follow those interested the lens of political-economy (Massey 2005; Peet and Watts 1996; Smith 1984) and pay attention on the issues of “scales” (Massey 2005; Orr, Lansing, and Dove 2015; Paulson and Gezón 2005) in order to examine the access and uses of the coasts in a complicated case, Puerto Rico (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006; Brusi 2004, 2008a, 2008b, 2009; Fontáñez 2009; McCaffrey 2009; Valdés-Pizzini 2006). Specifically, I situate this project among those interested in “uneven geographic development” or “UGD” (D. Harvey 2006a; Massey 2005; Sayers 2014; Smith 1984). Neil Smith provided an ontological view about the workings of capitalist modes of production to focus on issues of “time” (and not the nature of “space”) in order to develop a way to spatialize

capitalist political-economic processes (Smith 1984). Similar to Smith, his doctoral student and now prominent geographer, David Harvey also theorizes about “uneven development” taking a more systems’ approach by focusing on the political aspects taking place in urban or built environments (D. Harvey 1996, 2006a). For both Smith and Harvey, their investigations focus on issues of “time” (D. Harvey 2006a; Smith 1984); both theorize about the ways the accumulation of capital as part of a particular political-economic system, “late-capitalism” that affects the spatiality and studying specific parts of the world, namely North Atlantic.

More recent applications in anthropology of the “UGD” approach can be found in historical archaeology. The Great Dismal Swamp Landscape Study (GDSLS) illustrates an example of this type of archaeological investigation analyzing the area of wetlands towards a combination of post-processual views heavily enmeshed within processualist activities (Sayers 2006, 2007, 2014; Sayers, Burke, and Henry 2007). The GDSLS is a special kind of wetland, a swamp, that is located today within the Great Dismal Swamp National Wildlife Refuge (GDR). This refuge is a large protected area between the states of North Carolina and Virginia in the United States of America. Archaeologist Daniel Sayers and a team have explored this site through several excavations for the past decade (Sayers 2014). Using a political-economy framework, this GDSLS project examines a remote land-water landscape, the swamp, that served as home to various communities during the 225 years prior to the Civil War, when “...thousands of people rose up against oppressive and brutal conditions of slavery, disenfranchisement, and subalternity by escaping to the swamp” (Sayers, Burke, and Henry 2007). This team focused on the lives of three groups: Native Americans, African-Americans and African maroons as well as enslaved canal company laborers.

Expanding the concepts of “diaspora” and “exile,” Sayers et al. discuss that under extreme conditions of dominance, slavery, and property rights, such as landed property, various groups were pushed into these types of remote landscapes, such as the swamp. This occurs in the context of a capitalist mode of production, which greatly affected their lives in terms of identity, class formations, modes of production, and alienation (McGuire 2002; Patterson 2003; Sayers 2006, 2007; Sayers, Burke, and Henry 2007). Using the concept of “diasporan” landscapes, the concept of “exile” as described by Edward Said, as existential phenomena at the individual and community levels embedded in a political-economic context (Sayers, Burke, and Henry 2007). These processes suggest how these three ‘exilic’ community systems, or modes of communitization, formed in this swamp confirmed by applying archaeological approaches, such as, material cultural assemblages and landscape-use patterns (Sayers 2007). Although in theory inhabitants from these three groups could have chosen to be part of any of these existing communities, the archaeological record shows three modes of communitization in terms of types, ranges and quantities of material, and the ways in which they constructed and lived in this swamp landscape (Sayers 2007).

Similar to the attention to a different type of landscape like the swamp, I build upon the UGD framework in order to focus on the character of the coasts as “social spaces” on the nature of “space.” I concentrate on the scalar issues at the local and regional levels in conjunction with evaluating the role of social difference in how different groups of residents relate with the Puerto Rican southwest coasts. I follow cultural geographer Doreen Massey²⁰ to examine what I refer to as the relational construction of “social spaces” defined by the qualities of relationality and heterogeneous in order to explain the rapid and varied changes in two sites: Manglillo and Bahía

²⁰ Sandhya Ganapathy is a sociocultural anthropologist who has an environmental focus applying the lens of global sense of place (Ganapathy 2008, 2013).

Fosforescente. I look at the changes on the material and social dimensions of coastal spaces, which are constantly mediated by the person's on-site activities. Also, as people link these on-site activities through their meanings to particular combination of the main social uses, these social practices in turn affect the character of these coastal spaces at social and material levels. Following the framework of the global sense of place (Massey 1994, 2005), I concentrate on the importance of local and regional "scales" in order to examine the role of "social difference," or how different social groups of residents based on their social background relate with the two sites of the southwest Puerto Rican coasts. To apply these ideas from the global sense of place, I develop an ethnographic study to examine everyday life on the southwest coasts and whether residents observe that the quality of "space" is its multiplicity referring to its heterogeneity or plurality as well as relational dimensions. I compare how members of groups of residents reflect people of diverse backgrounds who live in Puerto Rico that develop their local understandings about the social spaces, or what I see as "local spatial perspectives."

Relational Construction

Anthropologists have theorized and underlined the importance of plurality and heterogeneity of "space" -- what Doreen Massey defined as the multiplicity²¹ of space. I pay attention two forms of heterogeneity²² in this study: "social difference²³" based on the socio-

²¹ I considered for some time applying another heuristic device, "the patternings of uniqueness" (Massey 1994) to emphasize a related outcome occurring in these areas. I interpreted this heuristic device to explain a pattern for converting themselves into what individuals recognized its uniqueness and exceptionality.

²² I refer to that heterogeneity also connects with the plurality of sociocultural meanings found to be different across main three groups studied of residents, experts, and short term visitors as well as similar within subgroups of permanent and temporary residents, experts such as managers and scientists and short-term visitors.

demographic profile of residents, or positionality, and the “plurality” of their socio-cultural meanings (Basso 1996). Both qualities of heterogeneity -- social difference and plurality -- offer entry points to discuss the processes in which social relationships affect the inherent attributes of “social spaces.” Keith Basso and his popular concept of the senses of place (Basso 1996), reflect what many cultural anthropologists stress in analyzing this concept in both ethnographic and anthropological investigations meant in examining multiple voices or views about a place (Basso 1996; Ganapathy 2013; Rodman 1992). Although other anthropologists have presented similar ideas to those proposed by Massey, including those of “multi-locality”(Rodman 1992) and “translocal engagements” (Ganapathy 2013), I consider that the Puerto Rican coasts reveal a complex case which requires both a multi-scalar and spatial-orientation from beginning to end. In my view, I draw from Massey’ thinking about social spaces specifically of her local and regional attention and the role of social difference in relation to power dynamics. This approach enables me to analyze human and environment relationships in regard to the issues of access and uses of the southwest Puerto Rican coasts by residents differentiated by their social backgrounds (e.g., education, employment, age, gender, and place of residency). Issues of scale and time remained central throughout this analysis.

When considering social difference, many anthropologists have concentrated on “built” environments, such as cities (Giesecking et al. 2014; Leap 2009; Lawrence and Low 1990; Lawrence-Zúñiga and Low 2003; Low 2014) including processes of rapid urbanization and gentrification (Brusi 2004; Darling 2005; Lamarque 2009; Smith 1984; Valdés-Pizzini 2006). For example, linguistic anthropologists have underlined the attention to language use to examine

²³ In this study, the term “social difference” refers to the diverse backgrounds or socio-demographic qualities of participants defined as “locals” based on their place of residence such as Guánica or Lajas municipalities to live in proximity to Manglillo and Bahía Fosforescente divided by gender, employment, education, residency, and age.

the effects of gender in order to explain the ways social difference affects the production of local spatial perspectives as limited by the ideologies imposed by mainstream society. William Leap has analyzed a specific area in the District of Columbia (DC) by look at the use of the area by gay men (Leap 2009). This group of gay men residing in DC prefer particular areas of the city for engaging in recreational and relaxation social activities. Based on 100 interviews with this group, Leap concluded that this group of gay men, mainly of Caucasian descent, preferred the Navy Yard area for social and recreational activities. This group, however, did not demonstrate a collective sense of opposition to the baseball stadium construction project that threatens to change this area. Leap's consideration for the impact on this group that this view was not part of the urban planning process. His use of a participatory mapping exercise in his ethnography shows linkages among gender, spatiality, and social inequalities amidst a development project in Washington DC.

In examining this, Leap also demonstrated connections among social difference, gender and inequalities, which is analogous to my coastal ethnography as they both contained analysis of socially distinct groups that are levelling planned events that will change their interactions with "leisure" spaces. Similar to what Leap did, I compared the life-stories of individuals based on gender who reside nearby Manglillo and Bahía Fosforescente in conjunction with age, living in proximity or residency, education, and employment to expand on this potential for thinking about spatiality, leisure, and social difference.

Another example applying the concepts of “social difference” and “spatiality” emerges in the context of the Puerto Rican society in conjunction with the chronotope²⁴ of Puerto Rican coasts (Valdés-Pizzini 2009). Drawing upon the intersections across collective memory, cultural identity, and landscape studies, Manuel Valdés-Pizzini, develops a comparison of four key coastal areas based on the uses of different groups of residents in Puerto Rico. Unlike Leap, Valdés-Pizzini concentrates on other aspects of a person’s position: transient groups, labor, and socio-economic class. When proposing the phrase of the “chronotope of the coasts,” Valdés-Pizzini evokes the Bakhtinian sense of the coasts to be like a protagonist -- referring to the materialization of “time-space” in transforming the genre of novels -- in order to situate the historic and cultural (symbolic) values of the Puerto Rican coasts in everyday life for locals. Drawing upon David Harvey’s work (D. Harvey 1996), Valdés-Pizzini examines the importance of collective memory for the re-construction of the history of the coasts as understood by groups that are typically ignored by official or historical accounts in Puerto Rico: fishers, surfers, poor or low-income groups, and conservation or forest workers.

Building my attention to gender is similar to Leap’s work. The categories of employment or labor, education, place of residency, and age is parallel to Valdés-Pizzini’s research. I develop an ethnography to examine the role and importance of social difference, which focuses primarily on the local and regional “scales” following Massey’s ideas as a boiler plate in this investigation. I compare three groups of visitors who are also residents of Puerto Rico divided by age, residency, gender, employment, and education. Considering that “social spaces” have qualities

²⁴ In light of my relationship with the author of this piece, I read this article for the first-time near publication date in 2006. In October 2015, I gave an invited talk about Manglillo beach at the Department of Anthropology at The University of Pittsburgh invited by a fellow anthropologist. In this talk, I reviewed again my assumptions about the chronotope by returning to Bakhtin’s original work (Bakhtin 1981). At this point, I develop a different understanding from Valdés-Pizzini’s concept of the chronotope of the coasts.

that can be observed by residents including being multiple or heterogeneous and relational, I apply a relational construction as defined in this chapter. I look at the ways in which the social positions influence their on-site activities that build the basis of the social relationships defined as “processes” or interactions, which affects the transformations on the attributes of the southwest coasts of Puerto Rico.

Taking a processual approach, I locate on-site activities to be linked through meanings to particular main social uses of recreation, biodiversity conservation, scientific research, and public uses. I examine what happens on-site identifying two or more activities occurring in chosen areas. In doing so, I establish linkages between on-site activities and their assigned meanings to meet particular combinations of the social uses to examine their effects on the social and material transformations of Manglillo and Bahía Fosforescente. Also, I analyze what happens when different local groups intersect in one area looking at two areas with slight variations on the experiences for visitors given their material attributes. Last but not least, I also consider if locals’ activities establish different combinations of two or more listed social uses.

I examine scalar issues especially those of local and regional scales in order to challenge conventional assumptions connected to the concept of “space,” following the global sense of place. For example, while Massey is interested to advance political-economic theory, she underlines the need to consider gender and socioeconomic class to broaden the scope of social theory, or thinking about “space”, especially by those interested in uneven geographic development (D. Harvey 2006a; Smith 1984). Similar to more recent applications of UGD (Sayers 2014), I follow Massey to theorize about the role of social positions among residents of Puerto Rico in terms of the issues of access and uses of two nearby areas of the coasts, Manglillo beach and the bay of Bahía Fosforescente.

Another aspect of concern in Massey's multi-scalar and spatially driven approach of the global sense of place involves to critique scholars' attention to "time" (Bender 1993, 2002; D. Harvey 2006a; Smith 1984) in order to connect it to her concept of "space as multiple." Also, those theorizing about UGD as well as other anthropologists focus on "time" and "history" (Bhimull et al. 2011). In this study, I follow Massey to consider that my relational construction of space defined either as multiple or heterogeneous requires a more flexible consideration of the time continuum. For this, I analyze both "historical" and diachronic events that mark changes in Manglillo and Bahía Fosforescente. In doing so, these events thought of as social processes allows me to move back and forth on the time spectrum in several directions, for example moving from local to global scales as well as from past to present at the same time. This is the most valuable aspect of building upon a theory that accepts more fluidly the "time-space" (Massey 2005), or what others have recognized as the merging of time and space (Bakhtin 1981; D. Harvey 2006a; Valdés-Pizzini 2009).

Another consideration about "space" lies in its relational dimension, which requires to consider what happens on the ground but also on the minds of people, in this case collected through the residents' sociocultural meanings. In particular, I connect their on-site activities with their assigned meanings of the listed main social uses of the areas Manglillo and Bahía Fosforescente. One of the benefits for the relational dimension stem from its original definition from the philosophy of science. Relationality refers to analyze two events occurring in two different geographical spaces connected through the same person living the experience. As Harvey explained this relational dimension of "space" is when he gives a lecture and he is the one presenting an idea. During this presentation, Harvey explains that any person from the audience can either be listening to him or thinking about something else. In my project, I apply

that the relational dimension allows me to examine events that mark changes that can stem from different sources, times, and spaces. Like it is assumed in Harvey's example, the field locations are not 'mere' geographical areas. These coastal sites can be for example situated in my analysis to be similar to events or processes moving in the continuum of local and global scales,²⁵ because these places exist in and out of their geographical locations. An example of this is that these places exist in the memories of the visitors about what they did when visiting them, and how they link back to their perceptions of the change on the social and material aspects of these coastal areas.

The origins of relational dimension emerges from the tripartite definition of "space" drawn from the philosophy of science that posits that that "space" has "absolute," "relative," and "relational" characteristics (D. Harvey 2006a). Only few scholars have been interested in examining the concept of the "relational space," because of the difficulties for defining and demonstrating its usefulness in social theory (D. Harvey 2006a; Massey 2005). In this study, I follow Massey's conception about relational space. Massey explains that this dimension of "space" allows me to describe onsite activities enacting social processes in everyday life, and ultimately the findings from social investigations can affect shifting conventional debates in the political realm. Broadly, the global sense of place framework show that the processes of globalization have shifted everyday life and resulted in a "new consciousness of spatiality" (Massey 2005). Massey is concerned with "...the character of the relations and their social and

²⁵ For Massey, the concepts of space and place only differ in intensity or degree for similar reasons. For example, following Massey's thinking on space and place, the concept of space can refer to the global scale in that environmental organizations like UNESCO and the US federal government think about Manglillo and Bahía Fosforescente. Additionally, these two chosen areas exist at the local scale in that they are designated as places within the boundaries of protected areas that are governed and managed by the Puerto Rican government.

political implications” (Massey 2005) and insists on the analysis of the practices and relationships in space relate to the concept of relationality (Massey 2005).

The relational construction of social spaces offers me flexibility for example to focus on the on-site activities and their meanings associated with the main social uses of these two sites to be similar or as modes of processes. The processual approach allows for thinking about them to build social relationships that can be described as “trajectories” or “stories.” Taking this fluid and open-ended form, the social activities and uses help me explain the changes on the inherent attributes of the coastal spaces, which characterizes the complex relationships between people and their surroundings. I pay close attention to the effects of the relational construction of coastal space in contemporary unequal globalized societies.

I follow Massey’s thinking about social spaces, because she offers clear connections to discuss important issues of “scales” when thinking about “social spaces.” My conception of the relational construction underlines thinking broadly about issues of access and uses, or power dynamics, considering people of different backgrounds and their on-site activities at the southwest Puerto Rican coasts. I focused on ideas from the Massey’s framework of the global sense of place that pay attention of the local and regional scales coupled with the concept of the role of social difference, which connects to analyzing the power differentials of the issues of access and use of the Manglillo beach and Bahía Fosforescente. I selected two types of coastal areas located nearby in the southwest Puerto Rico. The beach and bay types describe the local scalar attention, and also the two areas share other traits such as being located in rural areas and protected areas of Puerto Rico (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006; Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975; Fuentes-Santiago et al. 2000). Also,

the regional scalar attention emerges from that both locations lie geographically within the southwest region of the main island of Puerto Rico.

Synthesis for Defining Coastal Spaces

This ethnography (Nader 2011) applies the key concept of the “social spaces” of the coasts. Expanding both the uneven geographic development (D. Harvey 2006a; Smith 1984; Sayers 2014) and the global sense of place (Massey 1994, 2005) frameworks, I propose a synthesis of the social production and social construction of the “social spaces” to define how residents relate with two areas located on the southwest of Puerto Rico, Manglillo and Bahía Fosforescente. The special characteristics of “social spaces” can be described as having heterogeneity, multiplicity, relationality, and plurality attributes (see previous section of this chapter).

An influential cultural anthropologist, Setha Low, has also argue for the benefits of developing a model of co-production when connecting these two -- the social production and social construction -- to theorize about “space” and “place” (Low 2009, 2014). Following Low and Massey, I agree that the synthesis help me explains how, when, and in what ways the on-site activities reflect particular series of social uses that can be defined as “social relationships.” Also, the social process for the formation of social relationship can happen through nonlinguistic forms of communication that explain if people note how the inherent social and material attributes of the coastal spaces change over time and at a given moment. Through either of these mechanisms of language use and the nonlinguistic forms of the Perceian icon and index tools, the two sites of Manglillo and Bahía Fosforescente serve as “meeting points” to the identified on-site activities and their corresponding meanings of the listed social uses, because they cut across

local-global “scales²⁶” and time-space configurations²⁷. In this way, the on-site activities listed by residents while on their visits to the Puerto Rican southwest coasts can be described to be social processes that need to be situated in history, power dynamics, culture, and social inequalities. These concepts have been often underlined by scholars applying the interdisciplinary frameworks of political ecology (Orr, Lansing, and Dove 2015; Paulson and Gezón 2005) and in the UGD (D. Harvey 2006a; Massey 2005; Sayers 2014; Smith 1984).

As it has been common in sociocultural anthropology, I propose a synthesis of the social production and social construction of the characteristic of the multiplicity of social spaces. In terms of the social production of the “coastal spaces” as relational and multiple, recreation becomes most pronounced in both areas in terms of observing a series of on-site activities that are leisure-oriented, non-extractive, low cost or free, and voluntary. These activities are characterized by what most participants, informally and formally, narrated in their on-site activities and ascribed meanings to while visiting the southwest Puerto Rican coasts. Recreation is similar (Santini-Rivera and López-Cintrón 2004), for instance, to tourist activities (Stonich 2000; Stronza 2001). These two share many aspects -- notably leisure goals and activities. In this study, I prefer to theorize about recreation considering the impacts of the on-site activities and their issues of power such as access and uses on the local economy and to the individual expenses for residents when visiting the southwest coasts. This preference underlines the qualitative differences between residents looking for recreation, and foreigners engaging in tourist activities. A typical resident of southwest Puerto Rico has the ability to drive and bring

²⁶ This is a basic premise for this study in that what you do in a place like sea bathing is affected by processes that originate, for instance, how sea-bathing is connected to similar processes elsewhere in the globe.

²⁷ A basic premise here is that social practices meet in a given time and space forming a node or intersection; this is what other have called “time-space” (Massey 2005) and “time-space compression” (D. Harvey 1996).

their own food to spend an entire day at Manglillo beach, a beach that has no options for buying food or other items on-site. Conversely, a foreigner most likely pays for a rental car or taxi, food, and lodging to stay in San Juan; foreigners therefore tend to enjoy a day at a beach in the urban areas, or maybe for just a few hours via the cruise industry. In Puerto Rico, urban beaches -- unlike rural beaches like those in the southwest -- tend to have venues to buy food items and services, including those provided by the luxury hotels.

In terms of the social construction of the “coastal spaces” as relational and multiple, I compare how the on-site activities and their meanings tend to be associated with multiple social uses occurring in Manglillo and Bahía Fosforescente. In general, regardless of their social profiles the residents of Puerto Rico preferred to engage in “recreation-as-socializing,” defined through on-site activities of sea bathing and social group gatherings. These activities often are connected to recreational uses, but also on their recollections and through different sources indicate a close tie to the (re)-claiming of the coasts as “public” areas and for public rights granting them “open-access” or unlimited access to use them (rights for use). This means that participants not only recognize recreational uses but also other types such as scientific research, biodiversity conservation, and public uses. Another process that emerges from the social construction of social spaces is when residents note the changes of the attributes of the chosen sites, either social or material (ontology).

Beyond language use, I identified also non-linguistic forms of communication, or communicative acts, by participants when indicating either instances of “icon” and “index” tools extracted from the Perceian triad (Kohn 2007, 2015). The non-linguistic forms of communication demonstrate that the places themselves and their attributes influence the formation of multiple social relationships among residents and the coasts -- similar to ethnographic examples of

language use exemplifying resident's life-stories and/or other written, oral and audiovisual evidence collected in this study. The ethnographic examples support icon and index tools used by participants; photographs and field visits led me to note social and material aspects that rapidly changed at each chosen site that are relevant to the participants who are visitors of the studied areas -- namely residents (e.g., open-fence, mangrove channel, coastal bioluminescence, Caribbean Sea, sea waters). In this analysis, these ethnographic examples were examined in relation to three overlapping social processes that follow the logic of this synthesis of the social production and the social construction of the coasts defined as "social spaces." The three processes included the dialectics or tensions, the common or shared understandings, and the political-economic context of the coasts of Puerto Rico (see chapters 4, 5 and 6).

This synthesis help me explain that the coasts can be thought of as "social spaces" that have inherent material and social attributes, such as those of heterogeneity and relationality. This interpretation follow Massey's work, which also calls for giving attention to the political implications of social theory interested in challenging the nature of the concept of "space." My work confirms that the political and economic context of Puerto Rico most visibly can benefit from maintaining a critical stance, such as those stemming from the basic premises established by the global sense of place and the uneven geographic development. For example, issues of scale and time can be addressed by questioning what scholars mean by their use of the concept of social spaces. The possibility for shifting the political realm informed by social theory is at stake here because the Puerto Rican society lies at defining juncture. The declaration of a high public debt has brought what scholars conceive as both a financial and a humanitarian crises that already is bringing changes to everyday life to those living in this tropical archipelago. The coasts and the southwest residents of Puerto Rico are not an exception from the crises in that

there can be changes to the ways visitors use the marine and coastal environments located in the southwest.

Conclusions

Massey indicates “[c]onvening spatial heterogeneity into temporal sequence deflects the challenge of radical contemporaneity and dulls the appreciation of difference” (Massey 2005). The concept of “social spaces” of the coasts connect with the qualities of the relational and multiple for re-thinking “space” (Massey 2005). These two characteristics of social spaces propose that social investigations seriously consider the effects of the relational construction following the primary framework of the uneven geographic development and global sense of place. Both qualities of heterogeneity -- social difference, time, and plurality -- in conjunction with relationality offer entry points to discuss in a processual manner how social relationships form and how they affect the inherent attributes of coastal spaces.

Using the lens of ethnography (Nader 2011), I situate the main concept of “social spaces” within the following two political-economic frameworks: the uneven development (D. Harvey 2006a; Sayers 2014; Smith 1984) and the global sense of place (Massey 1994, 2005). Using the synthesis of the social production and social construction of the coasts thought of as social spaces, I look at the characteristics of heterogeneity and relationality. First, this synthesis includes applying the social production of the social spaces namely to situate the introduction and the intensification of recreation in Manglillo and Bahía Fosforescente. My findings document the variation among local and global interlocutors as well as within the studied three local groups. In this project, I focus on the variation across three groups of locals of residents, experts, and short-term visitors analyzing three sources of data: observations, interviews, and written materials.

Then, I continue to apply the social construction of social spaces. This means that I analyze local visitors and how they define their on-site activities --namely sea bathing and social group gatherings. Most participants assign their meanings to their on-site activities to reflect a combination of a total of four main social uses on the southwest coasts. This interconnection is documented by interviews, in-situ observations, and documents. This synthesis builds the foundation for my interpretation of the two theoretical frameworks in this anthropological and ethnographic analysis.

Three processes emerge to explain the linkages across these two theoretical frameworks: the dialectics, the commonalities or shared understandings, and the effects of Puerto Rico's political and economic context of the coasts. The expected social process observed is the tensions found across three main groups of locals in terms of their on-site activities linked to particular social uses. Participants also note that the role of their on-site activities through nonlinguistic forms of communication of the Perceian icon and index tools; residents employed these Perceian tools to explain the changes occurring at the social and material attributes of Manglillo since the 1970s and the Bahía Fosforescente since the 1950s. Also, each field locations provided evidence for another two concurrent processes: the common meanings or understandings, and the effects of the political status of Puerto Rico. The latter two processes supplemented and expanded my interpretation of combining the uneven geographic development and the global sense of place.

While the applications of the global sense of place vary, I agree with those suggesting that a key concept in Massey's thinking is the "spatial politics" (Featherstone and Painter 2013). I propose that the spatial politics refers in this case to the ways in which my definition of "social spaces" always require to be connected the workings of power dynamics affected by the

processes of social inequality. Like Massey and her concept of “spatial politics” (Albet and Benach 2012; Benach 2013; Featherstone and Painter 2013), I propose that the coasts as “social spaces” require attention to social difference, plurality, relationality as well as local and regional scales. These concepts and their linkages can help scholars specify the workings of power dynamics embedded in a contemporary society affected by the widening of the processes of social inequality and uneven geographic development.

I propose that the multiple on-site activities or social uses, defined as social relationships, expand anthropological theories and methods by focusing on the importance of the relational construction of social spaces. This perspective connects the role and the centrality of the social relationships to explain the changes to the characteristics of the coasts, such as the southwest Puerto Rican coasts. Through explaining changes at the material and social aspects of the social spaces, I specify the variation for the ways on-site activities and uses affect the areas of Manglillo and Bahía Fosforescente. For this, I apply the local and regional scalar attention always situated in history and embedded in power dynamics to examine how these aspects affect the access and uses among different people of the southwest Puerto Rican coasts. Also, I locate that the combination of two or more on-site activities that intersect in a geographical area are always embedded in unequal globalized contemporary societies (Massey 2005).

Similar to the ontological turn (Kohn 2015) in the social sciences and humanities, I interpret that Massey proposes something similar when thinking about “social spaces” in order to re-evaluate the conventional assumptions and definitions about what scholars mean when analyzing this concept. For Massey, she concentrates on “... local politics that took seriously the relational construction of space and place, and as such would be highly differentiated through the vastly unequal articulation of those relations”(Massey 2005). Like Massey, I focus on analyzing

the character or nature of the social relationships of different groups of residents that occur in the southwest Puerto Rican coastal spaces. In doing so, I define the concept of “social spaces” noting the centrality of applying a processual approach for thinking about the qualities of relationality and multiplicity together for thinking about the beach of Manglillo and the phosphorescent bay of Bahía Fosforescente.

In this anthropological analysis, I emphasize the role and centrality of the local and regional scales coupled with the social difference among two coastal sites and comparing the on-site activities of three groups of residents in terms of how these social processes transform the characteristics of the social relationships or interactions in two areas of the southwest coasts of Puerto Rico, Manglillo and Bahía Fosforescente. Also, I pay attention how these social activities change the ontological aspects of the social spaces at material and social levels. Both processes can be described as providing an ontological analysis for how residents reflect particular understandings about the space and of themselves accompanied by others in place. People recognize that the coastal areas form part of their everyday life. In this project, I analyze these social processes occurs among those living in contemporary unequal globalized societies (Massey 1994, 2005) and at a society, Puerto Rico, facing a financial crisis. Social inequalities and the crisis might bring more rapid changes to the access and uses of the southwest coasts to all segments of the visitors including the residents.

CHAPTER 3

METHODS

Introduction



Figure 1. The Puerto Rican Archipelago relative to North America²⁸

²⁸ The map was developed by [TUBS](#)/Wikimedia Commons ([source](#); [CC BY-SA](#)) and illustrates the geographic position of Puerto Rico relative to the United States.

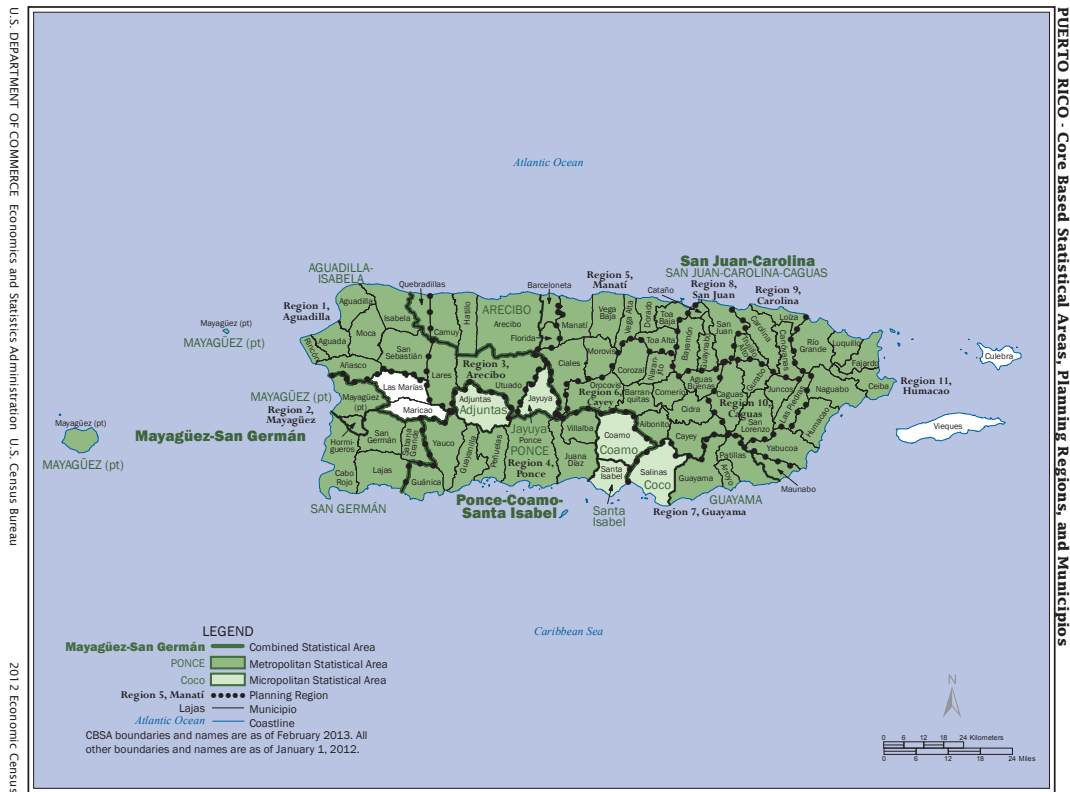


Figure 2. The Puerto Rican Archipelago.²⁹ While many refer to Puerto Rico as an island, I define it as an archipelago for having a group of inhabited islands, islets, and cays (Áyala and Bernabe 2007) located in the Caribbean.

For this study, I developed a complex research design that compares multiple on-site activities among three groups of residents in several areas of the southwest coasts of Puerto Rico. The main method is ethnography, combined with conventional anthropological methodologies of participant-observation, interviews, and archival research. In general, an iterative or cyclical approach was applied throughout the duration of this project (from 2011 to 2015), consisting of research design, data collection, and ethnographic writing. This approach serves as an “iteration” that underlines the cyclical manner, and that has no specific order when engaging in activities within this research study. Applying this iterative approach enables building both theoretical and

²⁹ The map is from US Census 2010.

methodological adaptations in this ethnography embedded into the framework of the uneven geographic development and the global sense of place while conducting this research project.

This chapter has two parts. The first part defines the area of study of the southwest coasts. I discuss the southwest coasts looking at the field locations of Manglillo and Bahía Fosforescente. These locations will be further separated based on the types of environments of the beaches and phosphorescent bays. These two coastal areas fit the categories of the local Puerto Rican society and of the regional Caribbean society, which are also outlined briefly.

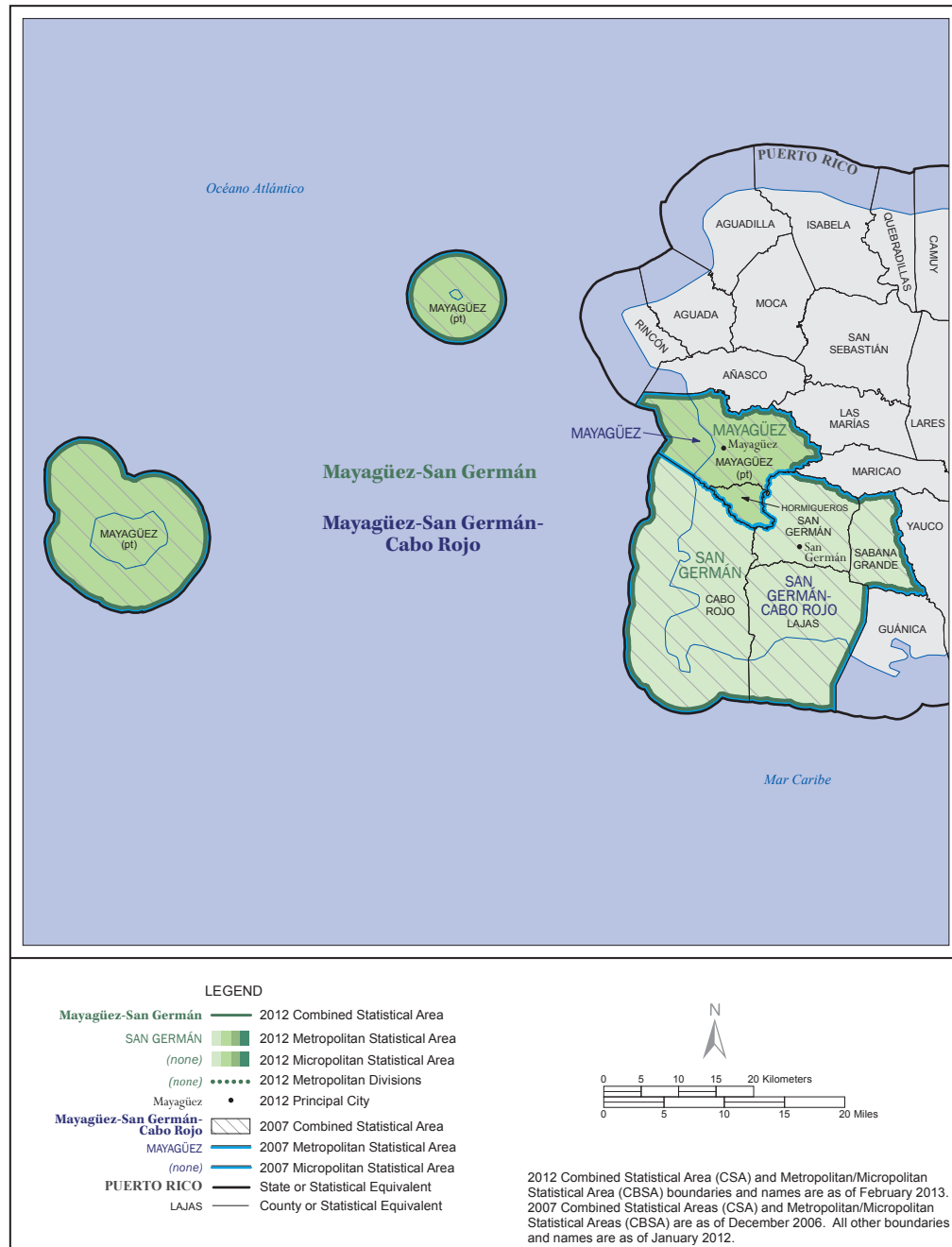
The second part of this chapter defines my view about an ethnography using conventional anthropological methodologies of participant-observation, interviews, and archival research (Bernard 2011). Ethnography is a means for theory building (Nader 2011) to expand the theoretical frameworks of the uneven geographic development and the global sense of place (see chapter 2 for details). I also provide a description of the three main studied groups of participants, broadly conceived as “residents” for living in proximity to the southwest region of the main inhabited island of Puerto Rico. The three selected groups of participants in this study include residents, technical experts and short-term visitors. Also, my findings present evidence for subgroups: permanent and temporary residents, scientists and managers as experts, and visitors residing away from the southwest, such as in the metropolitan area of San Juan. I conclude this chapter with a brief description of the data analysis.

The Southwest Puerto Rican Coasts: Manglillo and Bahía Fosforescente

My ethnographic study develops a multi-scalar and spatial theoretical framework with special attention to the issues of local and regional “scales.” First, I present the two field locations, beaches and phosphorescent bays, to underline a multi-scalar orientation. These two areas are geographically proximate in a relatively small littoral area of approximately 12 miles,

extending in different geographical directions horizontally from east to west in the coastline, seaward, and inland. Both two locations -- Manglillo and Bahía Fosforescente -- have commonalities that are relevant for the research design and development of this anthropological project: coastal continuum, little construction, rural locations, and nearby population in *poblados* (small residential areas).

Mayagüez-San Germán, PR Combined Statistical Area



U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

2012 Economic Census

Figure 3. The southwest of the main island of Puerto Rican archipelago³⁰

³⁰ Map is from US Census (2010).

The main reason for considering this coastal and nearby marine zone is that residents insisted in discussing these activities occurring in a shoreline or coastal and seaward perspective. This means that residents recognize that the southwest coasts containing an abundance and variety of coastal sites that lie contiguous to each other, extending inland and along nearby sea areas. Chosen field locations for this project -- beaches and phosphorescent bays -- reflect what I visualize as a coastal line, or more accurately as a continuum of land and sea-water. The notion of a “continuum” helps me establish my definition of “southwest coasts.” My delimitation of southwest coasts (see illustration 3) contains the coasts and nearby marine environments of the municipalities of Guánica (see illustration 4) and Lajas (see illustration 5), moving from east to west. Two salient locations recognized by residents in the lineal coasts include from the Tamarindo area to La Jungla area in Guánica for approximately six coastal miles (Guevara-López and Soriano-Miranda 1996). Also, Lajas has approximately six additional coastal miles extending from Salinas Fortuna to the Pitahaya area. The extremes of Tamarindo and Pitahaya were place names mentioned during the interviews by residents in this study.

Additionally, I consider the nearby marine areas of what is conventionally defined as coasts: approximately the first three nautical miles moving seaward from the maritime-terrestrial zone to the sea. I observe this nearby marine area in the coastal municipalities of Guánica and Lajas. Taking these two, I broadly define the southwest coasts to include a continuum inland from Tamarindo to Pitahaya as well as seaward from the shoreline out three nautical miles.

Another important local-regional scalar consideration for this project is that the land portion of what I define as the southwest coasts -- the municipalities of Guánica and Lajas -- are minimally developed, with little construction, and are primarily rural locations. This trend is contrary to the conventional urbanization patterns of Puerto Rico, which is about 70 percent

urbanized or metropolitan (Valdés-Pizzini 2006). One of the main reasons for this pattern in these two municipalities is that they contain large areas designated for agriculture or other “protected areas,” which by law prevents construction. Manglillo and Bahía Fosforescente are located within protected areas.³³ The Manglillo beach lies within the jurisdiction of the UNESCO International Biosphere Dry Forest (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1982), and the bioluminescent bay in Lajas is part of the Parguera Natural Reserve (Valdés-Pizzini and Scharer 2014). Puerto Rico is similar to the United States in regards to the designation, governance, and management of protected areas (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006). Since people do not live in any of the studied coastal locations in Puerto Rico, I analyzed nearby inland populated areas in order to consider the views of nearby residents who use these sites for leisure and recreational activities, such as sea bathing and gathering in groups.

Although the designation as protected areas does not allow people to live in Manglillo and Bahía Fosforescente, these areas are located near *poblados*. Originally, I defined the nearby coasts using the sampling unit of *barrios* (Torrech 1994), as defined by Puerto Rico’s Planning Board and the United States Census. Listed from east to west they are Carenero, Ensenada, and Costas. Eventually, I decided on the smaller sampling units of *poblados*, as defined by Rafael Torrech, because these are more representative of the social organization relative to the residents or visitors of these areas (Torrech 1994). Puerto Rican *poblados*, as I defined them here, occupy a relatively small geographical area consisting of a small number of residential households as well as related infrastructure. In the beginning of this study, I selected the *poblados* of San

³³ This legal arrangement has also prevented gentrification such as that observed in urban or metropolitan areas like San Juan or elsewhere in the northeast (Valdés-Pizzini 2006). The focus on analyzing gentrification is outside the scope of this study.

Jacinto, Salinas Providencia or Playa Santa, Los Hornos, Papayo, and Parguera. These *poblados* often have a community center, a fishing association, baseball parks, and basketball courts. The *poblados* of Playa Santa or Salinas Providencia and Parguera also contain retail stores, and other types of businesses. This kind of small sampling unit is critical for qualitative and ethnographic work. For this project, for example, Parguera *poblado* is relevant for the origins and the uses of the phosphorescent bay of Bahía Fosforescente. Salinas Providencia or Playa Santa *poblado* is relevant for the uses of the area of Manglillo beach.

In summary, within Puerto Rico, I focus on two municipalities, Guánica and Lajas, located in the southwest part of the main island. These areas contain over 60 potential sites of coasts and marine environments. The sites are contiguous to each other, and include a continuum of land-sea that is a mix of lineal coasts and nearby islets and cays. In sum, the southwest offers a microcosm of the larger Puerto Rico and Caribbean archipelagos. Both archipelagos contain shoreline or coastal areas, and seaward or nearby marine environments that tend to be associated with the Caribbean Sea. The latter is a geographical reference among participants or residents when depicting their on-site activities in either of the chosen locations.

Field Locations

Puerto Rico is divided into 78 municipalities. I defined the southwest as being composed of two municipalities, Guánica and Lajas. The total population of Guánica and Lajas is estimated at 40,331 individuals. In Guánica, a population of 16,897 individuals reside in 53.42 square miles or 138.4 km² (US Census Bureau 2017a). In Lajas, a population of 23,434 individuals live in 76.85 square miles or 199 km² (US Census Bureau 2017b). Compared to the rest of the 78 municipalities in Puerto Rico, Guánica is small and rural whereas Lajas is rural. The total population of Puerto Rico is approximately 3,411,307 (US Census Bureau 2017c), occupying

3,515 square miles -- 9,104 km² -- (Government Development Bank for Puerto Rico 2008) divided into 70 percent urban and 30 percent rural.

Not only do Guánica and Lajas have a small number of residents as compared to other areas of Puerto Rico, but the southwest offers a region with relatively little development. By development, I refer to patterns of either residential and/or commercial construction that are common in Puerto Rico and common elsewhere in the world. For example, Guánica and Lajas have no shopping mall³⁴, and this is the case in only a few other municipalities in Puerto Rico. Also, Guánica and Lajas have only a few ‘fast-food’ restaurants. In addition, Guánica has only one hotel and one *parador* (bed and breakfast) that are recognized by the government through the Puerto Rico Tourism Company. Similarly, Lajas has only a few *paradores* in Parguera and no hotels.

Beaches

One of the two field locations are the southwest beaches, specifically those located in Guánica. Like marine scientists elsewhere, a common characterization proposed by physical geographers in Puerto Rico is that a beach has major biophysical conditions, including being an area with deposits of sand and tidal patterns (Barreto-Orta 1997; Barreto 2010, 2015; Bush et al. 1995; Morelock and Barreto-Orta 2003; Pérez-Robles 2006). Another characteristic often circulates in academic and public debates in Puerto Rico: this view involves the analysis of this area as a sort of “ecosystem” in order to consider ecological, biological and other types of information of both living and nonliving aspects of beaches as coastal areas. Unlike these two scientific or research oriented definitions of a beach, other common definitions of beaches often

³⁴ In 2013, I obtained information of a feasibility study for the retail store of Target (Rivera-Rivera 2013). Through one of the participants, I learned of a class project in the University of Puerto Rico-Río Piedras, where an undergraduate student in Political Sciences did this project as a poster presentation.

used in Puerto Rico are the political-legal (Lugo et al. 2004) and for conservation management (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975).

I follow international and scientific beach literature. For example, I agree with scholars who have taken more holistic definitions of “beaches,” including those emerging in particular countries with public attention, such as Spain (Roca, Villares, and Ortego 2009), Dominican Republic, and Australia (Taffs and Cullen 2005). Further, a group of coastal states located in the United States, including Florida and Massachusetts, that bring similar considerations to those found in the Puerto Rican coasts. These beach investigations offer practical applications extending to the governance and the management of the coasts (Martínez-Martínez and Casas-Ripoll 2002; Rubio-López 2002).

This concept of a “beach” maintains a generic tone in which I address the different aspects of social life and how these affect what people perceive and do when visiting these coastal areas (Barreto 2015; Coldicutt 2015; Concepción-Hidalgo 2010; Cosme-Nazario 2004; Hoeppe 2007; Kluwick 2015; Pérez-Robles 2006; Sánchez-Mercado 2008). For example, scholars have defined that a beach is an area on the coasts, or a land-water dynamic environment, with societal importance for varying reasons (Roca, Villares, and Ortego 2009). I agree with defining beaches as significant at environmental, social, historical, and political levels in order to categorize their importance in the lives of their visitors in their everyday lives (Hoeppe 2007; Roca, Villares, and Ortego 2009; Santos et al. 2005; Taffs and Cullen 2005). In this project, I selected beaches in which visitors or residents made claims of public access and uses during their short visits, but for neither dwelling nor residential purposes.

For this study, I selected a southwest beach in Puerto Rico that stands as a prototype of a popular recreational and public area as identified by locals. I focused on a Guánica beach:

Manglillo. The coastal municipality of Guánica has an estimated total of 28 beaches, extending over six miles of coasts (Guevara-López and Soriano-Miranda 1996). My choice of Manglillo simply followed what participants in this study reported, which is that Manglillo has both unique and similar attributes when compared to other beaches. Participants provided me with a group of five to seven beaches as popular destinations on the southwest coast. Manglillo beach typifies one of the listed beaches in the southwest coasts. Different groups of locals appreciated Manglillo beach for engaging in on-site activities, such as swimming, during their visits, and for socializing on the beach, affecting the social and material attributes of this area. Both activities of sea bathing and gathering in group affects their interactions with the material attributes of these areas of the southwest. I selected Manglillo Beach because it has been a preferred beach destination for the locals for the past several decades.

Unlike tourist advertising that portrays Caribbean beaches as magnets for foreigners (Martínez-Martínez and Casas-Ripoll 2002; Rubio-López 2002), and although the Puerto Rican archipelago has a total of approximately 85 beaches (Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991), only a small percentage of these areas possess suitable conditions for recreational uses such as swimming and public access (Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991; Ortiz, Álvarez, and Quintana 2007). However, the southwest region presents an exception to this pattern. Of approximately 28 beaches in Guánica, almost half have public access and/or bathing conditions, which separates this region from the rest of this tropical archipelago. Beaches cover six miles of lineal coasts in Guánica (Guevara-López and Soriano-Miranda 1996). Additionally, Lajas has approximately five beaches, covering around 10 miles of lineal coasts. Many of these beaches are adequate for swimming and have public access by foot, by car, and by boat.

In Puerto Rico, a dozen number of beaches have been developed into a *balneario*³⁵ beach. This term refers to any beach with infrastructure and/or services (Madera-Rivera 2010). While the southwest has a relatively high number of beach areas available, only a small number have been converted into a *balneario* with construction or other development (see chapter 4). Examples of what locals in Puerto Rico recognized as *balnearios* in the southwest are Playita Rosada and Mata La Gata in Lajas as well as Guiligan, Caña Gorda and Tamarindo in Guánica. Manglillo was not explicitly recognized as a *balneario*, since the facilities have been in relative poorer conditions than in other listed southwestern *balnearios*. In the southwest, a relatively large number of beaches with no infrastructure and with swimming and public access defines this area.

The Puerto Rican government target foreigners to come to the beaches in the northeast as well as urban beaches located in the metropolitan area of San Juan. The southwest beaches are unique from these other locations for a variety of reasons. Unlike other beaches in Puerto Rico, the southwest beaches tend not to be subject to erosion and a target for beach cleanups; local media is careful to describe other beaches outside this region in terms of these two issues (Agosto-Rosa 2015; Caro-González 2016; Chaparro 1988; Marín-Maldonado 2015; Minelli-Pérez 2014; Misión Industrial de Puerto Rico 1987; Morelock and Barreto-Orta 2003; Narváez-Díaz 2007; Rivera-García 2015; Rivera-Vargas 2014; Rodríguez-Báez 2014; Santiago-Caraballo 2014, 2015; Scuba Dogs Society 2013). For example, every year a local nonprofit linked to an international environmental organization spearheads the international coastal cleanup in Puerto Rico (Scuba Dogs Society 2013), which has simultaneous beach cleanup events across this tropical archipelago. Beach cleanup has turned into the largest environmental activity in Puerto

³⁵ A *balneario* is a coastal area with bathing and basic facilities recognized as a public beach.

Rico and it receives significant local media attention (Scuba Dogs Society 2013). But only certain regions -- the north, east, and west -- receive media attention due to higher incidences of erosion events that require urgent attention (Pacheco 2014) and have other sea water conditions often connected to the Atlantic Ocean.

Given that the tourist propaganda about Puerto Rico is centered on particular regions and on specific groups, the southwest beaches arguably obtain relatively less public attention than the other beaches. Findings from this study, for example, describe how the southwest beaches appeal to a specific profile in terms of their visitors, who tend to be individuals who come in groups of people that they know prior to a beach visit with the intention of enjoying the calm, clear, and shallow Caribbean Sea waters for swimming. These visitors tend to be people residing in this region, in Puerto Rico, and/or people self-identifying as being of Puerto Rican descent. This profile found on the southwest beaches is not the group targeted by the tourism companies to sell Puerto Rico as a Caribbean destination to foreigners -- specifically northeasterners and middle to upper class residents of the United States (Hernández- Delgado et al. 2012).

A topic that connects the southwest with the rest of Puerto Rican beaches is public activism (Acosta-Ramírez 1995; Acosta-Ramírez and Muñoz-Vázquez 2008; Brown 2000; Ferrer 1991; Misión Industrial de Puerto Rico 1987; Muñiz-López 1987; Valdés-Pizzini 1994). Locals have frequently made claims for legal user rights and ownership, and have engaged in actions to guarantee their public access to the coasts and the beaches. Both claims and social actions have been common events at various beaches located throughout Puerto Rico. Since the 1970s this trend has peaked, making local beaches important sites for social mobilization (Concepción 1998; Fontánez 2009).

Phosphorescent Bays

The Lajas coast offers a phosphorescent bay that has social, historical, political and environmental importance, parallel to my view of the beaches as outlined in the previous section. Like beaches, phosphorescent bays tend to be a category of interest among scientific researchers (Colin 1977; E. N. Harvey 1957; Oba and Schultz 2014; Soler-Figueroa and Otero-Morales 2011; Widder 2010, 2010; Wilson and Hastings 2013; Zahl 1960). For instance, international marine scientists early in the 1950s and 1960s characterized bioluminescence as the “burning of the sea” (U.S Department of Interior National Park Service 1968; Colin 1977; Zahl 1960). As it will be outlined in this section, bioluminescence is a special phenomenon occurring on surface water in embayments. Both scientists and residents in this study depict observing the phenomenon of coastal bioluminescence. Until recently, bioluminescence was not part of the public debate in Puerto Rico (Departamento de Recursos Naturales y Ambientales de Puerto Rico and NOAA Office of Ocean and Coastal Resource Management 2013; Martin Bras 2014; Miller and Lugo 2009; Olán-Martínez 2009; Sastre 2013), such as those related to protection and conservation of the coasts or of “protected areas.” However, the attention to bioluminescence by different groups of residents is increasing and seems to be changing; and in the past five years, coastal experts and scientists have organized symposia to discuss bioluminescence as an important topic for Puerto Rico. Therefore, in this section, I focus on another characteristic, one that is salient among residents of Puerto Rico. Residents explain that Parguera phosphorescent bays provide an opportunity for engaging in a leisure activity at night that is low cost and as such allows them to bring family and friends to share this coastal bioluminescence experience over their lifetime with others.

Similar to the holistic perspectives applied to define a beach (see previous section), I propose that phosphorescent bays, or the phenomenon of coastal bioluminescence, require

attention to different social aspects. For example, not unlike the Guánica and Salinas Providencia or Playa Santa *poblado*, the municipality of Lajas and the *poblado* of Parguera have gained a cultural or popular value to the residents of Puerto Rico. As described by participants, since approximately the 1970s, many families or groups of residents drive to/from Parguera to experience coastal bioluminescence at night by paying a small fee to join a boat tour (see chapter 5).

Moreover, the coasts of Lajas are unique in that both the shoreline and the nearby marine environment within three nautical miles are filled with islets and cays (Cardona-Bonet 1985) with abundant types of ecosystems as well as providing opportunities for leisure activities. The seascape of Parguera is a popular destination for both residents and foreigners who not only come at night but also during the day for an overnight stay in this popular *poblado*.

As a tourist destination, Parguera offers various types of lodging including *paradores*,³⁶ apartments, and floating house rentals as well as boat rentals. Foreigners can afford to rent a car, paying an overnight stay of at least \$90-\$150 per night (or over \$200 in a hotel nearby) plus room tax and other related expenses for a short stay in the Parguera area. Many residents of Puerto Rico tend to drive to/from Parguera, partly to reduce costs of what I envision is a recreational experience (not a tourist one).

Moving away from a tourist or leisure description, a conventional characterization for coastal bioluminescence comes from science. Marine scientific investigations document that the ecological conditions of bays are ideal to produce the bioluminescence phenomenon (Oba and Schultz 2014). Those interested in bioluminescence recognize the category of “coastal

³⁶ Villa Parguera and Turtle Bay Inn are recognized as *paradores* by the Puerto Rico Tourism Company.

bioluminescence,” and differentiate this phenomenon from other manifestations in deep sea, land and other types of sea-based light-emitting critters (Wilson and Hastings 2013).

Like marine scientists, I conceive that the Bahía Fosforescente offers coastal bioluminescence for different reasons. I agree with investigators that state that, typically, the bays offer ideal conditions by being geographically located in small inlets separated from open seas. These areas tend to be shallow bays -- not exceeding a depth of 14 feet. These two biophysical conditions offer the potential for large populations of micro-organisms called dinoflagellates to float and live throughout the year. The type of dinoflagellates in Puerto Rico -- *Pyrodinium bahamense* -- do not produce risks to people swimming in these waters, unlike other types found in Maryland and other parts of the United States that produce a skin rash and other risks to humans (Paolisso 2000). Species similar to that found in the U.S., the same threats are found in other parts of the world (Glibert et al. 2002).

Additionally, the entrances to the coastal lagoons affects the occurrence of bioluminescence. In Puerto Rico, two of the three major bays -- one in Lajas of about 90 acres and another in Vieques of about 160 acres -- have a small entrance; the Fajardo bay offers an entrance with an “S” shape that forms a narrow channel that is surrounded by mangroves (Soler-Figueroa 2006). A final attribute that enhances the occurrence of bioluminescence in coastal lagoons involves water temperature, which tends to be relatively warm (above 80 degrees F) in these embayments.

In the 1960s, National Geographic magazine produced an article about Bahía Fosforescente (Colin 1977; Zahl 1960). This international attention in the 1960s to what was a relatively small and rural residential area, *poblado* Parguera, has also affected the role of this coastal lagoon with the phenomenon of bioluminescence. A clear consequence of the linkages

between international attention and the Bahía Fosforescente lies in the development of a marine sciences department in the University of Puerto Rico-Mayagüez campus within the *poblado* of Parguera, in what is known as Magueyes island (an islet).

Primary Context: Puerto Rican Society

Puerto Rico's colonial ties with the United States since 1898³⁷, and prior to that for 500 years with Spain (Trías-Monges 1999), have had an effect on the social uses of beaches and phosphorescent bays. For instance, Puerto Rican beaches and bays are covered under a series of applicable laws distributed among more than 23 government agencies (Pérez-Robles 2006), resulting in multiple legal jurisdictions. The fact that Puerto Rico does not have a dedicated island-wide beach department nor a dedicated budget (Chaparro 2002) directly affects its capacity to organize and implement cleanups -- or any other -- beach activity. In addition, similar to the coasts and oceans, the Puerto Rican beaches and bays also have inherent challenges related to complex property rights different from their land counterparts (Acheson 2015; Schlüter et al. 2013). Puerto Rican beaches face highly fragmented governance and management, akin to beaches in Latin American societies (Barbosa de Araujo and Ferreira da Costa 2008; Botero et al. 2015). Beaches tend to obtain more attention than bays, for example in media or scientific research. The attention does not limit that beaches and bays³⁸ are “conceived” by residents in

³⁷ After 63 years (since 1952), the U.S. Department of Justice reached a decision that changes the state of affairs relative to the powers emanating from the United States describing an “autocracy” on the unincorporated territory of Puerto Rico (US Supreme Court Case No. 15-108). Additionally, the Obama administration about a year ago allocated \$2.5 million towards the implementation of the first federally sponsored plebiscite for solving the question about the political status of Puerto Rico. A change in the political status poses, for example, a particular threat to a democratic-oriented law created in the 1890s in Spain -- and that still applies in 2016 -- that identifies the Puerto Rican coasts as “public domains.” Some local judges have interpreted that to mean that inhabitants have both ownership and public access rights over beaches and other coastal and marine environments.

³⁸ The recreational spin applies to the phosphorescent bays in Puerto Rico may not transfer to other societies around the world. This is a topic for future research.

similar terms like while people use both areas for recreational activities. Also affecting funding, in 2015 Puerto Rico was declared to be in a state of emergency due to its high public debt along with an ongoing eight-year economic recession, the recent wave of migration, and diminished access to basic services by residents (Caraballo 2016; Criollo-Oquero 2015; Fletcher 2015) which some have deemed to be a humanitarian crisis.

Scholars often describe Puerto Rico as distinct³⁹ from the Caribbean, Latin America, and similar parts of the world (Áyala and Bernabe 2007; De Genova and Ramos-Zayas 2003; Grosfoguel 2003; Grosfoguel and Cervantes-Rodríguez 2002; Pantojas-García 2005, 2007). Such aspects as its ambiguous political status with the USA distinguish Puerto Rican society from these regional groups. Anthropological investigations can benefit from finding similarities between Puerto Rico and the rest of the Caribbean in order to emphasize specific dimensions that otherwise may be omitted or underestimated. Table 1 below provides a list of similarities and unique characteristics of Puerto Rico relative to other Caribbean societies.

³⁹ Puerto Rican studies has been recognized as a topic of interest with its own professional organizations, such as the Puerto Rican Studies Association (PRSA), and research centers with journal publications such as El Centro at Hunter-CUNY.

Table 1. Similarities across the Caribbean and Unique Characteristics of Puerto Rico

Similarities across the Caribbean	Unique Characteristics of Puerto Rico
<ul style="list-style-type: none"> • History of Slavery • History of Plantation Economy • Class composition of Caribbean migrants • Areas of settlement in the United States (USA) • Return Migration • The Recent Concept of Caribbean Latinos 	<ul style="list-style-type: none"> • Treatment of Black Identity in Education • Arrival of Caribbean Migrants • Return Migration • US Citizenship • Ambiguous Political Status • Preference of Language: Spanish over English • Class and Gender: Unique Strategies for Resistance

Secondary Context: Caribbean Society

A second context for this study is that of the Caribbean, which has an extensive legacy of anthropological work. Common geographic boundaries to define “the Caribbean” include the chain of islands located in the Caribbean Sea: to the north the Gulf of México, to the east and northeast the Atlantic Ocean, to the west Central America, and to the south the coastline of South America. Often, the region is defined only by islands or archipelagos. Recently, given political definitions, there are socio-economic groups such as the Caribbean community (or CARICOM)⁴⁰ which include mainland enclaves in Central and South America. However, defining the area still poses many challenges, given the inadequacy of the European construction of terms such as “West Indies” or “Caribbean” (Griffith 2001) imposed on those living in the Caribbean

⁴⁰ The Caribbean Secretariat (CARICOM) ranges across 15 nations and dependencies located in this region.

territories which may or may not correspond to how Caribbean migrants self-identify, among other ways to define its inhabitants and the region (Allsopp 2001; Waters 1999).

Four dimensions connect the islands and island-like environments under the umbrella term of the Caribbean: histories of slavery, plantation economies, colonialism, and repeated migrations, particularly to the United States. These characteristics, which follow spatial and geographic types, extend to other countries (or areas) near the Atlantic and Caribbean waters. In fact, some scholars have defined the Caribbean to include cities and states in the USA, such as Georgia, as well as more popular immigrant destinations like New York City (Martínez-San Miguel 2003) and Miami (Greiner and Stepick 1992). Also, some scholars include specific USA locations based on racial or ethnic categories like Chicago and Los Angeles (De Genova and Ramos-Zayas 2003; Harrison 2008; Pantojas-García 2007). Other scholars expand this definition to include mainland enclaves in Central and South America (Harrison 2008). Following Faye Harrison and other scholars, I move beyond spatial and geographic dimensions and into a shared set of experiences to talk about Caribbean societies including history, slavery, and plantation economies that result in the USA-Caribbean special relationship (Áyala 1999; Áyala and Bergad 2002; Áyala and Bernabe 2007; Harrison 2008; Martínez-San Miguel 2003; Slocum and Thomas 2007).

Ethnography

In this study, I follow anthropologists that propose that ethnography is both a method and as theory building (Nader 2011). Common definitions in and out of anthropology conceive “ethnography” mostly as a method (Bernard 2011). In this study, I apply three methodologies that have been conventionally applied by others when conducting an ethnography. I combined the ethnographic methodologies of participant-observation and archival research alongside a

snowball sampling strategy for the identification of a group of participants based on convenience to develop a life-story interview stage. In addition, I capitalize on my understanding that an ethnography has applications at a theoretical level, because it offers a way to think differently about the world. As outlined in the previous chapter, the lens of ethnography allowed me to add two concurrent social processes to the one proposed by the primary theory of the global sense of place. These two processes involve common meanings among groups and subgroups as well as the Puerto Rican coastal political context.

Also, I integrated a systematic way to capture my ideas, analysis, and thinking through the regular use of field notes as “reflexive” written tools by entering them directly in the computer using Word (Emerson, Fretz, and Shaw 1995). Additionally, my choice of combining these three methodological approaches and different sources of data and types of documents (Bernard 2011; Johnson 1990) provided more room and flexibility in the analytical capability for this project. This set of choices, I argue, modified my interpretation of both my ideas and observations gathered on-site in order to expand the lens of the global sense of place. Ethnography played a significant role and offered useful entry points for identifying the interconnections among the ways people relate to coastal areas, paying attention to both interactions among each other and with the physical world. More specifically, I discuss the central role of ethnography in expanding my application of the uneven geographic development and of global sense of place by addressing the processes for finding commonalities and peculiarities of Manglillo and Bahía Fosforescente. Therefore, the ethnography in a sense becomes the glue for distinguishing both the premises of the theory and also case-specific types of findings.

Three methodologies embedded within an ethnographic approach constitute the basis of my study (Creswell and Plano 2007; Robben 2006; Spradley 1980). This ethnography combines participant-observations, informed by a subsequent stage of “life-story” interviews (Peacock and Holland 1993) and archival research of science, literature, and history. The three interwoven methodologies build an ethnography that collected a wealth of different types of information. I divided the information into different types of materials, such as documents, audio, and audiovisual material. The materials had different advantages. For example, the documents brought attention to ordinary dimensions of power dynamics and history within the context of the Puerto Rican coasts and Manglillo and Bahía Fosforescente.

In general, I used interchangeably the listed three methodologies to enhance my experience and understanding about ethnography informed by my research prior to this project. While I originally meant to develop each of these methodologies individually, in order to address my list of research questions (see chapter 1), I developed a different strategy during fieldwork. In doing so, I saw that ethnography served both as a method or means of collecting data that has connections with different data sets as well as a tool for theory building as it allows one to see processes that are otherwise ignored by other approaches.

Following the processual approach extracted from the global sense of place, ethnography provided me room to engage in this kind of an open-ended, comparative, and holistic social analysis. From 2011 to 2015, I developed this anthropological research study in a series of stages. Initially, I collected data using participant-observation in order to familiarize myself with a new area of study and with potential participants of this study. I conducted observations at each of my chosen sites, Manglillo and Bahía Fosforescente, as well as attended a range of sea-based cultural events in the municipalities of Guánica and Lajas -- broadly defined as the southwest

region of the main inhabited island of Puerto Rico. The stage of participant observation involved residing in the same field location during the years from 2013 to 2014 for approximately 17 months, including conducting a pilot stage in the summer of 2011. This analysis is also informed by another 12 months of consulting work in 2014-2015 done in the same geographical area regarding the southwest beaches. The “in-situ” observations as well as the participation in a series of cultural events during the period of two years also served as the early steps for another stage of this research study: the life-story semi-structured interviews.

My second methodology consisted of informal and formal interviews, done for the most part by the principal investigator. Two undergraduate students were also recruited and trained in ethnographic and anthropological research methods. Their primary role was to offer mentorship and guided for them to consider research and social sciences as a career option in the near future. One of these students engaged in informal interviews with owners of the diving shops of Guánica and Lajas to provide baseline or background types of information about one of the groups of interest for this project.

In the interview stage, I began by conducting 12 informal interviews using a convenience sampling approach to identify a small group of twelve key individuals (Johnson 1990) serving as local contacts. This initial stage was pivotal due to the close knit social network present in Guánica and Lajas. For the duration of this project, I was considered by many as an “outsider,” since I was born and raised in the San Juan metropolitan area, which is about a two and a half hour drive from the chosen field sites, and never lived in the area of study prior to this investigation. Also, they recognized that while I can speak in Spanish and looked like a “Puerto Rican” in terms of cultural and racial-ethnic affiliation (Duany 2002), they commented often that I had no familial ties to the area. This lack of kinship ties to the southwest also led them to think

of me as an outsider. Other social considerations that are common among residents or participants of this study included religious, sports, and civic affiliations. Since I had no ties to any of these local social activities, the participants again concluded that I was clearly an “outsider.” In this sense, my ability to live and meet with locals during this snowball sampling interview stage was crucial for my role as a student conducting a project in the municipalities of Guánica and Lajas. The informal meetings and my residency in Guánica municipality allowed me to build trust and rapport with “strangers” who I met for the first time and asked to collaborate in this study.

I identified a pool of 200 individuals listed by the first cohort of 12 local contacts. I did a snowball sampling strategy to select individuals who were willing to engage with a stranger in long conversations about their lives. This kind of formal conversation was informed by a list of research questions in the form of an interview guide to develop semi-structured interviews to capture their life stories (Peacock and Holland 1993), which is conventional in oral history approaches (Yow 2005). The first cohort included residents and individuals who are considered to be well-connected socially in these two municipalities; the goal was for them to introduce me to potential participants for the subsequent life-story interview stage, and provide insights to the topic and research questions. In addition to this first cohort, I selected an additional group of 20 individuals to complete a subsequent stage of semi-structured interviews. For the second group, I was more flexible in allowing for individuals who reside in Puerto Rico and the United States, but with ties to the municipalities of Guánica and Lajas.

While conducting these two stages of informal and formal interviews, I simultaneously added another activity, or stage, of an archival research methodology. I searched for historical, literary, and scientific documents about the chosen areas of interests: Manglillo and Bahía

Fosforescente. What began as a curiosity, later turned out to be one of the most interesting pieces of this study: the written documents. While I was conducting this project, I met many residents who led me to find rare books, such as an autobiography by a woman who lived in the area next to the Bahía Fosforescente in the early 1900s. I was later able to interview her son as part of the formal life-story interview stage.

I also collected audiovisual materials -- many that were offered by chance by participants at different periods of my field work. I gathered various versions of documentary films about the residents of the *poblado* of Parguera created by temporary residents. Also, I watched a large number of 30-minute local television programs aired from 2013 to 2015 about the coasts of Guánica and Lajas.

Surprising for me, I became fascinated by an increasing number of Facebook postings⁴¹ by various local organizations promoting new sports and cultural events occurring on or near the areas of study. These organizations often announced their events through Facebook, and these activities typically occurred in or near beaches within the boundaries of the UNESCO Dry Forest and the Parguera Natural Reserve. More specifically, many of the events occurred on beaches located close to the *poblados* of Playa Santa or Salinas Providencia in Guánica and Parguera in Lajas. What began as a search of documents shifted over time to consider other forms of evidence, such as audio (e.g., radio, *altoparlante*), word of mouth, audiovisual, and publications written by residents.

⁴¹ In July 2014, I became a scientific consultant to a research study about the southwest Puerto Rican coasts. This position also provided me a sense of awareness and reflexivity that I further explored through my field notes.

Participants

My dissertation research compares three local groups -- residents, technical experts, and visitors -- and their social uses of beaches and the phosphorescent bays in southwest Puerto Rico. The southwest refers only to the coastal areas of the municipalities of Guánica and Lajas.

- Permanent residents refer to those individuals that have lived in the southwest 30 or more years. Some examples are fishers, as well as sugar cane and conservation workers.
- Temporary residents refer to those individuals that have lived in the southwest 10 or more years. Some examples are scientists and real estate agents or brokers.
- Technical experts refer to individuals with specialized knowledge about the coastal environment with more than 10 years of working on a daily basis in the southwest. Examples include scientists, managers, divers, and tour operators.
- Temporary visitors refer to any person that spends continuous time from days to up to one year in the southwest, e.g., days, weeks, months. Some examples are tourists and second-home owners of *casetas* or stilt floating houses.

In summary, I focus on people of Puerto Rican descent in terms of race and ethnicity (Duany 2002) that I also describe as “locals” and “visitors” in this study. By locals, I refer to Puerto Ricans who live in Puerto Rico and visit the studied areas. And all groups are visitors, as no individuals actually inhabit the studied areas of beaches and phosphorescent bays -- at least not during the period of data collection in 2011 and 2013 to 2015. As is typical in anthropology, I applied pseudonyms to refer to the participants of this study (see chapter 4 for details).

Participant-Observation

Anthropologists often engage in participant-observation as a central component of an ethnography (Bernard 2011). In this study, I defined participant-observation through a series of activities that took place for the most part in the initial six to nine months upon my arrival to live in the southwest part of Puerto Rico in 2013. I first moved to the Guánica municipality in May 2013 in order to be able to move to my new residence in the summer (May through August), which is the busiest season of the year in terms of the number of local activities as well as the total number of visitors in a given day or weekend. During that time, I conducted observations both at Manglillo and Bahía Fosforescente as well as at nearby cultural and related events. My observations presented different types of opportunities to gather ethnographic evidence associated with other sensory information (e.g., smell, touch, sound, taste) that became salient to the analysis.

Upon arrival in the southwest, I concentrated on conducting my observations “in situ” at the beaches (day) and several areas of the phosphorescent bays (night), randomly at first and later in a more systematic manner. Given that I did not know how to operate a boat, I needed to hire boat services to visit or access Bahía Fosforescente, which is one of the main sites of interest.

In the beginning, I went to several coastal locations, such as the beaches and phosphorescent bays, in a random manner -- at different times of the day (day and night) and through different means of transportation (foot, car, boat). I decided upon this approach because my previous research experiences confirmed that these offered openings to familiarize myself with the geography of the chosen sites through lived experiences. Although I had been in the chosen areas before -- during a pilot stage in 2011 as well as conducting a research project in the

summer of 2007 -- early in this study I capitalized on the benefits of sharing my first-hand experiences in these beaches and phosphorescent bays with participants to develop rapport and trust with strangers, which is basic to the nature of doing an ethnography. Also, my willingness to access these different types of the coastal and nearby marine areas in different ways -- by foot, by car, by boat -- provided me with additional strategies to establish rapport and trust with strangers. All these strategies and activities offered means to collect observations of social practices “in-situ”, such as repeated visits within a consecutive year to contiguous coastal spaces, attending sea-based social events and cultural gatherings (e.g., festivals, religious events) and documenting the key local environmental organizations and their activities (e.g., state, nonprofits, international, local). These ranges of direct contact and social events are common to those residing in the southwest and in Puerto Rico.

By the end of the summer of 2013, I identified a potential list of key informants in both municipalities. During the fall of 2013, I did all 12 informal interviews applying a social network and snowball sampling or convenience approach. Also, the interview stage affected my participant observations because the informal interviews served as “informal” conversations. In addition to the “in situ” observations, other types of observations occurred while I attended several local sea-based cultural events and other related local activities in the municipalities of Guánica and Lajas as well as other nearby areas.

In sum, I spent approximately seventeen months during the period of data collection from 2013 to 2014, including doing a pilot stage in 2011. In May 2013, I moved to the municipality of Guánica in the southwest of Puerto Rico in order to have easy access to the chosen sites and give me legitimacy with the locals. I lived from May 2013 to July 2014 for dissertation fieldwork, and stay another year through August 2015 when I left.

My participant-observation stage focused on two contiguous coastal sites: a bioluminescent bay in Parguera Natural Reserve in Lajas and the UNESCO Dry Forest with beaches in Guánica. These coastal spaces were selected because they are geographically close, ecologically different, and socially similar. Each of these coastal spaces has different levels of management and governance. As shown in the following chapters, Manglillo and Bahía Fosforescente have experienced different fluxes of temporary visitors, technical experts, and permanent residents. Hence, the chosen coastal spaces will show how socially distinct groups may share or differ in their social practices in relation to the broad category of the Puerto Rican southwest coasts. In addition, having these coastal spaces next to each other offers an opportunity to test whether people see the coasts in fragments, as separate areas, or as one entity. The selection of two coastal spaces provided a more robust design to investigate not just the processes within one coastal space, but a comparative approach to analyze multiple understandings within and across socially distinct groups of coastal groups of similar and contiguous sites within a littoral.

For my research, I became affiliated with Center for Coastal Studies (“CIEL” in Spanish) at the University of Puerto Rico-Mayagüez campus during the period from 2013 to 2015. Through this affiliation, I had access to office space and other resources, including archival documents, unpublished research data, and numerous contacts with individuals, local groups, and institutions. Having a local academic affiliation provided me a more enriched research program locally and enabled this ethnographic project to be embedded within broader research efforts taking place in the southwest region as well as in Puerto Rico. In this effort, I reviewed past research data about Parguera Natural Reserve and the UNESCO Dry Forest, including Ballena beach with monthly visits to the university campus from 2013 through 2015. The director of this

center at the time was Dr. Manuel Valdés-Pizzini, who is a local anthropologist who served as my main contact. He had also served as an advisor to me in 2007 for my honors bachelors' thesis (obtained highest honors) as an undergraduate student at the University of Michigan in 2004 and 2005.

When I finished my fieldwork in fall 2014, I began working on data analysis and the early stages of dissertation writing. In communication with my Chair, Dr. Daniel Sayers, I organized all collected data from summer 2011 and 2013 to 2015 into various categories in order to develop both paper and online access of a project catalog. Additionally, I digitized the majority of my field notes (mostly typed in Word) and collected data. Data had various formats including maps, photos, documentaries, guided tours, television programs, autobiographies, literary expressions, historical archives, and scientific research as well as social network and life-story interviews. Moreover, I completed partial transcription and translation from Spanish to English for such materials as informal and formal interviews, as well as field notes. These above listed activities required travel throughout the southwest coasts to familiarize myself with the chosen field sites of beaches and phosphorescent bays. Another set of activities that I attended were sea-based local and cultural events as part of participant-observations.

An important series of activities required regular coordination and establishing rapport with institutions and staff. Examples of these organizations include the University of Puerto Rico (Río Piedras, Cayey, and Mayagüez campuses), the Puerto Rico Department of Natural Resources and Environment, university libraries, and Puerto Rico's General Archives. Moreover, I scheduled regular writing sessions to develop my dissertation at the Academic Support and Access Center (ASAC) and the English Department at American University as well as

discussions with colleagues at other institutions (e.g., West Virginia University, University of Pittsburgh, and Florida International University).

Observations In Situ

For this study, I conducted observations during a period of 11 days (see Table 2) extending over six consecutive months in 2013; these observations were completed during the months of August, September, and November. After a period of visits to the majority of the 28 beaches in Guánica, I selected one site and focused my observations in that place. I stayed on-site on the same Guánica beach between the hours of 9:30 a.m. and 6:30 p.m. (daylight) in both high and low tourist seasons. This methodological strategy was developed in a rapid assessment of Puerto Rican beaches that I conducted in 2007 for another project; this 2007 study provided data to this ethnographic study. Use of this methodological strategy was later confirmed in another study completed in 2014-2015 on nine Guánica beaches, where many of the 2007 and 2013 observations contributed to the design of this approach, based on my familiarity with the locations and with the environment of these geographical areas.

Table 2. Beach Observations

ID	Day	Hour	Season	Notes
1	Sunday, August 11, 2013	3-6pm	High	<i>Cloudy, with some sunlight.</i>
2	Monday, August 12, 2013	3-6pm	High	<i>Cloudy, wind conditions, waves of 3 to 5 feet.</i>
3	Tuesday August 13, 2013	1130am-12pm	High	
4	Friday August 30, 2013	12-2pm	High	<i>Sunny, dry, clear water and clear sky The night before it rained.</i>
5	Saturday, August 31, 2013	930am-1230pm	High	
6	Sunday, September 1, 2013	10-12pm	Low	<i>Sunny. Clear. Hot. waves of 2-3 feet, sargazo on the shore and on the water.</i>
7	Monday, September 2, 2013	1030am-130pm	Low	<i>Clear sky, clear waters. Sunny. Hot. Dry.</i>
8	Tuesday, September 3, 2013	3-4pm	Low	
9	Wednesday September 4, 2013	1030am-12pm	Low	<i>Cloudy. rained.</i>
10	Saturday, September 14, 2013	10-11am	Low	<i>Mostly sunny. Low tide</i>
11	Thursday, November 28, 2013	5-630pm	High	<i>High tide. Sunny.</i>

My methodology (2013-2014) included making systematic observations during visits to the Bahía Fosforescente. In addition to the beach visits, I completed six evening boat group tours⁴² from June to October 2013. My observations occurred during the period of most activity in terms of group tours moving from/to the bay, typically during the hours of 6 p.m. to 11 p.m.

⁴² In 2013, I travelled with several different vendors offering night group tours at the Bahía Fosforescente and to Parguera's other bays: Parguera Watersports Tour, Aleli Tours, Johnny's Boat Tour, Cancel Boats Tour San Pedro, and Fondo de Cristal Tour.

Most of my visits were in a group trip, as a regular visitor paying a fee, accompanied by an undergraduate student (research assistant)⁴³. In addition, I had an exceptional opportunity through a key local contact in which our informal conversations involved visits to the bay on several occasions. I was invited by Miguel, a temporary resident, to join him on three boat trips in June, July, and November 2013; the main goal of our conversations and visits involved sharing both interest and experiential research-like projects to analyze the brilliance of the phenomenon of bioluminescence in the Bahía Fosforescente.

Cultural Events – Sea-Based

The initial stages of participant-observations involved attending a total of five local annual events in the first two months during the summer of 2013. I attended the following events in the municipalities of Guánica and Lajas connected with the sea: the 25th *Aniversario de la Fiesta del Juey de Guánica* (25th Anniversary of Guánica's Crab Festival), June 14-16, 2013;⁴⁴ the *Fiesta de San Pedro* (Annual Religious Celebration of Saint Peter's Parade) in Parguera, June 24-28, 2013; the *Fundación Lajas - Pueblo* (Foundation of Lajas event), July 1, 2013; the *Feria Agrícola de Lajas* (Annual Farm Festival in Lajas), July 4-9, 2013; the *Fiestas Tradicionales de Guánica* (Annual Traditional Festival in Guánica), July 24-29, 2013; and the preparatory events as well as related activities for the *Centenario de Guánica (1913–2013)*, or the 100 years since the establishment of the municipality of Guánica, in March 2014.

From August to October 2013, I attended a total of ten events near the chosen sites that consisted of a mix of group tours, sports events, and cultural events. I also attended group tours

⁴³ In 2014, I also made two visits to Bahía Fosforescente as a regular visitor accompanied by my extended family during their visits to the southwest for overnight stays.

⁴⁴ This event is typically celebrated in June during Father's Day weekend, which is a connection between Puerto Rican culture and mainstream U.S. society. I believe this is intended to attract Puerto Rican family members living in the United States.

for bird watching organized by a local organization called “SOPI” at Jobos Bay (August 31), a Dry Forest cave tour by Madre Tierra Atabey (September 14), and a free or donation-based night kayak group tour run by the Puerto Rico Sierra Club chapter (September 7) as well as another beach tour of the Ballena area (September). I also observed the preparation, activities, and post-event aspects of the second triathlon of the Dry Forest organized by a private group and hosted by the Copamarina Beach Resort (September 14). I participated in the annual 14k race sponsored by a religious organization and connecting Guánica with nearby municipalities through a route in the mountains (September 29). In addition, I attended two public hearings, one in the community center of Parguera *poblado* (September 16) and another in the community center of the municipality of Guayanilla (September 27). I also participated in a winery tour (September 4) and a *vendimia* (grape harvest) in Guánica (October 17).

Non-Profit and Other Local Organizations

I contacted a variety of non-profit and other local organizations. With the help of a research assistant, in June 2013 I did an exploratory survey about local divers. I connected with local libraries, such as the Puerto Rico General Archives (April 2013 and January 2014), the University of Puerto Rico (UPR) Río Piedras Lazaro main library (March and April 2013), and *Centro para Puerto Rico* (March and November 2013). I also reached out to UPR Mayagüez organizations interested in coastal and marine conservation such as the Puerto Rico Sea Grant College Program and its university library resources.

In 2013, I conducted a series of phone conversations with members of different types of local environmental organizations, which were not previously planned but were considered important for this research project. For example, I spoke with a local organization that offers a new certification required by the Puerto Rico Tourism Company regulating the training of tour

operators working with cultural and environmental interpretation.⁴⁵ I emailed and called a local graduate student, Rafael Franco, regarding the impact of the sugar industry in Puerto Rico and the annual conference about sugar cane, the *Convención Caña* (November 2013). I requested information about the monthly meetings of long-standing conservation-based organizations such as *Fideicomiso de Conservación de Puerto Rico* or *Para La Naturaleza* (September 2013), the *Sociedad Espeleológica de Puerto Rico* (January 2014) and the *Sociedad Astronómica de Puerto Rico* (November 2013). I also reached to local environmental organizations to learn about their efforts, and spoke with officials from *Madre Tierra Atabey* (Mother Earth Atabey) from the municipality of Guayanilla (September 2013) and participated in their tour of the Dry Forest.

In addition, I connected, both formally and informally, with local public schools in Guánica in 2013 and 2014. In March and April 2014 I made regular visits to Guánica's public library to digitize local documents such as poems and other literary and historical documents. I also visited the Parguera public library and the Aurea Quiles Public High School library.

Interviews

In 2013, I started collecting observations and conducting open-ended interviews with key informants as preparation for life-story interviews. I observed conventional activities in order to identify three to five key individuals per site who will offer contextual information throughout the period of fieldwork (Johnson 1990). Selecting a small number of key informants systematically among the study groups offers theoretical rather than statistical representation, i.e., informants that are “meaningful in terms of the ethnographer's explicitly stated theories,

⁴⁵I spoke with an official at the Puerto Rican Association for Interpretation and Education, Inc. known as “APIE” in September 2013.

hypotheses, or hunches” (Johnson 1990). In my case, I identified approximately three persons per site for achieving this goal during the length of my study.

I identified an additional group of 12 individuals to offer supplementary context as well as network information for potential participants of a subsequent stage of life-story interviews. During this stage, I also refined my interview guide,⁴⁶ or list of questions, that was used in the formal life-story stage in March through November of 2014. Each of the areas reflects relatively large populations of thousands of people relative to the residential areas next to the chosen sites. Therefore, the small cohort of leaders or other experts from each of these municipalities greatly assisted me in generating sample for the formal stage of life-story interviews, which is central to this project.

I employed the technique of a semi-structured interview in order to ask questions that follow certain topical areas chosen *a priori* and to have flexibility to ask questions from the interview guide following the participants’ storytelling. This means that I did not follow the interview guide in terms of the order for the original listing of questions with each person. Each life-story interview took an average of 90 minutes⁴⁷ in a place of the interviewee’s choosing (i.e., home, public space, office, university). Interviews happened between March and November 2014 during five consecutive months for a total of 20 interviews (see Appendix - Project Timeline).

Unless otherwise noted by the participants, I audio-recorded each interview or series of interviews using two devices: a Livescribe pen and Olympus digital recording. The Livescribe pen

⁴⁶ I include the IRB letter and the interview guide as appendices at the end of this manuscript.

⁴⁷ If the study requires an interview of 90 minutes, the current IRB proposal may need to have an addendum. However, my project was approved by the Institutional Review Board (IRB) and it included the option to conduct a second interview, if need be, in a large pool of 150 participants.

has an integrated recording device that allows me as the investigator to find correspondence between my notes and recorded sound.⁴⁸ I also utilized Evernote, which is software that “syncs” online with the Livescribe pen audio-written notes and digitized them. As a backup, I carried a regular digital audio-recorder and/or smartphone as secondary recording devices. Given that most of my fieldwork happened on the coasts, I also used weatherproof notebooks and office supplies to document my field visits.

My field notes also were instrumental in preparing for as well as documenting the ethnographic interviews. I took detailed notes in my computer before and after the interview to be evaluated as part of my analysis. I include a copy of the interview guide indicating the list of questions made for this project as an appendix. While scholars consider that interviews as a type of methodology fit the umbrella category of “oral history” (Yow 2005), I joined a small group of scholars and discuss “life-story” interviews as a means of analyzing a person’s life in relation to their uses of the southwest Puerto Rican coasts (Peacock and Holland 1993; Seale-Collazo, Rosario-Méndez, and Serra-Collazo 2012).

Archival Research

As is common in anthropological or ethnographic projects, archival research offers a way to collect and analyze different types of documents and photographs about the on-site activities of residents visiting the southwest coasts of Puerto Rico. For this method, I digitized a large amount of the information collected only for the purposes of data analysis. I collected various types of documents, such as historical, scientific and literary. Some of the sources or historical/scientific documents found were located at local (municipal), national, and environmental organizations. Also, a regional-local book festival for used books provided me

⁴⁸ I also used “Livescribe pen” when taking class notes in graduate studies.

with an autobiography of a salt worker (Toro-Toro 1985), and I borrowed another reference book from a contact of this study describing the life of a resident in one of the *poblados* of Lajas in the 1900s (Rivera-Easterday 1995). Also, I gathered literary documents at local libraries and by word of mouth (i.e., lyrics of songs, poems). Additionally, I reviewed other resources (i.e., magazines, newspapers, unpublished books, brochures, etc.) discussing aspects of the uses of the Puerto Rican coasts -- especially of the southwest region of Guánica and Lajas. More significantly, I collected a large number of scientific reports that discuss the ecology of the southwest coasts -- mostly about beaches in Guánica and bioluminescent bays in Lajas.

As proposed by other anthropologists, I consider that in addition to historical and other conventional written records, items such as literary documents also describe the importance of coasts as culturally and ecologically meaningful sites (Hey-Colón 2014; Llenín-Figueroa 2012; Lugo-Marrero 2011; Valdés-Pizzini 2009). I found a range of local resources -- some written, others audio-visual videos or documentaries -- and others were found online (dated within the last five or ten years). For the literary expressions about the southwest coasts, I faced additional challenges to identify and review this kind of evidence in terms of articulations on the visual and artistic modes of expression. Expanding on my method of archival work by having a broad perspective connecting history, science, and literature allowed me to consider a breadth of topics, ranging from history, politics, science, spirituality, society, and culture.

Instruments

Given my previous anthropological research experiences during a period of seven years while conducting ethnography and field-based research about the Puerto Rican coasts, I developed guidelines to gather systematic observations for visits to coastal spaces in the

southwest. Also, I designed a systematic approach to take field notes, in which I typed daily on a computer and coded, especially for evidence of ideologies and discourses around the social practices near or on the chosen sites of the southwest Puerto Rican coasts, and the degree, nature, or lack of it. In doing so, I hoped to develop a series of “thick descriptions”⁴⁹ (Geertz 1973) in relation to my analysis about the multiple uses or social practices occurring on chosen sites of the southwest coasts regarding biodiversity conservation, recreation, scientific research, and public uses.

Sampling Design

I used multi-stage clustering as a sampling design where the researcher first samples individuals, groups, and organizations (or clusters) to obtain names of potential participants, and then samples within these clusters (Creswell and Plano 2007). This was ideal for this project because as the researcher I established collaboration with local researchers with extensive ethnographic work in or nearby the chosen settings. Also, I had access to unpublished data as well as other kinds of archives about the southwest. A convenience snowball sampling (Bernard 2011; Johnson 1990), supplemented the multi-stage clustering and helped me achieve the sampling goal of 20 participants in the life-story interviews stage (Peacock and Holland 1993; Yow 2005).

Data Analysis

As an ethnographer, I observed what responses people made and grouped their responses into inclusive categories. Ethnography serves both as a method and a theoretically informed

⁴⁹ A thick description is a term of art, originated by Clifford Geertz, referring to an interpretation of an insiders’ view by anthropologists, always in context, that provide a more detailed description (Geertz 1973).

contribution to develop a holistic and comparative analysis of the ways different groups of residents form their complex human-environmental relationships with the coasts. For this, I began using a triangulation in which I grouped all collected data⁵⁰ into observational, documents, and audiovisual categories in preparation for the data analysis stages extending from 2014 through 2015. This ethnography aims to understand the ways in which three groups of residents relate to the southwest coasts of Puerto Rico through their on-site activities. I focus on two aspects of the on-site activities: linguistic and non-linguistic forms of communication. This ethnography (Nader 2011) applies corpus linguistics (P. Baker 2008; Barlow 2011; Hunston 2002) and the Perceian triad (Keane 2003; Kohn 2007, 2015).

In terms of developing a language center approach, I follow the work of William Leap in which he examines what viewers understand of erotic imagery within gay pornography through their comments posted in a gay video club website. Leap explains the need to situate at the center of the analysis the audience interpretation of a film's message in "Men of Israel" (2009), which is different than the intended one from the director, Michael Lucas. Moving away from reading film or other text as context free document, the analysis of the viewer's participation reframes the intended message, which is brought into a conversation rather than doing an assessment of how viewers grasp the intended message of the film or the film director.

Similar to Leap's work on audience reception (Leap 2011), my ethnographic study applies an analysis of language use to compare different groups of residents in terms of their life stories, or narratives, to explain a social relationship with a beach and phosphorescent bay. I applied a "corpus linguistic" analysis to define what participants understood as the coasts' "social space(s)," and not as a source of quantitative evidence (P. Baker 2008; Hunston 2002;

⁵⁰ All data was collected and analyzed in Spanish, although I cite them in this manuscript and present the details of my analysis in English.

Marko 2006). Rather than emulating conventional corpus linguistic analyses, I employed three linguistic tools to analyze the collected text or the corpora, i.e. place names or toponymy (Torrech 1994), double diminutives, and repeated keywords. Each of these linguistic tools assist me to specify the ways participants relate in everyday life to a beach and a phosphorescent bay in Puerto Rico.

For instance, I examine toponymy or place names, which refers to how participants repeatedly named each of the areas using specific words, such as Manglillo beach and Bahía Fosforescente bay. Participants also employed the related words of Salinas Providencia or Playa Santa and Parguera *poblados* and identified these areas within the coastal southwest municipalities of Guánica and Lajas. For Manglillo, other words repeated by participants included beach, *balneario*, mangrove beach, and public beach. For the bay, participants repeated bay, phosphorescent bay, bioluminescence and coastal bioluminescence.

In Spanish, the use of double diminutive is significant to associate how participants assign affection to specific areas. The ending of “illo” in Manglillo, which is the original place name, itself shows a diminutive. The use of “illito” in Manglillito and the repetition of Manglillo Pequeño illustrate double diminutives in Spanish. Participants insisted on naming Manglillo beach with either of these two place names, which employ the double diminutive language structure that I interpret to show their affection for this beach over their lifetime.

Additionally, I analyzed the repetition of keywords in informal conversations, participant observations, documents, interviews, and field notes in order to understand the social relationships among residents and the southwest coasts of Puerto Rico. For both sites, participants repeated adjectives like public beach, recreational areas, phosphorescent or bioluminescent bay, bioluminescence, and “*balneario*.” For Manglillo, I also considered place-

specific terms, such as mangrove-beach, recreational area, “calm, shallow, and tranquil waters,” muddy sand, and forest *balneario*. For Bahía Fosforescente, I considered the repetition of phosphorescent bay and bioluminescent bay (rather than “biobay”⁵¹), as well as of coastal bioluminescence and bay or embayment. After noticing these terms, I extracted phrases and sentences for further coding of key themes using concordances (Hunston 2002). Some of the key themes consist of the multiple uses at Manglillo and at Bahía Fosforescente, including those of recreation, public use, conservation and scientific research.

Lastly, I applied nonlinguistic forms of communication captured by the Peircean “icon” and “index” tools from a triad that also includes “symbol” (Keane 2003; Kohn 2007, 2015). Non-linguistic forms of communication assist me to note how the place itself affects the ways in which on-site activities affect social relationships among residents and the southwest coasts. For icon tools, I noted the coastal bioluminescence is iconic of recreational uses of the Bahía Fosforescente. Other icon tools for recreational activities include the mangrove channel, the sea water qualities and muddy sand for understanding Manglillo as a popular beach; for the bay, the icon tools that offer recreational activities included naming the place different from the tourist propaganda that employs “biobay.” For index tools, I noted the construction and use of the open fence or bypass fence in Manglillo beach and the arrival of the National Geographic magazine to cover the bay, which marked the beginning of an interest by international actors as well as scientists who eventually formed a satellite university campus nearby this embayment in the Parguera *poblado*.

⁵¹ “Biobay” is a concept applied in Puerto Rican tourist promotional materials (Compañía de Turismo de Puerto Rico 2013a, 2013b, 2013c), which market the archipelago as a tropical destination for “sun, sand, and sea”(Martínez-Martínez and Casas-Ripoll 2002).

The use of linguistic and nonlinguistic forms of communication helped me develop my data analysis, which will be detailed using several ethnographic examples in chapters 4, 5, and 6.

CHAPTER 4

THE RECREATIONAL USES OF MANGLILLO

Introduction

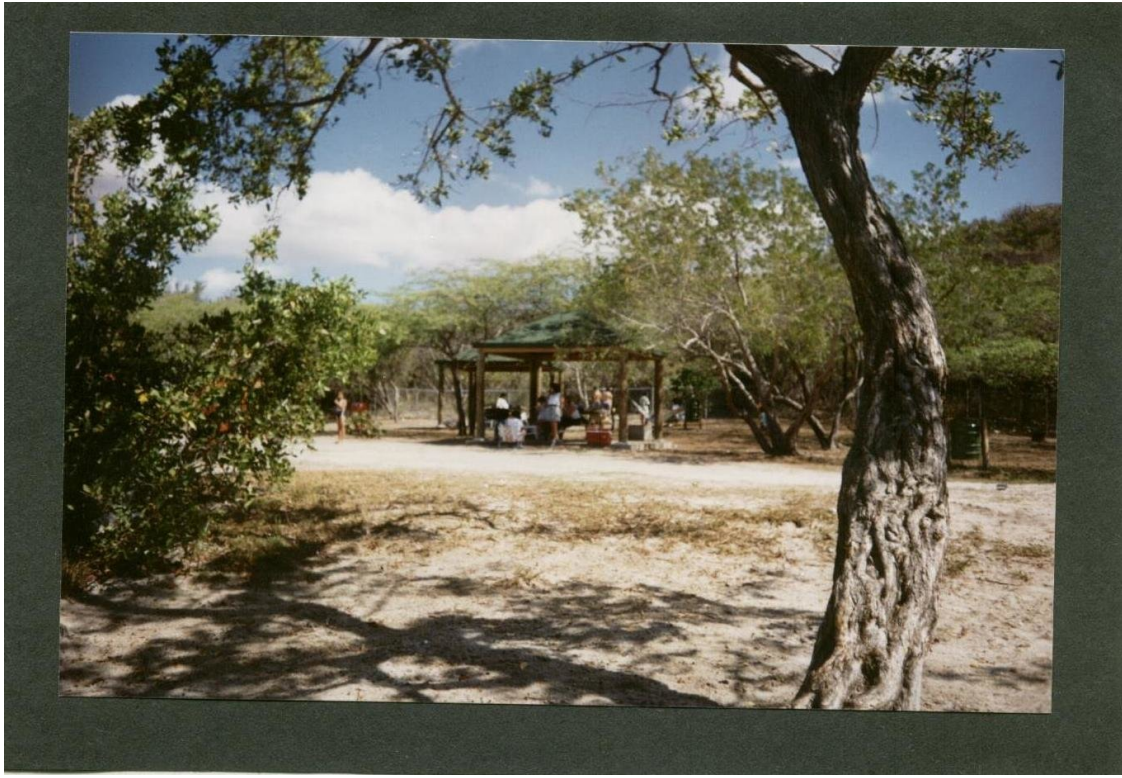


Figure 6. Beach Facilities Manglillo in the 1980s. (CIEL 2014)



Figure 7. The Mangrove-beach of Manglillo in the 1980s. (CIEL 2014)

Manglillo, which literally translates to “little mangrove⁵²,” is commonly thought of by locals as a recreational⁵³ area. Most importantly, locals frequently describe this area as a unique beach. As illustrated by the photographs, people use the area for socializing, including sea bathing. People also socialize in rustic infrastructures called gazebos where they gather for eating and/or celebrating occasions, such as birthdays and high school reunions.

⁵² “Little mangrove” can be defined in two ways in Spanish: small mangrove tree, and a small area with mangrove trees.

⁵³ For the purpose of this study, recreation means socializing in the forms of sea bathing and group gathering. Throughout this chapter, recreation has another definition, and it will vary per agency or initiative listed. In Puerto Rico, a common definition of recreation implies that an individual engages in participation of a variety of activities in a free and voluntary manner during their leisure time expecting nothing in return, and typically for obtaining benefits, such as, well-being (Santini-Rivera and López-Cintrón 2004)

SPANISH TRANSCRIPT

“Un día este verano 2014 visité la playa de [Guánica] Caña Gorda con 14 personas de mi familia, mi abuela, mis tíos, primos y otros. Ese día nadé, navegué en ‘kayak,’ jugué con la arena, caminé sobre las rocas, corrí en lancha y me divertí mucho.”

ENGLISH APPROXIMATION

“One day this summer 2014 I visited [Guánica] Caña Gorda beach with 14 people from my family, my grandmother, my uncles, cousins and others. That day I swam, kayaked, played with the sand, walked over the rocks, took a boat ride and had fun.”⁵⁴ (Cambers 2014)

This quote from a young Guánica resident,⁵⁵ which I heard first-hand from the student, illustrates the common understanding of the uses of Manglillo and other beaches in Puerto Rico. Participants in this study related their memories with the area of Manglillo by referring to its specific uses and attributes of the area. People recalled spending time with family and friends (gathering in groups) as they relaxed during a beach-day, often enjoying the waters (sea bathing). The memories of these activities seem

⁵⁴ The entire quote cited by the Director in the Official Results of an UNESCO Sandwatch Beach Photo Contest 2014 read as follows, “One day this summer (2014) I visited Caña Gorda beach with 14 people from my family, my grandmother, my uncles, cousins and others. That day I swam, kayaked, played with the sand, walked over the rocks, took a boat ride and had fun. I love going to my beach and wish to continue enjoying and conserving the natural resources of my island. Entry from Escuela Jose Rodríguez de Soto, Puerto Rico” I believe that the main contacts at this organization often used “online translators” in their materials for this student/school competition in light of being native speaker of Spanish.

⁵⁵ In 2014, I volunteered in this Guánica elementary public school collaborating with a science teacher and a group of 25 students, where I interacted with them through various workshops in October and several award ceremonies in the first six months of 2015. Listening this quote first-hand from this young Guánica resident provides an entry point to the interactions with a different group of residents, youth and students. I collaborated with this public school encouraging them to compete in the 2014 international beach photo contest. I did not know, and I learned through the process, that Puerto Rican schools never participated before and this was the first prize earned by Puerto Rico along with another Caribbean archipelago, Cuba.

to be among the most salient aspects in their visits to this area of the southwest of Puerto Rico.

In analyzing this beach site, I think about the concept of the “social spaces” (Massey 1994, 2005) and the changes to the characteristics of the area of Manglillo. I examine two processes, the dialectics and the common understandings among groups and subgroups of residents. These processes help me explain the ways that the on-site activities through their meanings (or language use) and the non-linguistic forms of communication transform the inherent, or ontological, attributes of the beach at the social and material levels.⁵⁶

Drawing upon the lens of uneven geographic development (D. Harvey 2006b; Sayers 2014; Smith 1984) and the global sense of place (Massey 2005), I discuss below three ethnographic examples about Manglillo area. For the analysis of the life-stories of residents, I apply the use of pseudonyms, which is typical among anthropologists, mainly to protect all participants of this study as much as possible; this action reflects my ethical obligation to the participants for doing no harm common among those trained in anthropology⁵⁷. All names and identifiable personal characteristics have been removed from this manuscript, while leaving only aspects that are necessary for the understanding of the analysis. In this chapter, I compare the combination of the multiple uses of biodiversity conservation and recreation, public uses and recreation, and different understandings about the recreational activities in Manglillo. For each section, recreation is common to all these combinations. Following the political-economic

⁵⁶ A local Puerto Rican refers to a cultural group that self-identifies racially and ethnically as ‘Puerto Rican’ (Duany 2002). For the purpose of this study, I refer to a local who resides in the southwest and in Puerto Rico. This definition characterizes the individuals who participated in this investigation either formal and informally (for details see Methods chapter). Participants were divided into permanent residents, temporary residents, visitors, and specialists.

⁵⁷ For details, go to American Anthropological Association (AAA) code of ethics (American Anthropological Association 2016).

framework, the lens of the social production of “social spaces” indicates ways for noting a change from an open forest area on the coasts turned into a recreational hub, over time and in the present moment. A related process, the social construction of the social spaces, offers another entry point to this analysis by looking at the language use by residents and their meanings assigned to their on-site activities occurring on the southwest Puerto Rican coasts. Additionally, having recreation at the center of these combinations of the multiple uses occurring in Manglillo beach allows me to explain the premises of the “social spaces” of the coasts in terms of the characteristics of the relational and multiple (or heterogeneous), which are central to the global sense of place.

Through data triangulation,⁵⁸ I look at the intersections among different sources of information -- i.e., observations at cultural or sea-based local events, documents, and life-story interviews -- across observed and self-reported activities of sea bathing and gathering in groups. These two activities refer to what I coined as “recreation-as-socializing” to describe common on-site activities happening in Manglillo thought of as a beach. Participants often connected these activities to recreation, biodiversity conservation, and public uses, or of the combination of two, occurring in the same area of Manglillo.

Given the lens of the political-economic theoretical frameworks applied in this study, I analyze the conflicts or dialectics and the commonalities among three groups of residents to Manglillo: technical experts, residents, and short-term visitors. Then, I also pay attention to the sub-groups of the forest managers as well as permanent and temporary residents. All groups and sub-groups can be considered “visitors” of Manglillo; laws do not allow for people to dwell in

⁵⁸ As explained in chapter 3, I apply the nonlinguistic forms of communication reflected in my use of the Perceian “index” and “icon” from the triad of “icon-index-symbol” (Kohn 2007, 2015) for analyzing images and words. The research design of this study provided collecting different sources of information such as, observational, written, and audiovisual materials.

this coastal area. Using the theoretical frameworks, I noted conflicts or dialectical processes among groups of residents relative to their understandings about their on-site activities. Eventually, I moved from paying attention to the tensions and conflicts into the commonalities among different groups and sub-groups. In sum, I observe a variation of the assigned meanings based on the lived experiences by members of different groups of residents to the same area through their on-site activities. This process I interpret can explain the impacts of different groups of residents on the transformation of the place itself and of themselves accompanied by others in that place. Also, this process helps me explain how nonlinguistic forms of communication are interpreted by residents to transform the social and the material attributes of the Manglillo beach, over time and now.

The first section discusses Manglillo as it is construed by residents, mainly technical experts or managers, as a beach to engage in recreational activities, or a “recreational beach,” that is part of a Puerto Rican and international forest. In the second section, I analyze Manglillo as it is conceived by visitors, namely permanent residents, defined as a public beach area used for recreational activities. Finally, I conclude with analyzing Manglillo in relation to the varied experiences of the visitors, ranging from permanent and temporary residents as well as short-term visitors. I compare visitors’ different understandings of a beach affected by their social backgrounds, including the categories of residency, age, gender, employment, and education. The mangrove and the mangrove channel as environmental attributes and the gazebos and the by-pass open fence as human-made attributes of Manglillo beach offer residents with a variety and abundance of the recreational activities, for which residents conceive this place as a recreational beach.

Manglillo as a Recreational Beach within a Forest



Figure 8. Manglillo's Official Sign Stating "Recreational Area of Manglillo Beach"

As shown in Figure 8, the 2015 entrance sign at Manglillo lists activities allowed and not allowed in this area. Specifically, the sign refers to *playa* for beach and *area recreativa* for marine recreational area. Moving from language use into non-linguistic forms of communication, I analyze this entrance sign to constitute a Peircean "index" as it assists me to contextualize the dialectics of the contradictions of defining Manglillo as a "forest-beach." Manglillo is part of the UNESCO Biosphere Dry State Forest,⁵⁹ which can be thought of as a protected area (West, Igoe, and Brockington 2006), or forest that has a recreational beach. In this study, both managers and visitors have commented about engaging in on-site activities in Manglillo area, such as, sea bathing and gathering in group. These participants, however, assigned varied meanings to these

⁵⁹ In this manuscript, I refer to this forest area in at least two ways: UNESCO Dry Forest and Dry Forest.

activities by connecting them in what I view as a combination of biodiversity conservation and recreational uses of Manglillo.

One of the effects of converting an open forest area on the coasts into a fenced *balneario* beach partly for recreation, is that Manglillo -- similar to the coastal and marine portions -- has been separated from the land portions of this protected area. As documented, managers of the UNESCO Dry Forest developed the concepts of “marine areas” and “marine recreational areas” to name a dozen or so coastal areas that lie within the boundaries of this protected area (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975). Prior to the mid-1970s, Manglillo can be considered to be a “paper park”⁶⁰ given that, while both this area and the Dry Forest were designated to be protected, they had no management plan and/or implementation activities (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975; Valdés-Pizzini, González-Cruz, and Martínez-Reyes 2011). Moreover, Manglillo is legally defined to be part of the Dry Forest, and it has different and overlapping jurisdictions. Coastal and marine portions of the Dry Forest are legally defined upon different legal terms than their protected or forest land counterparts.⁶¹ The jurisdictions that apply to Manglillo as part of the coasts include a 1800s Spanish law that defines it as “public domain” or public area (Fontáñez 2009), and being one of the selected marine recreational areas in a beach that is part of this dry

⁶⁰ Anthropologists and other scholars have defined that a “paper park” apply to the areas that has a designation of a forest or protected area, but no management plan (West, Igoe, and Brockington 2006). “Paper parks” are common all over the world, and Puerto Rico is no exception. While I cite a 1970s plan (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975), there is indication that for decades this Dry Forest was merely a “paper park” given that it has had little or no budget for the beaches or marine portions for instance. Also, the Dry Forest has had shifting total number of staff on-site often being reduced to less than five individuals for 11,000 acres in terms of size plus marine areas (Municipio de Guánica 1986; News 2012; Colón-Torres 1996).

⁶¹ I follow those studying “common property” on the coasts and oceans (McCay 1987) in that the jurisdictions and responsibilities over these areas tend to be “liminal” and uncertain --see next section for its discussion (Acheson 2015; McCay 2008; Schlüter et al. 2013). At the outset, the Dry Forest presents a complex set of jurisdictions and responsibilities. Future investigations can focus on this topic. The findings from this study suggest that, even within the same forest area like Dry Forest, different portions might have different jurisdictions and responsibilities.

forest (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975) planned to be converted into a specific type of forest *balneario*, or a beach with facilities in a Puerto Rican forest (Madera-Rivera 2010). Similar to the land portions of the UNESCO Dry Forest, it has other overlapping jurisdictions that include the UNESCO Biosphere Program as well as the U.S. Federal and Puerto Rican governments (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975, 1982).

Both the Dry Forest and Manglillo have been described “on-paper” or in the historical record as forest or protected and recreational areas (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975, 1982; Valdés-Pizzini, González-Cruz, and Martínez-Reyes 2011). In Puerto Rico, the Dry Forest is the only “state” forest with marine portions since its origins. Although local scholars debate when the area became a forest, references as such can be traced as back as in the end of the 1800s under Spain or as recently as in 1919 under the United States (Domínguez-Cristóbal 2000, 2003).⁶² Regardless of the debate about the origins of the Dry Forest, Manglillo has been and is one of a dozen areas that make up the marine portions of this Dry Forest since 1919. As the only known forest with beaches, this area has distinguished from the rest of the Puerto Rican forests -- possibly worldwide, too. During the majority of the twentieth century, Puerto Rico had no marine protected areas (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006) except for this forest (Domínguez-Cristóbal 2000).⁶³

⁶² If the precedents are considered, the history of the Dry Forest dates back into the end of 1900s under Spanish ruling in Puerto Rico (Domínguez-Cristóbal 2003). However, often the official history of this Dry Forest remains in the twentieth century under the United States (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975, 1982, 1996).

⁶³ In the past 20 years, Puerto Rico has created and managed what are now called marine protected areas or MPAs (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006). The Dry Forest is an example of an MPA. Specifically, the MPAs have designated coastal and marine areas to offer purposes and activities of biodiversity conservation (Nazarea 2006).

Archival documents and observed on-site activities and their meanings associated with the multiple uses, or multi-uses⁶⁴ of Manglillo specifically connected to biodiversity conservation and recreation. These uses have affected in different ways the characteristics of both the UNESCO Dry Forest and Manglillo areas. The Dry Forest has been labeled a state forest and the UNESCO Biosphere; hence, this forest can be defined as a “protected area” (West, Igoe, and Brockington 2006). UNESCO has promoted that this forest area has multi-uses. Identifying the Dry Forest as part of the UNESCO Biosphere has broadened its mission and the types of activities occurring in this Puerto Rican forest, which is the largest tract of coastal sub-tropical dry forest in the world. Yet, the UNESCO and the government of Puerto Rico represented by the DNRE agency have different understandings about what multiple uses are permitted and are not allowed on the same area.

Locally, all Puerto Rican forests operate under the same law. The Dry Forest, however, despite operating on the same law, has characteristics that distinguishes it from other forests (Domínguez-Cristóbal 2003).⁶⁵ In particular, it has both coastal and marine portions. Some examples of how this area differs include the development of the concept of “marine recreational areas,” the construction of an experiment called as forest *balneario* in Manglillo, and the

⁶⁴ For the purpose of clarity, I will refer to “multi-use” when UNESCO and other environmental agencies discuss the promotion and allowance of different types of on-site activities in a protected area such as Manglillo and Bahía Fosforescente.

⁶⁵ An effect from these activities involves that both beaches and mangroves can be considered to be different from the rest of the Dry Forest; this is not unique of twentieth century and/or of ruling under the United States in Puerto Rico, the precedents of this Dry Forest under Spain also show evidence for conflicts related to mangroves and coastal areas in the end of 1800s (Domínguez-Cristóbal 2003).

international designation of the UNESCO as an International Biosphere Reserve⁶⁶ in 1981 (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975, 1982; Valdés-Pizzini, González-Cruz, and Martínez-Reyes 2011). In addition, beginning in the early 1930s, the United States Civil Conservation Corps (CCC) led efforts to construct roads and other facilities in the Dry Forest mainly to promote the multiple uses of biodiversity conservation and recreation (Pabón-Charneco 1999; Pabón-Charneco and Regis 1996; Valdés-Pizzini, González-Cruz, and Martínez-Reyes 2011). Ironically, none of the archival documents and observed on-site activities describe the multi-uses of recreation and biodiversity conservation together in Manglillo. Hence, the ‘official’ records concerning the UNESCO Dry Forest tend to describe one or the other, but not the combination of conservation and recreation as examples of the on-site activities relevant to analyze this area as part of this forest (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975, 1982).⁶⁷ Rather the two most recent brochures about the Dry Forest published by DNRE in 2008 and 2006 (Departamento de Recursos Naturales y Ambientales de Puerto Rico 2014b, 2014a),⁶⁸ separate the marine and coastal portions from land. These brochures emphasize the importance of the trails and land portions and make little reference to the coasts, similar to what happens elsewhere in the world (Acheson 2015).

⁶⁶ By designating a forest as part of a World Network of UNESCO Biosphere Reserve, this means that this protected area diversify its goals ranging from education, research, conservation, culture, history, and recreation. As the international designation applies to this Dry Forest, it joins an international network known as World Network of Biosphere Reserves (Price, Park, and Bouamrane 2010); yet, Guánica falls under the country of the United States. The allocation of forest under the United States is due to the indefinite political status of Puerto Rico (Áyala and Bernabe 2007).

⁶⁷ Similar to forest historians in Puerto Rico (Domínguez-Cristóbal 2003), I interpret this fact confirming a bias within the forest history (or forest literature) towards land that often ignore both ‘land-water’ and ‘water’-based areas within these protected areas (Orlove and Catton 2010). Two parts of this Dry Forest exemplified this trend: beaches and mangroves. Findings of this study precisely focus on these two -beaches and mangroves- and Manglillo is emblematic of combining both in one geographical location.

⁶⁸ These two handouts or brochures comprise the most recent and often the materials that visitors can obtain at the Dry Forest or events in which DNRE has representatives like festivals such as Feria Agrícola Lajas.

Both the failure by DNRE to include the coasts when describing the Dry Forest and the labeling of the area as a UNESCO Biosphere led me to think of Manglillo as a “local recreational destination” of a beach within a Puerto Rican forest. I came to this conclusion, because the residents come to Manglillo, and this group of visitors contrasts with the increased global attention to the selling the “sun, sand, and sea” mass-tourist experience. The southwest region through the slogan of “Porta del Sol” promoted by the government (Centro de Desarrollo Económico-Universidad de Puerto Rico-Mayagüez 2007) has been marketed differently; unlike Manglillo and/or the Dry Forest, the same pattern applies to other areas including the UNESCO Dry Forest and Puerto Rico (Hernández- Delgado et al. 2012). To date, I have not found studies analyzing the role and/or the effects of the management of the marine and coastal portions in relation to the land portions of the UNESCO Dry Forest. In general, little or no information exists about the history and the conditions of the coastal and marine areas of this forest. As such, I pay special attention to the forest beaches that geographically lie in the coastal and marine areas of the state and internationally recognized UNESCO dry forest.

Both archival work and on-site observation reflect that Manglillo, and nearby southwest beaches, attract visitors of a particular social profile. Different groups of residents come and these individuals reflect social differences in terms of their backgrounds (e.g., residency, age, gender, employment, and education). Residents who are visitors associate this area with their on-site activities and their meanings associated with the recreational and public uses. My findings, as well as my analysis of a NOAA funded study about litter behaviors among beach users in the forest beaches in 2014-2015 as a scientific consultant, offer evidence that allows for discerning this pattern among the residents in Manglillo. Often, visitors describe themselves as “Puerto Ricans,” referring to a cultural group (Duany 2002), and as residents living in proximity to the

chosen area of Manglillo. These areas include the municipalities of Guánica and Lajas as well as those in the south and southwest of the main island of Puerto Rico. Specifically, and most importantly, the profile of a “permanent resident” of the southwest thought of Manglillo as a recreational beach, and this differ from other groups who visit the same area within a calendar year.

The findings from this study demonstrate differences among groups of residents and their conceptions about Manglillo based on their meanings to similar on-site activities in this beach area. For example, while forest managers and staff conceive of Manglillo as a “forest beach” -- or a beach located within a forest --, residents of the southwest tend to see the same area both as a public and recreational beach. These different understandings have had consequences on this area, for example, in terms of management, specifically the variety and total uses permitted in Manglillo as part of the forest.

Two studies prior to this one have confirmed that residents of Puerto Rico do not associate beaches, or marine areas, with the Dry Forest (Torres-Abreu 2009; Valdés-Pizzini 1994). The data reflects that locals think of Manglillo as a mangrove-beach. Despite the local understanding, these two studies focus either on another beach -- Ballena --, or the uses of the land portions of this forest. These studies ignore the uses of Manglillo as part of the coasts and oceans.

In this study, I analyze the multiple uses of Manglillo area by interpreting them to be complex, and by reflecting many different understandings among groups and sub-groups of visitors to this area. No one lives in the area of Manglillo. Even the forest manager lives up-hill on the land portion near the visitor center located on road 334. This is a 15-minute drive, taking the road 325 to Manglillo, which is located at the end of that road and inside a maze surrounded

by a small housing development. The multiple uses include sea bathing and gathering in group, and their meanings lead residents to think about the same geographical area in different ways, such as, forest area oriented for biodiversity conservation, and a beach, or a recreational site with public access, as well as a mangrove beach with plenty of recreation options. The sources of information collected in this study range from written autobiographies (Toro-Toro 1985), newspaper letters -- see next section of this chapter -- (Misión Industrial de Puerto Rico 1987; Muñiz-López 1987) and the life-story interviews -- see the last section. Earlier studies of the southwest beaches conducted in the 1990s also confirmed that visitors go to beach areas in the southwest region, specifically many beaches located within the Dry Forest (Valdés-Pizzini 1994). Interestingly to note is that tourist propaganda about Puerto Rico intends to attract another group, the residents of the United States and those falling in the upper socio-economic groups (Hernández- Delgado et al. 2012).

The historical context of thinking about Manglillo as a “recreational area” first, and subsequently as a “forest-beach” demonstrates the first experiment of a *balneario*⁶⁹ project sponsored by the Puerto Rico Department of Natural Resources and Environment (DNRE). The DNRE is one of at least twenty-three (23) government agencies in Puerto Rico with some type of jurisdiction and/or responsibility over 185 plus beaches⁷⁰ (Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991). Beginning in the 1970s, the DNRE pursued the goals and activities of biodiversity conservation (Igoe, Neves, and Brockington 2010; Nazarea 2006) The DNRE’s Dry Forest Plan published in 1970s confirmed the selection of Manglillo as a potential forest

⁶⁹ So far, I have not located any former studies that consider the origins and the use of the term *balneario* and/or of this Puerto Rican government sponsored initiative. A graduate research project from a private university in Puerto Rico described the history of the Puerto Rican National Park Service, who is the leading agency for owning and operating these *balnearios* to date (Madera-Rivera 2010).

⁷⁰ In Puerto Rico, the total of beaches is difficult to find, and vary depending on the source quoted, e.g., researchers who study them or those with legal mandate to oversee them.

balneario or a beach with basic facilities or development (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975, 1982). However, the opening of Manglillo as a “forest *balneario*” was delayed by failure in little or no budget allocation for construction. Much later than projected, and as confirmed by life-story interviews, the opening occurred approximately in the mid-1980s. The period from the early 1970s to mid-1980s brought the construction of a fence around Manglillo beach. This effort corresponds to a larger effort within forest management in Puerto Rico to ‘close’ these protected areas. This pattern of the closing of forests in Puerto Rico fit what scholars have coined as the enclosing of the commons (McCay and Acheson 1987). In Puerto Rico, prior to the 1970s, first under Spain and later with United States in 1898, forests were considered to be “open” areas.

Although the DNRE is a conservation-based agency whose jurisdiction include Manglillo’s “forest *balneario*,” the area is not part a larger Puerto Rican *balneario* project⁷¹ (Madera-Rivera 2010). In the 1970s, the “Compañía de Fomento Recreativo de Puerto Rico⁷²” became the leader promoting this larger *balneario* project (Madera-Rivera 2010). Colloquially known as “Fomento Recreativo,” this government agency, launched in 1961, was tasked with promoting recreation,⁷³ which included converting a dozen of Puerto Rican beaches into a *balneario* development. During the 1960s and the 1980s, these two government agencies in

⁷¹ In Puerto Rico, the central government sponsored both a concept and activities to erect a *balneario* project that consisted to take beaches to convert them into *balneario* beaches. I will employ concepts such as *balneario* project, *balneario* initiative or *balneario* development to refer to the same process. However, Manglillo as a forest *balneario* and the DRNE are not representative of the larger efforts towards this Puerto Rico-wide *balneario* project.

⁷² Two government agencies were predecessors of CPN prior to 2001 and as known today in Puerto Rico: “Compañía de Fomento Recreativo de Puerto Rico” in 1961 and “Fideicomiso para el Desarrollo, Operación y Conservación de los Parques Nacionales de Puerto Rico” in 1988 (Madera-Rivera 2010).

⁷³ What this agency defines as “recreation” is not what I mean for the purpose of this anthropological project. I see recreation-as-socializing in the forms of the uses of sea bathing and gathering in groups in Puerto Rico.

Puerto Rico -- DNRE and “Fomento Recreativo” -- simultaneously engaged in similar processes but not identical for selecting public beaches to be converted into *balnearios*. Each had different reasons for developing *balnearios* -- DRNE for conservation purposes, and Fomento, for recreation. While Puerto Rico has possibly a total of 185⁷⁴ beaches (Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991; Ortiz, Álvarez, and Quintana 2007), less than half of these beach areas -- approximately 85 sites -- possess appropriate swimming and public access conditions (Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991; Ortiz, Álvarez, and Quintana 2007). Among those, less than 20 were developed into *balnearios* (Madera-Rivera 2010). Eventually, the majority of *balnearios* --those owned and managed by “Fomento Recreativo”-- were transferred to another government agency, the Puerto Rico National Park Service⁷⁵ (NPS), created in 2001 (López 1999; Madera-Rivera 2010). The Puerto Rico NPS now owns and operates the majority of *balnearios* (more than twelve). Additionally, during the early 2000s, *balnearios* were added to a “national park” system, that also encompasses land-based parks in Puerto Rico. In this direction, Puerto Rico develops a concept of the “national park system” that also exists in other countries of the world.

For the analysis of the changes occurring in Manglillo, I define the *balneario* project as a ‘mass-oriented’ type of development for creating facilities and recreational centers at beaches in Puerto Rico. Examining the *balneario* project is a glimpse into the complex process of beach

⁷⁴ The total number of beaches in Puerto Rico varies (Chaparro 2002; Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991; Ortiz, Álvarez, and Quintana 2007; Pacheco 2014). The majority of available references point to at least over 200 beaches. Regardless of the lack of information about how to offer such estimate of a total number of beaches, this number can change in the near future in light of problems of erosion and climate change.

⁷⁵ The name in Spanish for this government agency is “Compañía de Parques Nacionales (CPN),” created in 2001 (Madera-Rivera 2010). This agency in 2015 announced its merger with another government agency, the Puerto Rico’s Department of Sports and Recreation. The Puerto Rico NPS mimics the United States Department of Interior (DOI)-National Park Service (NPS).

governance and management of Puerto Rico (Chaparro 2002). As it was briefly described earlier, two agencies of the DRNE and the *Fomento Recreativo*, engaged in beach development, *balneario*, but implemented it in different ways.

The creation of *balnearios* is a recent process, and possibly a unique one, occurring in Puerto Rico. This process has been driven by the central government. The *balneario* project offered the residents of Puerto Rico with low to moderate cost beach facilities and recreational centers. Beginning in the 1970s until the present in 2015, this government effort intended to benefit the residents. This effort is rare, when compared to the majority of the development or construction projects on the Puerto Rican coasts (Valdés-Pizzini 2006). The majority of these coastal-based development projects are designed and tend to serve mass-tourist activities and attract foreign tourists (Hernández- Delgado et al. 2012). Puerto Rican residents over the age of 50 years old tend to speak of *balnearios* providing minimal facilities and services on local beaches. The same population back in the 1970s shared memories of when they were in their 20s (i.e., young adults), which corresponds to when the idea was originally launched.

More interestingly, both the origins of the term *balneario* and the use of it among locals in Puerto Rico can be traced back to a conception of “public” beaches. The conception of converting public beaches into *balnearios* reflect the influence of countries like Spain and/or of the interpretations of a Spanish law as it pertains to the Puerto Rican coasts designating them as public domains (Fontánez 2009). So far, I was not able to find a precise translation of the word *balneario* in English. In countries like Spain, *balnearios* refer to beaches that are open to the public, or meaning with open or public access to those residing in Spain (Martínez-Martínez and Casas-Ripoll 2002). Puerto Rico has a 500-year connection to Spain, and possibly this explains provided linkages to appear what has been adopted from elsewhere. Locals employ the same

term *balneario* colloquially. Puerto Ricans connect both the word *balneario* and the general conception of a public beach. For example, Puerto Rican judges have supported the legal definition of the coasts as “public domains” in terms of public access and use by residents (Fontáñez 2009). This legal construction has not been consistent, over time and/or per given beach location.

The management of Puerto Rican beaches is complex. Over 23 agencies have jurisdictions and responsibilities for beaches (Pérez-Robles 2006). Moreover, Puerto Rico has no single coastal law⁷⁶ affecting the management and governance of beaches. Rather multiple laws impact the management and the multiple uses of these coastal areas, including that of Manglillo. While the beaches and the coasts drive the economy at local and global levels and for tourist activities (Hernández- Delgado et al. 2012), ironically Puerto Rico has neither a designated appointed budget nor a specific organization responsible for its large number of swimming and publicly accessible beaches (Chaparro 1988, 2002). Since 1999, a series of government-based efforts have emerged to address these challenges in regards to the past, present, and future of the Puerto Rican beaches -- e.g., Adopt a Beach, a Beach Board, and the Blue Flag Certification.

My findings about the multiple uses of the southwest beaches like Manglillo confirm that individuals over the age of 50s can be described as part of the same generation, “baby boomers.”⁷⁷ While Manglillo was meant to be a *balneario*, these baby boomers self-identify as Puerto Ricans and as residents of Puerto Rico who described using the rudimentary facilities, but do not repeat this term for this southwest coastal area. When locals repeat the word *balneario*,

⁷⁶ I learned about this first-hand in a meeting with beach experts in June 8, 2015 and another meeting with Environmental Planner in February 3, 2015. In 2015, one of two issues of *Marejada* magazine published by Puerto Rico Sea Grant had a student discuss this topic (Camacho-Rodríguez 2015).

⁷⁷ A “baby boomer” is a term used to refer to an individual who was born mid-1900s. Hence, those born within this period of time by the 1970s were considered to be adults by having over 18 years old.

they refer to a public beach that possesses basic infrastructure, including the recreational centers for cabins for overnight stay. These visitors think of a *balneario* facilities of showers, gazebos, restrooms, and parking as well as occasionally providing basic services on-site, such as ambulance, lifeguards, and management staff.

Often, each Puerto Rico *balneario* has a low-cost fee⁷⁸ for each car that enters the facilities to cover for these services and/or its maintenance. Unlike the rest of other *balnearios* in Puerto Rico, the “forest *balneario*” of Manglillo possesses more rudimentary facilities of a fence with main gate, restrooms, gazebos, and showers.⁷⁹ Manglillo does not have cabins. In Manglillo, socializing happens in gazebos for what I deem as “recreation-as socializing,” because visitors engage in gathering in groups in them for celebrating birthdays and/or barbeques. These structures are square made out of concrete and wood, with benches for seating and a table that accommodate four to six people. Generally, gazebos have an adjacent concrete grilling area. Like Manglillo, most *balnearios* also provide gazebos for the use of visitors for regular visits with no fees. Unlike Manglillo, other *balnearios* tend to be larger in size, less rudimentary structures and/or some offer cabins and gazebos to rent.

The municipalities of Guánica and Lajas I argue serve as major hubs for leisure purposes and activities to residents. Each municipality has a large number of beaches, if compared to the rest of similar areas with public access and swimming conditions in Puerto Rico. The southwest

⁷⁸ In 2015, a small fee for Puerto Rico involves approximately US\$3 per car or group of people for regular size cars that enters any *balneario* project. The fee, as staff has explained to me in my visits, is not meant to place a “price tag” on the beach area but on the parking and facilities available.

⁷⁹ In January 2015, I attended a community based event sponsored by the DNRE. During this community based event, DNRE signed a co-management agreement with a local nonprofit from the southwest that serves as an umbrella for other local grassroots organizations. After February 2015, a series of actions have followed up on this co-management agreement between DNRE and a group of local nonprofits such as visits for cataloging the conditions of three areas of Manglillo, Tamarindo and Guiligan beaches of the forest as well as possibly asking for a small fee that will be accumulated by a nonprofit for making future improvements to their facilities and/or for offering services.

region offers approximately 60 beaches, from which four or five⁸⁰ can be considered *balnearios*. This means that *balneario* remains relatively scarce to public or beaches with unlimited public access located in the southwest⁸¹ of Puerto Rico. Although Puerto Rico has dozens of beaches that have been transformed into *balnearios*, the DNRE only has approximately four⁸² of these types of beaches. Of these, Manglillo is considered a “poster child” for instance to a local nonprofit home in the southwest that now is part of a co-management arrangement (Arnstein 1969) with the Dry Forest. The local nonprofit has been assigned to manage beach areas such as Manglillo, while the government or DNRE owns the UNESCO and state forest (DNRE Meeting, January 28, 2015). Hence, residents as a group of visitors perceive the majority of beaches of the southwest are locally known as “public beaches,” and residents refer in that these beaches have no infrastructure.

The findings from this study shows that the southwest region attracts a majority of visitors (locals) who prefer this type of public beaches, and not beaches with facilities or cabins such as those promoted by the *balneario* project in Puerto Rico.⁸³ A potential explanation for this trend among Puerto Rican visitors to beaches may be connected to the fact that this region has among the highest number of beaches geographically next to each that have no infrastructure and both swimming and public access conditions.

⁸⁰ As I defined the southwest only in Guánica and Lajas municipalities, the list of *balnearios* include (east to west) Caña Gorda, Guiligan Island, Manglillo, Playa Rosada and Mata La Gata.

⁸¹ In this project, the southwest means only the coasts of the municipalities of Guánica and Lajas.

⁸² For DNRE, the UNESCO Dry Forest considers that (east to west) Tamarindo, Guiligan Island, Manglillo, and Manglillo Grande are *balnearios*.

⁸³ This reading about the preference among locals for public beaches originates from comparing the total number of visitors per beach in light of observations in-situ in the majority of the Guánica beaches in 2007 and later 2011 as well as 2013 to 2015.

The characteristic of defining Manglillo as heterogeneous “social space” (Massey 2005) help me to establish the connections between on-site activities and the meanings of those activities (language use) and describe the interpretation of the combined uses of biodiversity conservation and recreation. These connections demonstrate how the meaning of space is defined by the use of the space. Adding the relational quality of Manglillo as a social space, I can explain the interconnections among the on-site activities by residents, and the subsequent effect of turning a rural mangrove area into a forest beach, or *balneario*. This change began in the early 1900s, but accelerated rapidly since the 1970s to the 1980s. Since then, Manglillo can be defined to be all of the following descriptors: marine, recreational, mangrove, public, *balneario*, and beach area. The agency operating the governance and management of Manglillo promotes converted an open forest into a fenced forest, or enclosed area. In this transition, the marine portions of the UNESCO Dry Forest labelled Manglillo as “marine areas,” later into “marine recreational areas,” and eventually in a “forest beach,” or “*balneario*” experiment. The process for tracing how Manglillo transition is complicated. Manglillo evolved from a rural mangrove area in a forest. Later, Manglillo transitioned from a forest into a recreational mangrove beach, and lastly into a forest beach or *balneario*. Although the UNESCO and DNRE have promoted that Manglillo became a forest beach, residents who are visitors of this protected area do not associate this mangrove beach as part of a forest. While visitors (participants) do not recognize this area to be part of the forest (Torres-Abreu 2009; Valdés-Pizzini 1994), documents and primarily historical records about Manglillo -- as indicated in this section -- show historical evidence that Manglillo is part of this protected area. These documents explain both the construction and production of this social space in relation to the fluidity, diversity, and

transition of the use of all these descriptors by different groups: the residents or visitors and the DNRE as part of the central government of Puerto Rico.

In conducting this multi-scalar and spatial analysis of Manglillo's transformation, I analyze the role and the importance of the on-site activities of residents and their meanings associated with these activities to demonstrate the heterogeneity of the social uses of recreation and biodiversity conservation. To conclude my analysis here would be limited, because visitors or residents have expressed a multi-layered and complicated understanding about Manglillo. They consider the area to be both a public and recreational mangrove beach in the municipality of Guánica and/or regionally located on the southwest of Puerto Rico. The next section analyzes the visitor's view about Manglillo by examining the on-site activities of sea-bathing and gathering in groups, which often connect to another set of social uses of recreational and public uses.

Manglillo as a Recreational Beach with Public Uses

The previous section explains the social production of a beach defined as "social space" through the combined social uses of biodiversity conservation and recreation. Another combination of public and recreational uses show the same pattern of the variation of the understandings across groups of residents for Manglillo beach. This section will present ethnographic evidence to pay attention to a different group, the permanent residents, by analyzing a 1987 newspaper letter and photographs of the construction of a recent by-pass open fence near the main entrance of this beach.

Similar to other Puerto Rican beaches, Manglillo hosts different claims by visitors, such as, having public access to residents (Acosta-Ramírez 1995; Brown 2000; Concepción 1998; Hernández- Delgado et al. 2012; Misión Industrial de Puerto Rico 1987; Valdés-Pizzini 1994,

2006).⁸⁴ These claims vary (Fontáñez 2009; Misión Industrial de Puerto Rico 1987; Muñiz-López 1987). Often, visitors discuss their rights over uses of Manglillo beach, including those of “open access,⁸⁵” or unlimited entry to/from beaches. Others underline the use of this mangrove for relaxation and socialization with others they already know. In this section, I present Manglillo thought of as a “beach” to underline its recreational uses as well as the claims and actions near the 1980s for expressing the resentment of closing what permanent residents deem is a “public” beach. As a result, I present another perspective different to the previous section. The changes happening in Manglillo show a “social space” that based on the on-site activities as well as the assigning of meanings demonstrate another combination of two activities of recreation and public uses. The combination of these two activities show social and material changes to the characteristics of Manglillo area, over time and in a given moment. This process I interpret illuminates how, when, and in what ways residents conceive a “public beach” serving their need for recreation when referring to Manglillo.

Residents have reacted to the closing of the area of Manglillo since the beginning in the 1980s until the present. For example, a Guánica resident in a 1987 letter circulated in one of the leading newspapers of Puerto Rico expressed resentment about the closing of Manglillo (Misión Industrial de Puerto Rico 1987; Muñiz-López 1987). I found this letter in a compilation of hundreds of newspaper articles that reflect local claims to the environment, including the beaches of Puerto Rico (Misión Industrial de Puerto Rico 1987). Eventually, Manglillo beach shows a

⁸⁴ The majority of the listed references here consist of summaries about the situation of beaches thought of as “public spaces.” Please note that this list confirms that every 5 to 10 years, researchers in Puerto Rico have developed scholarly attention by summarizing case studies of beaches defined as “public spaces” in Puerto Rico since mid-1980s to the present. Please see footnote 88 for references centered on Guánica beaches.

⁸⁵ I followed anthropologist Bonnie McCay for her interpretation of “open access” to discuss common property and in this case for the claims for public access to mean unlimited and open access by locals for beaches in Puerto Rico (McCay 1987; McCay and Acheson 1987).

bypass for securing unlimited access, as shown in recent photographs. This bypass shows an open fence on the left side of a closed main gate of this forest area. Hence, I discuss the process of converting Manglillo into a “public beach,” which is parallel to the transformation of the coastal area into a forest *balneario* beach as indicated on the previous section.

Prior to the 1980s, Manglillo can be understood as open forest area, because of having no fence around a bathing area filled with mangrove trees (see previous section). When Manglillo became a fenced forest beach in the 1980s, this change illuminates the experiment of a *balneario* beach in Puerto Rico. The previous section showed much of the recreational use connected to another of the biodiversity conservation. Alternatively, this section examines the claims among permanent residents of Guánica over their rights of “public access” to what they consider to be “public” beach area of Manglillo.

In a 1987 letter, a permanent resident expressed his views about the effects of placing a fence around Manglillo beach. This permanent resident’s view contrasts with seeing Manglillo as forest-beach, because in his mind this is a public beach and neither a forest nor a *balneario* beach (Muñiz-López 1987). The content of this 1987 letter -- as it will be explained next -- show the Perceian “index” by pointing to the intersections between public access, or “open access,” meaning the unlimited or open-access as a right to enter and use of Manglillo beach. A common example of these two -- access and use -- involve examining the on-site activities of sea-bathing and gathering in groups, or what I recognize as “recreation-as-socializing.” Other sources also confirm the use by locals of Manglillo beach for sea bathing as early as in the first half of twentieth century (Domínguez-Cristóbal 2003; Rivera-Easterday 1995; Toro-Toro 1985) and prior to the fence in 1980s as well as oral testimonies collected in life-story interviews (see next section).

Señores:

La playa Manglillito en Playa Santa ha sido uno de los lugares de mayor disfrute para los guaníqueños y ensenadeños y más recientemente para el resto de los puertorriqueños. Allí pasamos muchas horas de nuestra niñez acompañados de la tranquilidad de sus aguas y lo apacible de su ambiente. Por muchos años su transparencia nos ha provisto de solaz y esparcimiento a todas horas. Es uno de los lugares más bonitos y frecuentados de estas cercanías.

Ahora que Recursos Naturales ha metidos sus manos, Manglillito dejara de ser lo que era para convertirse en otra piscina del Gobierno. Vinieron como “ladrones en la noche” construyendo casetas, baños, poniendo agua potable, limpiando, para finalmente decirnos que esto es del “pueblo” y que Recursos Naturales se reserva el derecho de cerrarla a las 5:00 pm mientras nosotros no podremos disfrutarla después de esa hora porque no somos el pueblo y la playa es de Recursos Naturales. ¡Que diligentes y buenos previsores son los de Recursos Naturales! ¡Si así fueran con los que privatizaron nuestras playas, cierran estacionamientos y se escudan tras la “vaca sagrada” de la propiedad privada para adueñarse de éstas! Pero, el pueblo no tiene propiedades privadas para poder escudarse y no tiene quien lo defienda. ¿Qué diferencia hay entre lo que hace la Asociación de Empleados del Estado Libre Asociado en Playa Santa y lo que hace Recursos Naturales en Manglillito? ¿Con qué fuerza moral el Gobierno le puede pedir a los empresarios que no privaticen las playas si él es el primero en, prácticamente, hacerlo? Mejor estarán los que visiten el condominio de la Asociación...si quieren bañarse a las 10 de la noche en la playa no hay quien se los impida. Pero, los que querramos disfrutar después de las 5:00 de la tarde no podemos hacerlo.

En este país los pobres no tienen muchas opciones para divertirse, no pueden ir a Bellas Artes, no pueden ir al teatro (ni siquiera al cine), no van a los grandes hoteles ni a casinos, no pueden pagarse una estadía en un parador. Lo único que les queda es la playa, y hasta las 5pm. ¡Qué bien, también nos van a decir a la hora que podemos ir a la playa! ¡Linda democracia en acción! ¿Por qué vamos a tener que disfrutar del Manglillito hasta las 5:00 de la tarde? La mayor parte de las personas salen a las 4 o 5 de sus trabajos y muchos van a esa hora a la playa. Yo, personalmente, voy a veces después de esa hora.

Con este clima nuestro, donde hay días que a las doce de la noche no se soporta al calor, resulta absurdo que se limite al pueblo el uso de una playa. Esta práctica es intolerable y altamente ilógica.

Le sugiero a Recursos Naturales y al Gobierno que se den una vuelta por el Manglillito en pleno verano o en cualquier día caluroso después de las cinco de la tarde, para que vean que no hay razón para tal proceder. Nunca la ha habido. Es una aberración del Gobierno.

Finalmente, quiero recordarle al Gobierno por si piensan cobrar la entrada al Manglillito que en Boquerón comenzaron con 25 centavos y ya está a \$1.00 la entrada.

Señores del Gobierno si este es el precio que tenemos que pagar los puertorriqueños, mejor llévense los baños y el agua potable y las casetas. Nunca las necesitamos en Manglillito. Preferimos la virginidad de esta playa para disfrutarla a cualquier hora.

Hiram Muñoz López
Ensenada

Figure 9. Permanent Resident Letter Against Closing of Manglillo Beach (Muñoz-López 1987; Misión Industrial de Puerto Rico 1987)

In 1987, and possibly only a few years after the government agency of DNRE closed the public access of Manglillo by converting it into a “forest *balneario*,” a permanent resident expressed anger and frustrations by writing a letter about this top-down decision of closing this area with a fence. In 2013 and 2015, a similar event occurred exemplified by the by-pass or open-fence in Manglillo. I connect this 1987 letter to the present situation of Manglillo, because

the main entrance offers a pathway to enter the area, and this seems ‘illegal.’ Manglillo has had a fence since the 1980s meant to close what is legally a designated forest area, or a marine recreational area and/or a bathing mangrove area, popularly known as beach. This top-down decision is not uncommon in Puerto Rico regarding beach governance and management (Concepción 1998; Hernández- Delgado et al. 2012; Misión Industrial de Puerto Rico 1987; Valdés-Pizzini 1994, 2006). While marine protected areas are growing especially in the past 10 years from 2006-2016 (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006), the number of co-management, or bottom-up, approaches (Arnstein 1969) tend to not apply to the Puerto Rican beaches.

Both the 1987 letter and the photographs of the current by-pass shows a passage or entry point to Manglillo to be used by visitors outside and during the hours of operations -- often not having a forest staff on-site. The closing of Manglillo with a fence originally in the end of 1980s and its continuation through the present, has prevented visitors from using and/or visiting this area after certain times of the day all year round⁸⁶. This change has presumably shifted both the social and the material aspects of the area based on its uses by residents -- albeit the bypass fence opened recently and observed in use by visitors in 2013 to 2015 can be modifying this process.

In this 1987 letter, the permanent resident points to how this fence (and having no staff on-site) actually impedes his potential use for “recreation-as-socializing.” By this I mean that the fence prevents residents, and presumably others, from having access and use mainly for sea-bathing and gathering in groups at any point of the day to Manglillo thought of as a public beach. His sadness emerges from comparing his use of Manglillo beach before and after the fence. As this permanent resident explains, he interprets the closing of Manglillo by the DNRE impeding

⁸⁶ Scholars have coined this process as the enclosing of the commons (McCay and Acheson 1987).

visitor's ability to enter and use this area after hours of operation (9am to 5pm), holidays and one or two days per week apparently for maintenance of this beach.

Although it is unclear what responses emerged from this 1987 letter, these claims about access and use of Manglillo define the area as a public and recreational beach, and these claims are similar to those made by responses of the participants of this study in 2013-15 (see next section). The photograph of a 'bypass' in the form of a human size open fence -- as shown below in one of the photographs -- stands as evidence for both the claims and actions to break the fence of Manglillo. This process reflects examples for how locals guarantee their rights over entry and use of what they conceive is a recreational and public beach in Puerto Rico.



Figure 10. Manglillo's Closed Main Gate. 2011

The above photograph shows a closed visitor's main gate in Manglillo, a situation that has been observed since 2011 until the present in 2015. This closed main gate juxtaposes the next series of photographs illustrating an open fence near the main entrance for this area. All photographs together, I interpret, constitute a Peircean "icon," because they refer to that visitors

make claim for having rights over public access to Manglillo beach. What these claims mean per individual as members of different groups vary, as it is shown by managers, visitors, and residents in this chapter.



Figure 11. Bypass Open Fence on Left Side of Manglillo's Entrance. 2011



Figure 12. Bypass Open Fence. 2015

Similar to Manglillo, locals have made claims and actions at several other beaches in Puerto Rico for guaranteeing their rights over ownership and uses of the coasts. As shown in these photographs, the bypass open fence next to a closed gate in Manglillo beach validates both the actions and claims by visitors for them claiming to have rights over public access⁸⁷ of this area, mainly to serve their recreational uses. When the content of this 1987 letter is linked to the taken photographs by this investigation of an open fence in Manglillo in 2013 and 2015 located next to a closed main gate with no forest staff, I interpret the open fence acts an “official” gate for two reasons.

⁸⁷ This claim among visitors actually seems contrary to those made by forest managers. The contrast emerges because Manglillo as a forest *balneario* actually maintains the main gate closed on the left -mainly to meet conservation goals and activities for being part of UNESCO Biosphere Dry Forest.

First, the open fence or bypass forms a gate that is always open for the public in the size of a person. Second, a hand-written sign found indicates, “that if no staff is at the gate, go ahead and leave the area,” which also underscores my interpretation for Manglillo as a public and recreational beach. In reaction to closing of this area, both the photographs of the open fence and the testimonies of this 1987 letter from this permanent resident direct my attention to thinking about Manglillo as public and recreational beach, now and over time.

Connecting the 1987 letter and photographs of ‘bypasses’ in Manglillo underscore that visitors for decades have insisted in having rights over “open access” to fulfill what I call “recreation-as-socializing,” namely the sea bathing and gathering in group for relaxation in a voluntary manner. Through personal anecdotes, this 1987 letter about Manglillo explains the same experience among current visitors in 2013-2015, which is that this mangrove beach change rapidly and in varying ways. People of different backgrounds may see the same, which is that the beach offers on-site recreational or leisure activities of sea bathing and gathering in groups, and understand these activities in place to offer them different understandings about their social relationships with the same geographical area -- now and over time.

The association of having rights over “open access,” for referring to public access in Manglillo beach, is similar to many other events happening in Puerto Rican beaches -- especially since the 1970s⁸⁸ (Acosta-Ramírez 1995; Acosta-Ramírez and Muñoz-Vázquez 2008; Brown 2000; Concepción 1998; Fontánez 2009; Hernández- Delgado et al. 2012; Misión Industrial de Puerto Rico 1987; Valdés-Pizzini 1994, 2006). The case of Manglillo actually fits what a number

⁸⁸ In this list, I included articles focused on the Guánica beaches (Acosta-Ramírez 1995; Acosta-Ramírez and Muñoz-Vázquez 2008; Brown 2000; Misión Industrial de Puerto Rico 1987; Valdés-Pizzini 1994, 2006). In a personal communication with one of these authors, beaches in Guánica for some have marked the origins for protests and group mobilization around beaches in Puerto Rico in the 1980s through the case of Club Med in Ballena beach. In fact, at least three Guánica beaches -- Ballena, La Jungla (Ferrer 1991) and Manglillo -- during the decade of 1980s show issues of public access that resulted in mobilization or protests to some degree.

of scholars argue to be an increase, or peak, of similar instances among residents of Puerto Rico when making claims over beaches⁸⁹ to be “public” areas (Fontáñez 2009; Misión Industrial de Puerto Rico 1987). Scholars have documented that this process starts in the 1970s, and extends through the present in 2015. As shown in the photographs, the visitors of Manglillo beach reflect their understandings of the Puerto Rican coasts, both as being public and when engaging in recreation-as-socializing. The repetition of similar events has happened in assorted types of beaches of Puerto Rico, including but not limited to, urban beaches, *balnearios*, and beaches with no infrastructure.

Additionally, the bypass open fence in Manglillo is not an isolated activity in the southwest, as defined in this study, by the two municipalities of Guánica and Lajas. At least another popular beach, Playa Santa, located in the same *poblado* where Manglillo is located, shows signs of another bypass open fence in the past seven years. In the case of Playa Santa, the open fence serves for presumably ‘illegal’ parking area near or on the beach. The open fence opened during the years of 2007 and 2011, but now it is currently closed in 2015. In Playa Santa beach, the open fence lies on the west side near the main Puerto Rico-road number 325, and next to a gated urbanization and recently constructed luxury residential building. The area inside the broken fence approximately fit 50 vehicles for a parking area near or in front of this sandy beach.

Unlike the previous section in which the area of Manglillo was described to as a forest beach or “forest *balneario*,” Manglillo is presented thought of as a “public beach” by residents in light of the identification of particular connection between on-site activities and their meanings to another set of specific social uses. Public uses and recreation as understood by residents affect

⁸⁹ Environmental lawyer and faculty at the University of Puerto Rico, Erika Fontáñez has documented that claims over beaches as public areas have generated protests and/or social mobilization in various instances not only in the past 10-15 years but at least since 1970s (Fontáñez 2009).

for example their interpretation of the ways in which the social and material attributes of Manglillo bring attention and importance to their on-site activities thought in reference to recreation. This is what I called recreation-as-socializing. Additionally, residents assigned their meanings to their on-site activities to refer to leisure types of social uses during their visits in this part of the southwest. In this section, I presented the impacts also on the rapid and varied changes to the attributes of Manglillo's place. The role and the importance of access and uses of this beach for sea bathing and group gathering, often connected with the combination of the uses of public access and recreation. I looked at a 1987 newspaper letter and several photographs of a "by-pass" open fence constructed recently in the area, at least twice in the past several years.

While participants claimed that Manglillo is a "public beach," they explain that they establish their recreational uses with having rights for its unlimited access to this part of the southwest coasts, or what they called public access. When narrating their visits to Manglillo, locals in this study described further what they meant about recreational on-site activities of sea bathing and group social gathering, or what I called as "recreation-as-socializing," occurring -- inland and at sea -- in Manglillo. The next section adds ethnographic evidence to explain what happens on-the-ground in relation to the effects of the on-site activities and uses that are understood as recreation by members of socially distinct groups. Recreation in Manglillo becomes salient also for identifying the changes for the social and material attributes that offer them with a recreational, bathing, public, and mangrove beach in Guánica and in the southwest of Puerto Rico. I begin the next section by underlining the common understandings among residents, and less of the dialectics or the contradictions found among groups and sub-groups of Puerto Ricans who visit frequently this area in this study, as shown in these initial sections. In chapter 6, I focus on the third and last process connected to my analysis of chosen theoretical

frameworks: the peculiarities of the political-economic context of Puerto Rico and its effects on the multiple uses of the southwest coasts.

Manglillo as a Recreational Beach

Sea bathing and gathering in group became common on-site activities that participants in this study highlighted when asked about their life on the southwest of Puerto Rico. Different members of various groups of residents underline engaging in the same set of on-site activities when visiting Manglillo throughout their lifetime. Each individual from different groups of residents emphasize that while they engage in the same on-site activities, their meanings reveal a different understanding of the place and of themselves in that place with people they already knew. The first section shows the ways in which technical managers differ from the visitors of Manglillo through the combined multiple uses of biodiversity conservation and recreation. The second section explains how permanent residents and short-term visitors understand Manglillo beach to be different than technical experts. This third section disentangles further the differences among permanent and temporary residents as well as short-term visitors as they understand their on-site activities to reflect their understanding of Manglillo as a recreational beach.

Locals often arrive in Manglillo for socializing on the water (sea bathing) and on nearby beach areas like gazebos (gathering in group). The following quote shows that, in general, participants insisted in commenting how spectacular Manglillo is, as they engage in various activities inland and at sea.

SPANISH TRANSCRIPT

Entrevistadora⁹⁰: En los pasados seis meses, ¿cuántas veces ha ido?

Participante: [Vilma se pone de pie de donde estaba sentada en la sala conmigo, se dirige a su cartera hacia la parte posterior de la casa de madera, busca el celular, para ver el calendario. regresa y se queda de pie]

Con Patricia nada más...Esto fue **Manglillito** [me enseña una foto] fuimos porque mi santa comadre. Mira, esa foto, mira esta [estamos de pie, mirando el celular y me señala a la pared de la sala de la casa] como hace 20 años.

[Vilma, empieza a recordar, por nombres para saber cuántas veces ha ido a la playa de Guánica en los últimos seis meses]

Patricia

Lucy

Miriam

Lara

María

Mira nena como seis veces [grita!] entre Manglillito y Playa Santa.

[continua con un comentario de Manglillo]

Manglillito es espectacular. Los canales de mangles. Los árboles. La sombra. Ya no estoy como 'pa' ponerme mas prieta de lo que soy. Porque ya no estamos pa coger tanto sol Como yo decía que nos poníamos como goma de truck goma de camión, porque me ponía más negra. Ya no estamos pa eso, por las arrugas [Vilma llega vestida de modo limpio y semi-casual]

ENGLISH APPROXIMATION

Interviewer⁹¹: In the past six months, how many times have you visited [Guánica beaches]

Participant: With Patricia only...This was **Manglillito** [showed me a photo]

We went [paused], because "*mi santa comadre*"

Here, look at this photo. Look at this one

This was like 20 years ago.

Patricia

Lucy

Julia

Lara

María. "Mira nena like six times [screamed]" in **Manglillito** and Playa Santa.

[Vilma rapidly continues to add a comment about Manglillo]

⁹⁰ Historia de Vida, entrevista inicial, 40 minutos

⁹¹ Life Story 006, initial interview, 40 minutes.

Manglillito is spectacular. The mangrove channels. The trees. The shade from the sun. Because we are not, we are not like before, we cannot take too much sun. I joke that I do not want to turn into a truck tire [black] - “pa’ ponerme *mas prieta de lo que soy*” [*to get darker than I already am*]
[Vilma dressed neat and semi-casual]

“**Manglillito**” in bold refers to the naming of Manglillo area by using a double diminutive in Spanish, which denotes how visitors depict feeling affection to this area thought of as a beach. As shown in this quote, this visitor shared abundant memories as a permanent Guánica resident who has lived nearby for the past 60 plus years. In general, this visitor explains that she engages in activities of sea bathing and gathering in group. For example, this late adult woman commented in this excerpt that she made a total of six visits over a period of six months in 2014. She counted visits to Manglillo and to another nearby beach located in the same *poblado*, Playa Santa beach. Her visits, as depicted on the quote, happened always accompanied by a friend who turned eventually to be like part of her family, a *comadre* Patricia.

This quote happens right before she commented on an inland use of Manglillo beach, camping, that will be discussed in detail later in this section as an unusual memory. Like many participants, this permanent resident by the end of this quote insisted on describing what makes Manglillo to be a spectacular. Through her characterization, this permanent resident provides background information. She highlights her preference for socializing as a common and a central activity during her visits to any of the southwest beaches of Puerto Rico. This visitor made no separation between sea bathing and gathering in group to Manglillo similar to any other southwest beach in Puerto Rico. She actually focuses on one of her favorite beaches, Manglillo, and most visibly describes what I refer as to recreation-as-socializing, when discussing the activities of sea bathing and group gathering interchangeably.

The use of this term in bold **Manglillito**, which refers to the diminutive of Manglillo, underlines the preference for this beach partly for having mangrove channels that provide shade in what they understand is a public bathing area in the southwest of Puerto Rico. Various photographs -- some taken as early as in the 1980s by Guánica residents (meeting with Juan Carlos, October 15, 2014) and another published in a tourist guide (Robinson 1984) -- confirm that Manglillo continues to be a popular beach for over 30 years. One of the photographs illustrates at least three groups socializing in Manglillo. Although a photograph presents local Puerto Ricans using the waters of Manglillo, a typical visitor in the summer time tends to stay in another part of this bathing area. They tend to cluster near mangrove trees in a mangrove channel on the waters of this beach -- where they can enjoy the shades of trees as illustrated below.

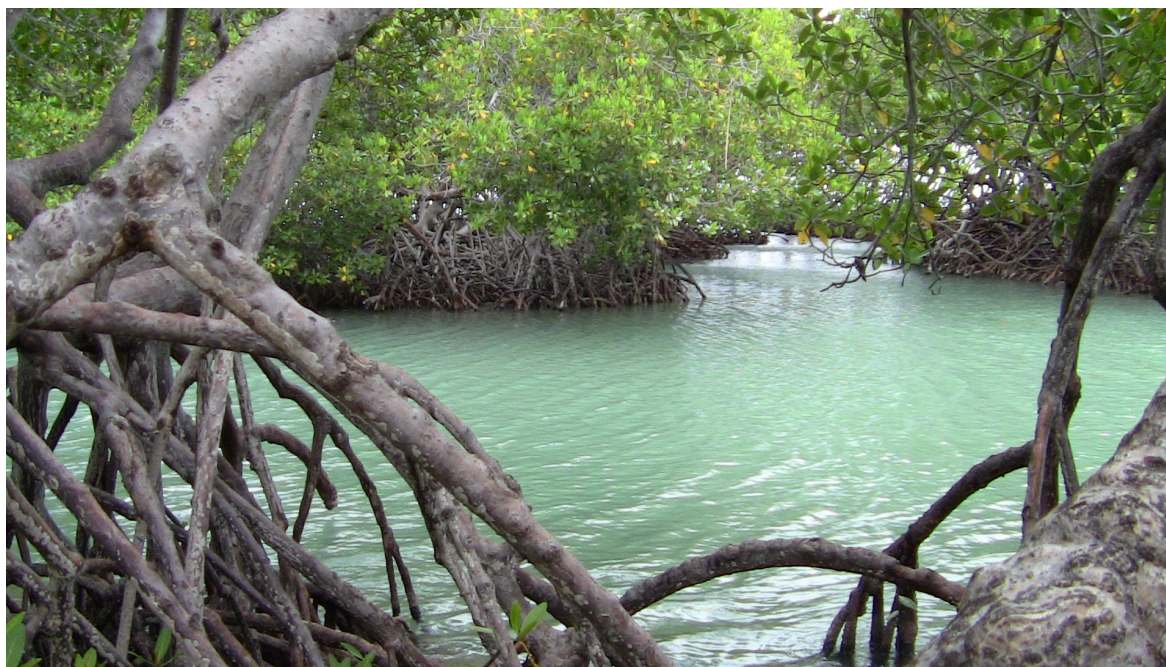


Figure 13. Manglillo Beach – Mangrove Channel. 2011.

Unlike the image of a sandy beach (Martínez-Martínez and Casas-Ripoll 2002), Manglillo is a “mangrove-beach” that has remained special for over a century (Domínguez-Cristóbal 2003; Toro Toro 1985). This area has attracted visitors for socializing inland and by

enjoying bathing on the sea-waters as confirmed by oral and written sources. Locals socialize in different parts of Manglillo -- on the water as shown above and on gazebos in the photographs included in the Introduction of this chapter. Even, a tourist guide written by a foreigner includes a photo of Manglillo beach (Robinson 1984). Also, a 1900s autobiography of a Puerto Rican salt-worker hired in a nearby salt flats located in Guánica commented on his visits and uses of Manglillo for socializing and bathing, including observing rapid changes to this area as early as 1930s (Toro-Toro 1985). Similar to this Puerto Rican salt-worker, another woman described her childhood trips during the early 1900s mainly for sea bathing while her family lived in the rural southwest⁹² (Rivera-Easterday 1995).

Participants commented that their visits to the southwest beaches almost always involved socializing with a group of people such as family and friends. I define this activity as gathering in group. Locals often described enjoying a day at the coast with people they know “apriori,” such as family, friends, high school or college peers, and ex-coworkers. Spending time with others -- frequently other local Puerto Ricans -- connects them to the southwest coasts, while also relating to others they already know in these coastal places. The following quote includes the names of people that this permanent resident of the southwest of Puerto Rico listed as people that she already knew prior to arriving to the beach. Also, this visitor shares that always goes with at least one of these groups to spend a day at the beach. This list of individuals with whom a participant goes to Manglillo beach as an example of the southwest beaches serves as Perceain “index.” This participant, for instance, connects a person that she already knows for those who accompany her to visit Manglillo area. The quote shows at least four groups that are examples of individuals accompanying a local’s visit to Manglillo. This participant when attempting to list a

⁹² In this study, I contacted a family member from this Puerto Rican woman who grew up in the southwest in the 1900s (see interview 15).

group, finished by listing a total of four groups with whom she visits the southwest beaches (coasts) of Puerto Rico. Literally, the participant knows all these groups. For her, other people are central to her activity of spending time any southwest beach, including Manglillo.

SPANISH TRANSCRIPT

Participante⁹³: En verano, llevamos a los nenes de mi sobrina a Caña Gorda. porque es mas cómodo. Allí no hay nada [dice de Manglillo] acá le lavamos los pies.

...

Lo que pasa es que hay muchos grupos
[Vilma para, habla más en detalles, para describir lo siguiente]
[1] grupo de los nenes, de los chicos
[2] grupo de clases graduandas somos como 40-50
ahí no hay muchachería. todos somos adultos
[3] grupo de los retirados del tribunal de Guayanilla

En todos esos grupos habemos 2 que siempre vamos, Patricia y yo.
[la comadre y Vilma la entrevistada]
Estamos en todas. [se ríe alto]

...

[4] el otro grupo es de los que vienen de Estados Unidos. Pues tenemos que ir a la playa varias veces.

ENGLISH APPROXIMATION

Participant⁹⁴: What happens is that there are many groups [with whom I go to Guánica beaches]
[1] There is a kids' group.
[2] Another group is the high school reunions. We are about 40 or 50
There are no young people there! We are all adults! [She clarifies.]
[3] There is the group of the retired co-workers from "Tribunal de Guayanilla"
But in all those groups, there only two of us that always go: "*mi comadre*" Patricia and I. "*Estamos en todas.*" ... [Laughed really loud.]
[4] There is the other group: those who come from the United States. We always need to go around to the beach several times.

By presenting four different groups with dozens of individuals each, I relate that this permanent resident establishes a strong social network that accompanies her and this beach of

⁹³ Historia de Vida 006, entrevista inicial, 44:52 minutos.

⁹⁴ Life Story 006, initial interview, 44:52 minutes.

Manglillo or similar ones located in the southwest of Puerto Rico. In the case of permanent residents, I observe that their social networks grow throughout their lives. In this case, the social network includes but is not limited to: friends, family, college peers, leaders, and local community. In light of my findings, these networks and groups presumably show a life-long bond or connection between permanent residents and Manglillo beach.

Participants described Manglillo in two ways interchangeably: as a unique area and as part of small number of the southwest Puerto Rican beaches. At times, participants insisted on their preferences for visiting a beach like Manglillo to enjoy the spectacular mangrove channels and sea waters of the Caribbean Sea accompanied by family and friends. In other instances, participants commented that Manglillo is one of several other beaches or areas to visit in the southwest Puerto Rico, as illustrated in the following quote.

SPANISH TRANSCRIPT

Entrevistadora⁹⁵: ...¿Cuándo piensas en estas áreas [las costas del suroeste], como describe su relación con esta zona?

Participante: Directa. Siempre me han gustado. Desde niña, mi papa nos llevaba a **Tamarindo, San Jacinto, Caña Gorda**. También, a **Playa Santa**.

ENGLISH APPROXIMATION

Interviewer⁹⁶: ...When you think about these areas [southwest littoral], how has your relationship been in regards to this zone?

Participant: Straight forward. I have always liked them. Since I was a girl, my dad would take us to **Tamarindo, San Jacinto, Caña Gorda**. Also, to **Playa Santa**.

Making a list of beaches, as highlighted in bold, suggest what formal and informal participants repeated when asked about their social relationship with the southwest coasts of Puerto Rico. For example, this permanent resident grouped a total of four beaches as favorite

⁹⁵ Historia de vida 006, entrevista inicial, seguido de la cita anterior.

⁹⁶ Life story 006, first interview, followed from the cited quote above by this participant.

ones located in the southwest. This total of four beaches accounts for roughly less than a fourth out of the total of 28 beaches extending in the six miles of the Guánica coasts (Guevara-López and Soriano-Miranda 1996). The listing of beaches by participants, often including Manglillo, confirms the iconic meaning that this area has, and how it tends to be thought of as one of the preferred beaches by locals within a selected group of beaches located in the southwest of Puerto Rico.

For describing their socializing at a beach, residents engage in the use of “toponymy,” or what I note as repeating a local naming of Manglillo to describe their visits to this area (Torrech 1998, 1994; Valdés-Pizzini 2009). Participants in this study engage in the use of toponymy in at least two identifiable ways. For instance, residents repeat consistently the same word for naming the area, Manglillo, and its two variants in bold of **Manglillo Pequeño** and **Manglillito**. In doing so, locals assigned at least two meanings when these three words were used interchangeably for naming the same area in bold of **Manglillo**, **Manglillo Pequeño** and **Manglillito**. The first meaning is that participants describe a unique mangrove-beach. Another is that participants identify this area as part of small number of beaches in the southwest. These two uses of the naming of Manglillo (toponymy) by residents, I interpret involves that they apply Perceian “index.” In doing so, participants talk about Manglillo and its variants of Manglillo Pequeño and Manglillito to describe a beach they go to, and also a place they tend to go on a relative regular basis within a calendar year, all year round. In this way, the naming of Manglillo becomes a referent to indicate both a unique beach and to list a group of favorite beaches. As described in the quote above, Manglillo is one of several popular beaches located in the municipality of Guánica: Tamarindo, San Jacinto, Caña Gorda, Playa Santa and Manglillo (Torrech 1994, 1998).

Undoubtedly, the origins of the word “manglillo”⁹⁷ possibly have affected the characteristic of this area (its existence), and the repetition of this word to name the area among locals, because the area itself has existed for over 100 years (Domínguez-Cristóbal 2003; Toro-Toro 1985). For example, the naming Manglillo has remained the same as repeatedly in my conversations with participants of this study. A potential source for analyzing the origins of this naming Manglillo is the memory of a salt-worker working in the 1930s. This salt-worker described that the area originally named as to “El Manglar,” or the mangrove, located in the same *poblado*, later he recognizes around 1918 to change into Manglillo or “little mangrove” (Toro-Toro 1985). In addition, the naming Manglillo continues to be the same although the Dry Forest that hosts this area has experienced changes of political ruling. The precedents of the Dry Forest can be traced back to the political ruling of Spain prior to 1898 (Domínguez-Cristóbal 2003). At that time, the precedents of the Dry Forest were transferred to the United States, and finally the government of Puerto Rico managed this protected area, first in 1919 and later in 1985 (Domínguez-Cristóbal 2003; Departamento de Recursos Naturales y Ambientales de Puerto Rico 1982). The word or naming of “Manglillo” originates back as in the end of 1800s⁹⁸ under Spanish rule to connect as what also listed this tip or corner near the Guánica Bay for sailors, which I interpret as the precedent for what is now the UNESCO Dry State Forest. These two uses of Manglillo to refer to a coastal forest area and/or Manglillo beach reflect that, while the naming has remained the same, the history of this geographical area confirms additional uses of the area.

⁹⁷ Caribbean anthropologist Yarimar Bonilla faculty member at Rutgers University has done work in Guadeloupe and utilizes mangroves as a heuristic device to build her ethnographic perspective intersecting history and politics (AAA panel 2015).

⁹⁸ Unlike in 2015 under Puerto Rico and the United States governance, common uses of this forest under Spain in the end of 19th century consisted of wood and carbon extraction (Domínguez-Cristóbal 2003). Also, the geographical location of Manglillo as a peninsula located next to the entrance of major port, the Guánica Bay, was commonly thought of as a stop for navigation and commerce (Domínguez-Cristóbal 2003; Pabón-Charneco and Regis 1996).

This series of changes underlines a disposition for the place itself to constantly change, regardless that the name remains the same and establishes its existence throughout the past century. Interestingly, residents now repeat the same naming of Manglillo interchangeably with another two words that use a double diminutive form of this original word in Spanish:

Manglillito and *Manglillo Pequeño*.

My findings of the life-story interviews also reveal differences among permanent residents and other sub-groups of visitors to this area, when they narrate the meanings to their on-site activities in relation to the social uses of Manglillo beach. Participants underline the benefits of leisure, relaxation, and socializing. The growth and intensification of Manglillo beach for primarily recreational uses by locals in this area is notable from the anecdotes of these participants and written sources, as presented in this chapter. The same Guánica born and raised woman in her 60s, Vilma, showed a deep and more profound connection with Manglillo given the abundant number of stories occurring in place that I divide affect different life-stages.

When Vilma shared her life-story⁹⁹, she marked a significant moment in Manglillo: camping. Thirty years ago, she narrated that she went camping as a young adult in Manglillo beach. In her memory, she associated Manglillo beach with her anecdote of camping that reflects what I mean by recreation-as-socializing. The camping use reflects her use of Perceian “icon” tool, because Vilma explains developing a life-long bond with this area of Manglillo. Through an informal conversation with a woman employed at a local bakery in Guánica Pueblo, I contacted Vilma. My original contact called Vilma, and right there, I coordinated to meet her for an interview to learn about her life in the southwest.

⁹⁹ As I conducted a formal interview stage, I categorized 20 individuals as “interview participants” (for details see chapter 1).

Given family ties in her nuclear family, we met for this interview at her parent's home. I expected that Vilma to share memories of specific beaches in the southwest; however, she commented on another beach of Guánica far from the place of residence, Manglillito. For example, her use of double diminutive -- Manglillito -- shows a deeper sense of affection to this beach and she chooses to return regularly in a year and over her lifetime. Also, Vilma shares that she came to Manglillo beach with her only biological daughter as a newborn baby to camp in this area.

SPANISH TRANSCRIPT

Entrevistadora¹⁰⁰: ¿Con quién iba?

Participante: Papá, mamá, Con el reguero de primos. Después de casada, también íbamos allí. Imagínate a mi hija a los 3 meses de nacida la llevé 'camping' por primera vez allí, a **Manglillito**.

ENGLISH APPROXIMATION

Interviewer¹⁰¹: Who did you go with?

Participant: My dad and my mom, and the rest of my cousins' gang. Well, when you are young! Then after I got married I went there, too. Imagine, my daughter camped for the first time when she was three months old in **Manglillito**.

Vilma's camping anecdote caught my attention; she talked about her preference for camping in La Jungla and Playa Santa and also she added in Manglillo. Even more, her change in tone oriented me for what she deemed is a common beach activity done on a regular basis about 30 to 50 years ago in the southwest beaches. Most enthusiastically, Vilma recalled camping in Manglillo by speaking much louder. This high pitch change on her voice also seems to connect her expression of feelings of happiness and well-being, when explaining how she brought continue the family tradition by bringing her three-month newborn -- her only biological

¹⁰⁰ Historia de vida 006, inicio de la entrevista de seguimiento.

¹⁰¹ Life-story 006, follow up interview towards its beginning.

daughter to camp in **Manglillito** for her first time too. Vilma pointed explicitly to her appreciation for this area by characterizing it as being unique for example showed by using the double diminutive¹⁰² for naming this area as **Manglillito**.

For permanent resident, Vilma, camping suggests engaging in a special kind of on-site activities connected to the recreational use of this beach area of Manglillo. While camping is prohibited¹⁰³ now in Manglillo, a 1975 management plan indicated Manglillo's beach projected to meet the uses of primitive camping (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975). The linkage between what this participant commented as her regular use like other visitors also have done in the past -- i.e., camping in Manglillo -- presumably on a regular basis prior to the 1980s also connects with the perceptions of managers and of beach users for this area. Nonetheless, no official records and/or oral testimonies confirmed the use of Manglillo for camping. As a result, Vilma's choice of describing camping as an everyday social use of Manglillo raises many questions regarding what kinds of activities, and the range of access and uses over time and in a given moment for residents gain to certain beaches in this municipality of the southwest, Guánica, and regionally in the southwest of Puerto Rico. In her remembering of camping in Manglillo, I believe Vilma not only employed words and phrases that can be considered typical of a local Puerto Rican for recollecting their memories and of their on-site activities and assigned meanings of a southwest beach. I consider that her camping in Manglillo

¹⁰² Like many other participants in this study, Vilma insisted not only here but throughout her two-part interview, repeating a double diminutive of *Manglillito* or *Manglillo Pequeño* - for indicating her preference for this area that in fact it's naming of Manglillo already applies a diminutive. In Spanish, the use of diminutive underlines having a sense of affection. The use of any of these three namings for the area remains common among all participants in this study as well as documents and observations. All these namings in diminutive literally highlight the fact that this geographical area is known for either having small mangrove trees or being an area that is smaller in size to another that also has mangrove trees nearby.

¹⁰³ Camping happened in *La Jungla* prior to 2007 when it was not part of the UNESCO Dry Forest.

on a regular basis also defies what is legally allowed in this protected area¹⁰⁴ in Puerto Rico, as defined in legal mandates for the Dry Forest. Given her relative high number of visits in a year (e.g., six in six months) and her variety of uses (i.e., camping) of this bathing area at some point in her life as permanent resident of Guánica, Vilma seems developed a life-long bond with Manglillo, and most notably with Manglillo as a recreational beach. She also emphasizes its special attributes, such as that of a mangrove-beach, that cannot be limited to common definition of beaches conceived largely for “sun, sand and sea” (Martínez-Martínez and Casas-Ripoll 2002; Rubio-López 2002) often referring to the coastal areas with palm trees and sandy beaches. She commented on enjoying the shades from mangrove as well as the sea-waters that reflect the Caribbean Sea.

Unlike permanent residents, temporary residents¹⁰⁵ -- often experts -- and visitors¹⁰⁶ listed the biophysical and geographical attributes mainly to talk about the mangrove-beach of Manglillo for describing their recreation-as-socializing. For temporary resident of Lajas, Julio, Manglillo is a mangrove-beach,¹⁰⁷ because he highlights the biophysical attributes of this place. In the following quote, Julio’s memory of a visit to Manglillo as a boy residing in nearby municipality of Peñuelas (25-minute drive) that resulted in his conflation of the “mangrove-beach” being central into a dream or fantasy connected to these biophysical attributes.

¹⁰⁴ The camping has been documented in similar designated and nearby beaches in the southwest.

¹⁰⁵ For temporary residents, I refer to residents of the southwest for at least 10 years. I concentrated on the municipalities of Guánica and Lajas.

¹⁰⁶ For visitors, I refer to individuals who reside in Puerto Rico and who visits the southwest in short periods of hours and days over less than a year.

¹⁰⁷ In the southwest, Manglillo is one of several popular mangrove beaches. Other examples of mangrove beaches consist of *Mata La Gata* in Lajas and *Guiligan* in Guánica. The latter two might not compare to Manglillo given their boat access while Manglillo has access by foot and car.

SPANISH TRANSCRIPT

Participante¹⁰⁸: ¿Cuál sería mi playa favorita? [pause] **Manglillito** me gusta mucho. Pero es que como te dije, antes vivíamos en Peñuelas, entonces yo tengo recuerdos desde que era pequeño, eh porque esa es la playa que le gusta a mi papá. Entonces, íbamos mucho ahí. Algo que siempre me acuerdo que una vez de la nada, que salimos de la escuela, nos dijeron “Pongánse los traje de baño y vámonos a la playa.” Eso yo lo tengo en mi recuerdo. [pausa] **Manglillito** siempre me gusta. Que son, yo no sé si tu has ido. Como son canalitos y uno va por los canalitos nadando, pues lo encuentro súper lindo. Súper chevere. Por supuesto, cuando no haya gente, porque prefiero las playas vacías. Siempre me lo he imaginado, conseguirse una dona de estas, un flotador en forma de dona, y pues estar la dona con flotador y que se yo con la mano estar entre los canales. Siempre me ha dado curiosidad en la parte qué es la costa como tal. Y caminar bordeando y ver la playa que bordea todo eso...

ENGLISH APPROXIMATION

Participant¹⁰⁹: What is the beach that is my favorite beach? [Pause] You know, I liked a lot **Manglillito**. This is you remember that I used to live in Peñuelas, I got many memories from when I was a boy, eh that is the beach that my dad liked. Then, we went there a lot. One thing I always remember is that one day from nowhere, as we were picked up from school, I heard, “Put on your bathing suits and let’s go to the beach.” [short pause] I always liked **Manglillito**. That are, I do not know if you have gone there. It has small mangrove channels and you go through them swimming. It is very pretty. It is nice. Of course, when there is no one there, because I like beaches that are empty. I always think of it, like I want to go there with a donut, a floating tube to seat on and with my hand, move around to enjoy the channels. When I am there, I am always curious about the coastal area. And I like to walk moving to see the beach that borders this area...

Like the rest of participants of this study, Julio¹¹⁰ brings a positive tone when talking about **Manglillito** namely as one of his favorite southwest beaches for recreation-as-socializing. As a temporary resident of the southwest, Julio is a Bayamón born and raised Puerto Rican man

¹⁰⁸ Historia de vida 013, cerca de 58:00 minutos de un total de 90 minutos.

¹⁰⁹ Life Story Interview 013 at 58:00 from a total of 90 minutes.

¹¹⁰ Permanent resident Vilma discussed changes in Manglillo mangrove beach too while fantasizing about “a beach” in general based on her lifetime in the following manner:

Entrevistadora: ¿Qué playa está visualizando?

Participante (Vilma): “de momento tu miras y no lo ves. Que tu desde pequeño que tu vas. Los mangles no es lo mismo que antes. Habían áreas con mangles bien copiosos. Nosotros íbamos por playa santa, lo que le dicen el Manglillito. Eso era cubierto de manglar. Eran unas piscinitas. Entre los huracanes, el mismo hombre. Eso ya no se ve tan copioso como era.”

in his 30s who moved to reside in nearby southwest municipality of Lajas. He is now finishing his graduate school. Julio's beach activities, as outlined in the quote, involved socializing in Manglillo by engaging in sea bathing, such as swimming in the mangrove channels, and gathering in group in relation to being accompanied by his family. Unlike permanent residents, this temporary resident, Julio, has arrive to Manglillo only sporadically over his life.

When discussing Manglillo, Julio characterizes the area as a "mangrove-beach" by merging his memories and a fantasy to highlight its biophysical attributes of what he deems as a popular beach in the southwest of Puerto Rico (Orlove and Catton 2010; Raffles 1999). In re-creating a fantasy, Julio underlines that he deems this area to be unique by including examples of what I see as recreation-as-socializing in relation to his uses of this beach in the forms of sea bathing and gathering in group. Some activities that Julio did while describing his visits to Manglillo include swimming and walking around the area, as listed on the quote. Additionally, Julio narrated a fantasy by describing relevant attributes of Manglillo ranging from the mangrove channels, the sea waters that are tranquil, shallow, and clear, as well as the muddy sand. For Julio, he extrapolates his memories to fantasize about what he thinks is an idyllic place centered on and in this beach area located in the southwest of Puerto Rico. Unlike permanent residents, Julio did not stress the importance of his childhood memory when thinking about his uses of Manglillo. In other words, Julio expressed in more length his fantasy or day dreaming than his childhood memory.

When he engaged in narrating his fantasy, Julio repeated what many participants expressed in terms of Manglillo's "clear, shallow, and calm sea waters." Given these listed attributes, Manglillo stands out among other beaches for having these water qualities (Orlove 2002; Orlove and Catton 2010; Raffles 2002). These qualities were not only repeated by

participants of this study, but these were often used to describe the Caribbean Sea, and the south portion of the main island of Puerto Rico, which includes the southwest portion included in this study. Some of these qualities about sea waters, for example, can be found in legal definitions of a beach in Puerto Rico (Encarnación-López, Fuentes-Santiago, and Rivera-Ortiz 1991; Ortiz, Álvarez, and Quintana 2007) and in the Caribbean literature to refer to the Caribbean Sea (Benítez-Rojo 2010; Escudero 1962; Llenín-Figueroa 2012; Lugo-Marrero 2011; Rodríguez-Juliá 1994, 1995; Torres-Negrón 1983). The attributes of Manglillo's waters reflect an association among locals between a southern beach like Manglillo and the common attributes linked to the waters of the Caribbean Sea. Therefore, participants explain that the waters of Manglillo, like the Caribbean Sea, makes this area to be at once a special or unique beach as well as iconic of the south region of Puerto Rico.

Julio commented on another two biophysical traits of the shades stemming from the mangrove channels and the muddy sand. These two were important to his memories and the fantasy he described in reference to the Manglillo beach. Although commented in a less repeated fashion than the water biophysical attributes, the combination of these three biophysical aspects of Manglillo provide the underpinnings of what was constantly insisted for Julio in this area for being a unique 'sea-scape' (Bentley, Bridenthal, and Wigen 2007; Wigen 2006). More significantly, all three biophysical qualities about Manglillo, I interpret, affects what Julio described as socializing happening in this area in the forms of sea bathing and gathering in group in this beach. Therefore, Julio's quote when situated in relation of both his childhood memory and this fantasy or daydreaming does not seem exceptional. His quote seems emblematic for why and what locals repeatedly commented attracts them to visit Manglillo. This often means that the

participants connect their uses of this area refer to a popular beach meant to serve them with socialization (recreation) in the southwest of Puerto Rico.

Similar to the permanent and temporary residents, a visitor from San Juan named Pedro explains that although he organizes an annual family visit to Guánica extending during the past 30 years, he only knows Manglillo due to his recent visit in 2014. Pedro is a Puerto Rican man and resident of San Juan who is 60 years old. Unlike Vilma and Julio, Pedro lives away (two or three-hour drive) from Manglillo. He lives in San Juan, the capital of Puerto Rico, and in what is known as the metropolitan area. In Pedro's life-story, he only mentioned Manglillo in passing when asked about where he goes in the southwest.

SPANISH TRANSCRIPT

Entrevistadora¹¹¹: ¿Cuáles son las actividades que tú haces cuando vas allí [estadía en Playa Santa]?

Participante: Playa.

...

La otra playa que visitamos cuando estamos allí es Manglillo. Que nos gusta también.

ENGLISH APPROXIMATION

Interviewer¹¹²: What activities do you do when you stay overnight there [Playa Santa overnight stay]?

Participant: Beach.

...

The other beach that we visit when we are there is Manglillo. That we like too.

As shown in the quote and like the rest of participants, Pedro showed a deep appreciation for visiting the southwest Puerto Rico mainly for staying overnight and socializing in local beaches. He repeated many fond memories by sharing many photographs and examples of

¹¹¹ Historia de Vida 017, 10 minutos y 11 minutos.

¹¹² Life Story 017, 10 minutes and 11 minutes.

specific life moments¹¹³ that he indicated happened over time in their annual trip for Guánica for the past 30 years. Initially, he came for the first time to Guánica accompanied with his nuclear family of five -- a wife and three children -- and now¹¹⁴ with 60 years he continues to visit only with his wife, a Puerto Rican woman in his 70s. Pedro commented of his visit to Manglillo briefly as a unique beach, and as part of grouping of this area as his favorite or popular beaches to go to in the southwest and in Puerto Rico.

Pedro's visit to Manglillo connects his exploring of new areas, such as, visiting this walking distance "mangrove-beach" nearby the "Asociación de Empleados del Estado Libre Asociado de Puerto Rico" (AEELA) ocean-front apartment rental building in the *poblado* of Playa Santa.¹¹⁵ As a San Juan resident, Pedro's visit to Manglillo indicates the importance of the southwest region for providing him as a Puerto Rican resident with what I see is "recreation-as-socializing." Pedro is a resident of San Juan who associates that the southwest, the *poblado* of Playa Santa, and the municipality of Guánica are special recreational destinations¹¹⁶ in Puerto Rico. Moreover, Manglillo beach is located in a popular *poblado* (Torrech 1994) that as

¹¹³ A personal anecdote that Pedro commented briefly was described when his first daughter walked her first steps in an AEELA apartment (small unit) only for three individuals. In this case, it is noteworthy to note that Pedro's visitor anecdote happens while he stays in a beach-front apartment complex in Guánica, while Vilma first camping happens overnight in Manglillo.

¹¹⁴ Here, I marked a difference for what kind of vacations Pedro commented in his life-story. The majority of the annual family visits for the past 30 years have been at AEELA. However, he noted that in 2014 and 2015 now he has visit Guánica accompanied only with his wife as retirees and stayed for their wedding anniversary in the Copamarina Beach Resort and Parador 1929.

¹¹⁵ The Playa Santa ocean-front apartment-rental twelve stories building is named after AEELA, which is an acronym that stands for the name of a membership based organization to serve Puerto Rican government employees by providing them with benefits such as discounts in apartment rental facilities around Puerto Rico. The Playa Santa AEELA building opened in 1983 and was renovated in 2014.

¹¹⁶ No formal study has been found for describing the role and the effects of recreation among residents of Puerto Rico. Every five years there is report that describes the preferences for outdoor activities among Puerto Ricans that originates from the format used in the United States. This SCORP report in Puerto Rico applies a basic translation from English materials into Spanish, with no proof that the questions have been analyzed for either language or cultural competencies.

participants indicated experienced a boom in the 1990s colloquially known as Playa Santa -- originally named *Salinas Providencia*. Apparently since the launching of an inter-university sports event celebrated in the town of Ponce (a 25-minute drive to Guánica) in the 1990s, the beaches of Playa Santa *poblado*, or Manglillo, Playa Santa and La Jungla beaches were rapidly transformed into popular destinations based on the increased number of visitors (locals) and the relative higher frequency of visits per calendar year since 1999 to the present.

Final remarks about the Recreational Beach of Manglillo

In this chapter, I develop a perspective that defines Manglillo as a “social space” located on the coasts of Puerto Rico. My purpose is to identify possible alternative futures for this area that do not limit to a single development or evolution. In the past, as it will be shown in this chapter, Manglillo has been planned to fit a specific evolution changing from an open forest area into a forest *balneario*, or beach development, within one of the state forests of Puerto Rico called the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Biosphere Dry State Forest. Using the lens of the uneven geographic development (D. Harvey 2006b; Sayers 2014; Smith 1984) and the global sense of place (Massey 1994, 2005), I compare how individuals of different social backgrounds (e.g., place of residence, age, education level, and employment) engage in on-site activities in Manglillo. In each section of this chapter, I introduce the growth of recreation in the area, beginning in the 1980s and extending through 2015. Then, I follow this with a comparison of the assigned meanings of on-site activities occurring in this area among members of three groups of residents. Most residents’ memories of this area include the multiple uses, such as recreation, conservation, and an understanding of the public nature of the space, or what I refer to as “public uses.”

This chapter underlines the variety of meanings that participants assign to the Manglillo area, initially explained in relation to the forest beach or *balneario*, later as a public beach and lastly as a recreational beach. This variation shows both the processes of dialectics and of the common understandings among three studied groups as well as sub-groups of residents or visitors of this area. The findings show that the following characteristics affected a person's assignment of meanings to their on-site activities and/or understanding of the social and material attributes to suggest changes on the southwest coasts: residency, age, employment, and education; hence, gender shows no difference in this sampling of participants. Photographs, written autobiographies (Rivera-Easterday 1995; Toro-Toro 1985), and life-story interviews highlight such variation among temporary and permanent residents, managers, and other experts as well as short-term visitors from San Juan. As shown above, I present the memories of participants representing all these groups and how they connected their on-site activities and particular meanings. Participants often combine two of the main listed social activities of biodiversity conservation, public uses, and recreation. Social processes of opposition and of the common understandings among residents of Puerto Rico help me explain the changes to the inherent attributes of the Manglillo area known as a beach or a coastal place with relative unlimited public access and bathing area. In the third section, three participants -- formally and informally -- frequently described in detail the range of the recreational uses of Manglillo beach as a place meant for recreation. Nonetheless, in general, locals often repeated two uses of the public uses and recreation in reference to their on-site activities or what I refer to as "recreation-as-socializing." Therefore, the common meanings about the coasts among sub-groups and groups of residents suggest the dominance of recreation above all other simultaneous on-site activities of this coastal place of Manglillo.

Also, I explain the meanings assigned by participants in relation to the combination of the on-site activities of sea bathing and gathering in group, which reflects the variations of leisure-oriented, or recreational, beaches of Puerto Rico. In this direction, Manglillo becomes a protagonist by showing the growth and intensification of the recreational on-site activities. These activities and their meanings by the participants of this study help me explain the variation of the meanings through linguistic and nonlinguistic forms of communication based on social background (e.g., residency, age, gender, employment and education). The observed changes can be depicted as rapid and varied transformations to Manglillo as a special coastal space located on the southwest coasts of Puerto Rico. In this analysis, I define Manglillo as a recreational beach, mainly to highlight how, when, and in what ways participants repeated these two on-site activities of sea bathing and gathering in group, to talk primarily about their recreational uses by permanent and temporary residents and short-term visitors. This preference for recreation is different from evidence that highlight Manglillo as being the only state forest with beaches in Puerto Rico.

In chapter 6, I take a step further to bring attention to another concurrent process to the dialectics or tensions and the common understandings among residents. Comparing these two sites in the same chapter will supplement chosen theoretical frameworks in order to disentangle the qualitative differences found for the ways in which different groups of residents in Puerto Rico relate in their everyday life to the southwest coasts.

CHAPTER 5

THE RECREATIONAL USES OF BAHIA FOSFORESCENTE

Introduction



Figure 14. Pier to Access the Bahía Fosforescente in Parguera *Poblado* in the Southwest Puerto Rico



Figure 15. Motorized *Lancha* to/from Bahía Fosforescente

Local historians, journalists, and scholars insist that Parguera is not new. As explained to me on several occasions, the southwest residential settlement called Parguera, located in the municipality of Lajas, is popular for having once been home to abundant fishing grounds for *pargo* fish (Valdés-Pizzini and Schärer-Umpierre 2011), which is the origin of the area’s name. But many agree that the *poblado*¹¹⁷ of Parguera, despite being isolated on the rural southwest coast, has relatively recently gained both local and international attention.

Anthropologist Rima Brusi asserts that Parguera has been known as a fishing and tourist “village” attracting locals and foreigners alike (Brusi 2004, 2008a, 2008b, 2009). Another common conception of Parguera by sociocultural anthropologists in Puerto Rico and the United

¹¹⁷ I refer to *poblado* as a small area of 2,000 individuals (see Methods chapter).

States is that Parguera has been the host for unresolved environmental struggles (Fiske 1992; Valdés-Pizzini 1990). These two conceptions are supported by the fact that the Parguera area has possibly been the most studied site, not only in Puerto Rico, but in the Caribbean (Valdés-Pizzini and Scharer 2014), and for its lingering and unresolved struggles around designations to propose fishing restrictions in specific areas and in general.

The Bahía Fosforescente or “phosphorescent bay” is situated in southwest Puerto Rico within the Parguera Natural Reserve. The area, a coastal lagoon¹¹⁸ with bioluminescence, or visible light to the human eye on surface sea waters, has provided on-site activities and social uses for different groups of locals over time. Often, residents mentioned this coastal bay as a “public” area where they come to enjoy the phenomenon of coastal bioluminescence. Puerto Ricans, either residing in Puerto Rico or in the United States, form one of the largest segments of visitors to the Bahía Fosforescente, and they tend to arrive to the Parguera *poblado* for night tours to experience the “light” (bioluminescence) over the surface of the coastal or sea waters. Most visitors come to the *poblado* of Parguera for the purpose of experiencing bioluminescence.

Typically, locals are willing to pay a small fee (\$7 in 2015) to travel in a two-level motorized *lancha* (boat) with their families and friends to introduce them to the phenomenon of bioluminescence. Beginning in the 1950s, local tour operators in the southwest started selling this bioluminescence experience as profit-making ventures, as shown in interviews and written sources. Groups of experts composed of local divers, international magazine staff, and Puerto Rican marine scientists arrived in the area around the 1960s and 1970s. This group was also attracted by the light phenomenon, or bioluminescence, emitted by microorganisms floating on

¹¹⁸ I refer to this bay through various terms, such as embayment, coastal lagoon, and bioluminescent or phosphorescent bay.

the surface sea waters; this phenomenon of bioluminescence is an important subject within the field of marine science (Oba and Schultz 2014; Widder 2011; Wilson and Hastings 2013).

“Biobays” have turned into tourist destinations in and out of Puerto Rico. “Bio” refers to bioluminescence and “bay” refers to embayments; the word biobay literally refers to bioluminescent bays, or historically what residents in the southwest call phosphorescent bays. This chapter will focus on analyzing the on-site activities of sea-bathing and gathering in groups by residents in Bahía Fosforescente. As participants of this study repeated, the rare phenomenon of coastal bioluminescence is one which people pay to see at night in different locations in Puerto Rico. Coastal bioluminescence attracts visitors to the surface sea waters that sparkle at night in several embayments; this phenomenon is visible to the human eye. In the southwest, residents or visitors pay a low-cost transportation fee to travel to and from Parguera to engage in on-site activities such as sea bathing and gathering in groups. Often residents bring people they know to experience this phenomenon, including family and friends.

SPANISH TRANSCRIPT

Participante:¹¹⁹ El atractivo, la gallinita de los huevos de oro, era la Bahía Bioluminiscente. La Parguera no estaría.

ENGLISH APPROXIMATION

Participant:¹²⁰ The main attraction, the goose that laid the golden eggs, was the Bahía Fosforescente. Parguera would not exist.

Using the idiom “the goose that laid the golden eggs,” I interpret this quote as suggesting the importance of the Bahía Fosforescente in the southwest of Puerto Rico and in Puerto Rico

¹¹⁹ Entrevista historia de vida piloto 001, temprano en la conversacion.

¹²⁰ Pilot Life-story Interview 001, early in our conversation.

overall. The significance of this part of the southwest littoral varies across the three main groups studied as well as within sub-groups of locals. The idiom used by this temporary resident, Francisco, establishes common linkages through his meanings to the on-site activities of sea-bathing and gathering in groups in the popular phosphorescent bays. Like many other participants of this study, Francisco connects these on-site activities with the outcomes of the recreational uses and the economic profits gained by locals in what is one of three popular bioluminescent bays in Puerto Rico.¹²¹ More specifically, I am interested in the potential combination of recreational and commercial uses along with biodiversity conservation of the Bahía Fosforescente. All these meanings assigned to the on-site activities are difficult to separate, given social and historical reasons that made this the original site for a new industry centered on the phenomenon of coastal bioluminescence attracting visitors, including the residents of Puerto Rico.

Similar to the Manglillo analysis, I center on recreational on-site activities and uses because these are also occurring in this phosphorescent bay and this follows my definition of the coasts as “social spaces.” I describe changes or transformations to the place itself and of people accompanied by others in this coastal area extending from the 1950s to 2015. Scientists, business owners, and government officials highlight the notion of a “protected bay,” because the legal mandates that apply to the phosphorescent bay partly relate to biodiversity conservation uses. Short-term visitors -- both residents and visitors -- understand the bay in different terms than technical experts. Visitors from the San Juan metropolitan area, for example, highlight the on-site activities of sea bathing and gathering in groups as their definition of recreation in this bay. The historical importance of turning this bay into an iconic site for the bioluminescence industry

¹²¹ The other two popular bays are on the east of the Caribbean archipelago of Puerto Rico: one located in the island-municipality of Vieques and another located in the municipality of Fajardo.

-- as depicted through the aforementioned idiom -- is corroborated when visitors do not tend to connect this coastal bay with its designations of a protected area and/or as a site where investigations are conducted by local and international scientists.

Francisco mentioned the phrase *la gallinita de los huevos de oro* relatively early in our conversation regarding the Parguera *poblado*, coral reefs, and diving uses of the southwest coasts. At first, I did not understand his use of this idiom in relation to the Bahía Fosforescente. My understanding when I began fieldwork was that Parguera, and not the Bahía, seemed to be the major attraction for the Puerto Rican southwest coasts. But by the time I finished collecting data in 2015, a year after this interview, Francisco's phrase became pivotal. The Lajas residents that I interviewed (about half of the total interviewed for this project) insisted on explaining what Francisco implied when using this idiom. Therefore, their life-story interviews, or life-stories, helped me to contextualize the central role of this bay, the Bahía Fosforescente, in terms of the origins and growth of the recreational impacts, for example, on the social importance for the residents of the *poblado* of Parguera as well as in and outside of Puerto Rico.

Francisco confessed that he met with me as an exception to his rule because he does not give many interviews. After his warning, I believe that our interview went well, because it extended for over an hour and he never commented or expressed any discomfort again. We were seated in a restaurant, which was our second choice after meeting in another location that was closed in Parguera *poblado* in the municipality of Lajas. Francisco is a native of the southern town of Cabo Rojo; he moved to Parguera a decade ago. He is now what I refer to as a temporary resident of the southwest municipality of Lajas. As my first contact in the Parguera *poblado* in Lajas, I noted that Francisco showcased his talkative personality.

During our conversation, I learned that he is an educated Puerto Rican man with a few notable career changes that reflect his drive and passion. He described himself as someone who has traveled the world due to his professional jobs. He also shared that he is an experienced diver with diving experiences worldwide and 30-plus years in the scuba diving tourism industry. This interest in diving informed his decision to develop a local business in Parguera. Francisco helps me tell the story of the Bahía Fosforecente by situating this bay at the center of this part of the southwest coasts for diverse groups and subgroups of Puerto Ricans. Presumably, visitors come to the Parguera *poblado*, but as participants insisted, they come accompanied by their families and friends mainly to experience the phenomenon of coastal bioluminescence in the southwest of Puerto Rico.

Unlike common depictions of the social and the central importance of the *poblado* of Parguera, I focus on the tensions among different groups of residents. I begin by examining how residents understand their on-site activities and their meanings of these activities regarding the multiple social uses. Also, I analyze non-linguistic forms of communication to explain changes on the material and social aspects of the Bahía Fosforescente. I identify the three combinations of multiple social uses along with the public uses and the commercial profits to underline the growth and intensification of recreation in this bay from the 1950s to the present. These combinations include biodiversity conservation and recreation, the scientific research, and recreation as well as the different understandings of recreation.

The first section presents archival documents to explain that the Bahía Fosforescente is a special kind of recreational hub within a marine protected area. The second section presents archival documents and life-story interviews of residents to show that this phosphorescent bay turned also into a scientific laboratory, which also connects with its recreational uses. Both

sections emphasize the role of the dialectical processes for explaining the connections among the on-site activities and nonlinguistic forms of communication that residents interpret as explaining the changes to the inherent attributes of the coastal bioluminescence and this bay. The last section looks at the life-story interviews to illustrate the variation of meanings and the use of nonlinguistic forms of communication by residents about the coastal bioluminescence. The residents' interpretation of their on-site activities provides them with meanings that are often associated with the recreational uses of engaging in voluntary, low-cost, non-extractive, and leisure activities in this bay, which highlights also the importance of observing the commonalities among groups of residents.

Bahía Fosforescente as a Phosphorescent Bay within a Marine Protected Area

One of the two early examples of marine protected areas in Puerto Rico is the Parguera Natural Reserve,¹²² where the Bahía Fosforescente is located; the other example was described in the previous chapter, the UNESCO Biosphere Dry Forest. This fact regarding the prominence of Parguera Reserve and the Dry Forest as being among the first two protected areas with marine portions is not well-known. The history of the marine protected areas, or MPAs, in Puerto Rico is relatively short (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006) and there are disparate areas that are designated as such but with no apparent network¹²³ (IUCN World Commission on Protected Areas 2008). Parguera, if compared to the UNESCO Dry Forest, is most likely to be acknowledged by locals mainly for its recent history of environmental struggles between

¹²² The reserve is a multi-use area that spans the continental shelf from the extensive mangrove forests fringing the shoreline to the complex shelf edge coral reefs that support a diverse and productive fish community (Pittman et al. 2010).

¹²³ To my understanding, there is no network of MPAs in Puerto Rico. Recently, a “corridor” has been approved on the northeast, and a proposal for the “Bosque Modelo” to also establish a corridor with other regions of Puerto Rico.

permanent and temporary residents, Puerto Rican and U.S. governments, fishers, and technical experts (Fiske 1992; Valdés-Pizzini 1990). The intersections of the on-site activities and their assigned meanings of a combination of social uses of the Bahía Fosforescente show how difficult it is to outline and disentangle the ways in which groups of residents have interacted in their everyday life with land-water, or water-based, environments, such as the southwest coasts. Also, participants pointed to the non-linguistic forms of communication that residents associated with the observed changes to the social and material attributes of the bay and of coastal bioluminescence.

SPANISH TRANSCRIPT

Entrevistadora:¹²⁴ ¿tu habías ido a las Bahías antes?

Participante: Cuando era pequeño. Quizás recuerdo eso, cuando cogen, como en los viajes del Fondo de Cristal [compañía de viajes] No sé si has tenido la oportunidad, o oírás que cogen el balde lo ves y brilla. Luego con él [profesor@]. Desde pequeño, ¡Wow! que pasa aquí. Quedé impresionado. Esto es lo que yo quiero estudiar.

Entrevistadora: ¿cuándo de pequeño, te recuerdas...?

Participante: Vine con mi familia. Mi mamá daba clases en una universidad [en Puerto Rico] me parece y venía un grupo de afuera que querían aprender español. Creo que era. Y con ese grupo, uno de los viajes fue ir a la Bahía.

Entrevistadora: ¿Ahí tu estabas, tu eras pequeño?

Participante: Sí, ahí yo era pequeño.

Entrevistadora: ¿Te recuerdas que edad?

Participante: [Pausa] Eh, 11 años.

ENGLISH APPROXIMATION

Interviewer:¹²⁵ Have you come to the bays before?

Participant: When I was a boy. Maybe what I remember is when they bring the bucket with water, like in the Fondo de Cristal tours. Don't know if you had had the opportunity or have heard about that they take a bucket with water and then it shows the brilliance of the light. Then with him [professor@]. Since I was little, wow! What is going on here. I was impressed. That is what I want to study.

Interviewer: Do you remember when as a child?

¹²⁴ Historia de vida 013, entrevista, 5-7 minutos de un total de 90 minutos.

¹²⁵ Life-story interview 013, 5-7 minutes out of a duration of 90 minutes.

Participant: I came with my family. I think my mom taught at university [in Puerto Rico] and a group from abroad wanted to learn Spanish. I believe. Then, with that group, one of the trips was a visit to the Bahía.

Interviewer: At that time where you little?

Participant: Yes, I was little.

Interviewer: Do you remember what age?

Participant: [pause] Eh, 11 years old.

Like this Parguera temporary resident, Julio, Puerto Ricans often go to the bays at an early age accompanied by their families; this experience cuts across generations of Puerto Ricans, ranging from those in their 20s and 30s to those in their 50s and 60s. This choice for night-time tours in the southwest was repeated by many participants, informally and formally. For Julio, the Parguera bays became special.

Although this portion of his interview reflects his memory of coming to the Parguera bays as a boy, he returned as a young adult to study marine sciences and focused on a research project in marine sciences enrolled in the University of Puerto Rico (UPR) satellite campus of Magueyes in the southwest. Julio's interpretation of the social importance, to some degree due to his emotional and memory-related connection with the Bahía Fosforescente, shows an example of Perceian "icon." He explained that during his childhood visit to the Bahía, the buckets filled with bioluminescent sea water made a lasting impression. Julio even recognized that his childhood experience, coupled with his graduate training in marine sciences when he visited this bay again, made him chose marine sciences and this campus on the southwest coast for graduate school. Today, Julio is finishing his graduate school in marine sciences from UPR. His research analyzes causal effects of a marine phenomenon in Puerto Rico.

During our conversation regarding his role as a marine scientist, Julio explained that the Bahía Fosforescente, like others in Puerto Rico, has a management plan from 1968 that not many know about. At first, it was unclear to me if Julio shared accurate information, because my

archival research had not resulted in a copy of this legal and/or conservation document. His comment led me to search again at the University of Puerto Rico-Mayagüez, where I was granted special permission to examine and organize Parguera and Guánica documents. In this second search, I found a complete copy of the 1968 management plan, which was sponsored by the United States Department of the Interior (DOI), prior to the creation of environmental organizations in Puerto Rico (U.S Department of Interior National Park Service 1968).

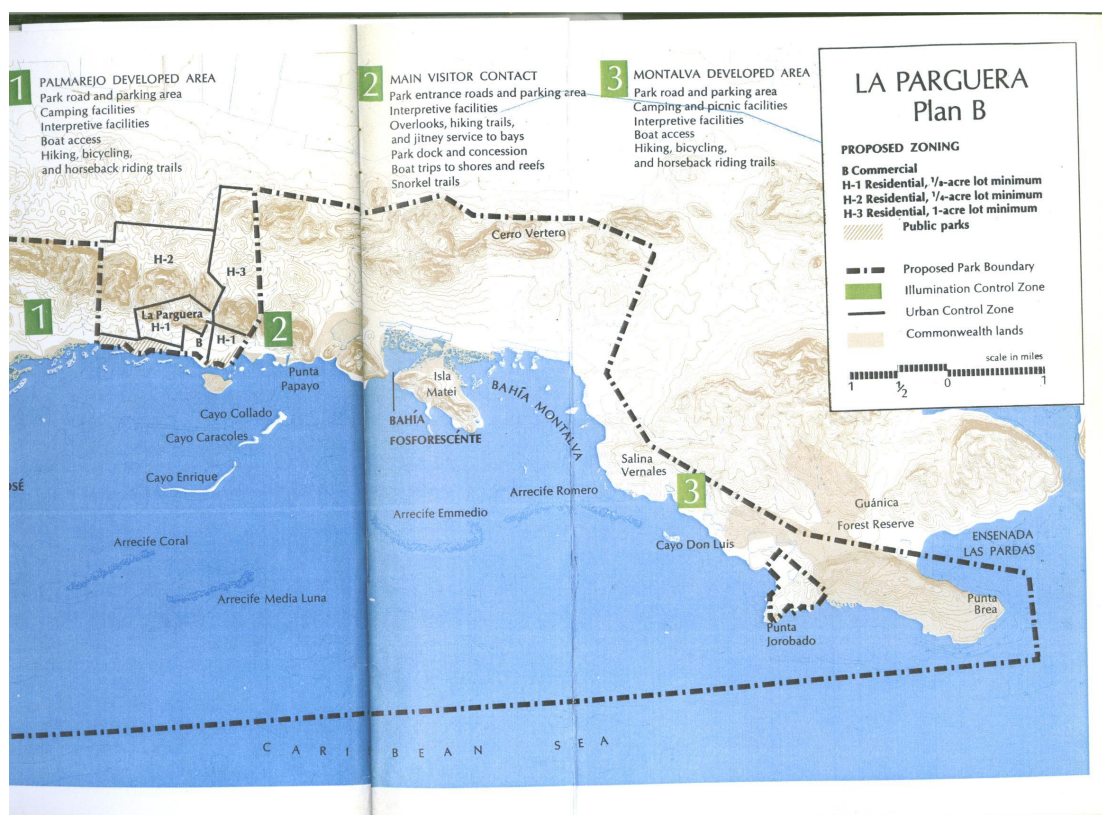


Figure 16. Parguera and Bahía Fosforescente Map, US DOI 1968

The details of the arrival of the U.S. government to the rural southwest in the 1960s are unknown. If I consider the array of archives and existing information that I retrieved from the internet, I can attest to an abundant number of records about the Bahía Fosforescente. The order and the logic of my search has not been obvious. While the Bahía Fosforescente is presumably part of the Parguera Natural Reserve, its description, more often than not, is not included in legal

and conservation-based documents of this southwest protected area. The absence of the Bahía Fosforescente in Parguera Natural Reserve official documents shows an example of Perceian “index.” In this way, my archival research confirms that, if and when I want to situate the Bahía Fosforescente, I need to look to a different set of documents because they separate the Bahía Fosforescente, and the Parguera Reserve.

A good example of documents that place the historical and social importance of the Bahía Fosforescente as a protected area is the aforementioned 1968 management plan. This document focuses on the Parguera bays and it frequently mentions the Bahía Fosforescente; although I believe the plan is not, or has not been, in effect. The arrival of this player to the Bahía Fosforescente probably connects to the special relationship between Puerto Rico and the United States (Áyala and Bernabe 2007). In addition, no local environmental organization existed in Puerto Rico prior to the 1970s; for example, the main environmental agency that now owns and manages the Bahía Fosforescente, the Puerto Rican Department of Natural Resources and Environment (DRNE), originated in the 1970s (López 1999). In this sense, I determine that the focus of the 1968 management plan on the Bahía Fosforescente serves as an Perceian “index” example for the kind of “paper park” this area is. This is similar to the Manglillo *balneario* experiment, shown in the previous chapter, in its relationship to the UNESCO Biosphere Reserve of the Dry Forest. I consider that while there is a management plan, typically meant for enforcement and management purposes, the Bahía Fosforescente shows that no specific enforcement has happened, either in the past or currently.

Another set of documents -- more recent ones -- that focus on the Bahía Fosforescente dates from the 2000s to the present. For instance, a prominent environmental organization called

the Puerto Rican Conservation Trust,¹²⁶ or as I will refer to them under their new name of Para La Naturaleza, extended the Parguera Natural Reserve. The Para La Naturaleza bought the land adjacent to the Bahía Fosforescente (Fuentes-Santiago et al. 2000). Since the formation of the Puerto Rican government in 1952, the Para La Naturaleza is the only organization, other than the DRNE, with protected lands (Rodríguez-Inoa 2011); the Para La Naturaleza owns and is responsible for one out of eight percent of all protected lands in Puerto Rico to date. The arrival of this prominent player in Puerto Rico’s conservation world, the Para La Naturaleza, can be described as Perceian “iconic” with regard to the importance of the Parguera, Bahía Fosforescente, and the southwest region. All three areas have gained relatively more public attention locally especially after the 1950s and 1960s, peaking in the 1970s to 1990s, but remaining latent among locals until recent years.

The legal status of the land acquisition transaction in the 2000s by the Para La Naturaleza near the Bahía Fosforescente is not a coincidence. Since the 1990s, the marketing of Puerto Rico as a tourist “hot spot” such as that using the 3 S’s of a “sun, sand, and sex” beach destination (Patullo 2005; Stonich 1998, 2000; Stronza 2001) now also capitalizes on selling another leisure experience, the bioluminescence. This is what is marketing advertisements referred to as the “biobays,” as seen for example in *Qué Pasa!* (Compañía de Turismo de Puerto Rico 2013a, 2013b, 2013c), the main tourist magazine sponsored by the Puerto Rican government. Therefore, the arrival of the Fideicomiso as Perceian “index” that more attention is given to the bioluminescence, and as a staple destination locally for conservation. The Bahía Fosforescente is

¹²⁶ Originally, this nonprofit was referred to as “Fideicomiso” given their role as a land trust for having one percent of the eight percent of the protected areas in Puerto Rico, which is a significant portion. Given the change in the name for marketing or branding, I will reflect this new stage of the organization by referring to the new name. I do not know if locals have caught up with this name change for this major environmental player in Puerto Rico.

one of three main areas for bioluminescent bays and this one attracts another segment, such as residents and uses, that I categorize as recreational.

The selling of the bioluminescence focuses on the areas referred to as “biobays,” mostly two popular bays in Vieques and Fajardo. This marketing began approximately in the 1990s, and peaked around or after 2000s. In my view, the government’s official magazine turned into a major venue to promote the tourist destination of Puerto Rico around the world. The marketing from the Puerto Rico Tourism Company (PRTC) includes internet platforms with traditional bilingual magazine advertisements, as well as other forms of media, including television advertisements, trip advisor, and Washington DC banners on public areas like the metro system. In their publications, I observed Bahía Fosforescente and other southwest bays obtaining relatively less attention for their bioluminescence industry compared to the other two most popular commercial bays in Puerto Rico. Events such as when the Fajardo bay of Las Croabas showed no bioluminescence for some nights in a row could also present barriers to the selling of this tourist and recreational experience (El Nuevo Día 2013). These trends are extracted from my own longitudinal research since 2007, given that no other study to date has been found analyzing the connections between bioluminescence and Puerto Rico as a global tourist destination.¹²⁷

The irony is that the PRTC tends to focus their advertisements on two other bay areas of Puerto Rico, Fajardo and Vieques, when selling the experience of bioluminescence. The findings from this ethnography however, show the iconic understanding among residents about the Parguera bays, specifically the Bahía Fosforescente. Puerto Ricans -- either those residing in Puerto Rico or in the United States -- tend to reflect the social profile of the largest segments of

¹²⁷ The total number of tourist-related investigations about Puerto Rico is relatively low, if compared to other similar tourist destinations such as Spain, Australia, Brazil, and the Dominican Republic.

visitors who looked for night-time trips to enjoy the phenomenon of bioluminescence in the Bahía Fosforescente. This is an example of the Perceian “icon” tool (Kohn 2007).

Additionally, local efforts promoted this iconic and shared understanding about Parguera’s Bahía Fosforescente among locals; this is another example of the Perceian “icon.” For instance, the Para La Naturaleza not only bought the lands adjacent to the coastal embayment where bioluminescence happens, but they also have plans to develop “natural history” group tours in the next years (Moore, Monighetti, and Turgeon 2013).

Another example of this natural history attention is that Para La Naturaleza, like other environmental organizations, now recognize that the southwest has been a major area for salt flats. Recent and modern attention to the history and preservation of salt work and extraction is growing. Specifically, the attention to the role of commercial activities and how these have happened locally connects to efforts in the municipality of Cabo Rojo (Fundación Puertorriqueña de las Humanidades 2011). For example, the U.S. Fish and Wildlife Service and the local non-government organization, Caborrojeños Pro Salud y Ambiente in the neighboring town of Cabo Rojo,¹²⁸ have collaborated to develop a historical perspective on salt extraction in Puerto Rico. In their project, the Lajas and Guánica municipalities have remained ignored and have obtained little attention with regards to salt work. The same omission occurs in investigations about the southeastern region and of the municipality of Salinas (Vazquez-Bernard de Rodríguez 2000).

Taking a leadership role has differentiated Para La Naturaleza due to their importance as a current and historical environmental organization with political power based on their land appropriation efforts for conservation. This influential position in Puerto Rico has led Para La Naturaleza to launch an upcoming salt project in the Lajas coasts, near the Bahía Fosforescente.

¹²⁸ Exceptions to this pattern exist locally -- see the 2000 book that presents the origins and the development of this commercial salt industry (Vazquez-Bernard de Rodríguez 2000).

This organization has become the poster child for connecting history, conservation, and culture; Las Cabezas in Fajardo and Hacienda La Esperanza in Manatí are two of their prototypes for this mission. In their mission to “take over” the southwest coasts, one of their “up and coming” projects¹²⁹ involves the reconstruction of an old salt flat area located in an isolated and “pristine” area (Cronon 1996) of the rural southwest.

After conducting this research, I confirmed that the Bahía Fosforescente is part of the Parguera Natural Reserve,¹³⁰ which has not been an easy piece of information to obtain -- unlike what I expected in the beginning. Almost no document for the Parguera Natural Reserve focuses on the bay or on the phenomenon of bioluminescence, for example when the same relationship is established within the scientific literature -- historical and modern.¹³¹ Scientific research has made bioluminescent bays a focal point of their investigations in relation to the different kinds of bioluminescence,¹³² in this case for the surface waters’ kind of light emitted by microorganisms that do no harm to people.

Several reasons might have affected my ability to establish this connection between Bahía Fosforescente and Parguera Natural Reserve. In my reading, Bahía Fosforescente is not often included or listed directly in the documents about the Parguera Reserve. Another issue is that Parguera *poblados* or the area near the Reserve does not lie contiguous to this bay. While

¹²⁹ Obtaining this information happened by chance. On the one hand, I found a study on the internet produced by a U.S. university and a group of undergraduate students with whom I communicated about their engineering knowledge to re-create a machine used in salt work (Moore, Monighetti, and Turgeon 2013). On the other hand, one of my interviews also provided me insights on the possibility of a project like the one proposed by the Para La Naturaleza in the southwest.

¹³⁰ In this website of one of the land owners, this linkage is clearly stated (ParaLaNaturaleza 2016).

¹³¹ Scientists have emphasized the importance of studying “luminescence” which is now known as “bioluminescence” -- see (E. N. Harvey 1957) for a history of this scientific subject prior to 1900s.

¹³² Also, the scientific and research topic of bioluminescence has been categorized into land, coastal, and marine in terms of the animals and plants that emit this kind of light and the range of goals and purposes for life.

Parguera *poblado* has taken the credit for selling and gaining profits from the night-time tours on this bay, this has happened through a social process given that geographically this is not the closest location for getting to/from the Bahía Fosforescente. This bay has become the host of what I argue is the first attempt for forming a profitable local industry around the selling of coastal bioluminescence.

More significantly, what differentiates the Bahía Fosforescente lies in its environmental policies, mechanisms, and its description as an embayment with coastal bioluminescence with at-night group tours in a protected area of Puerto Rico; this is what I argue makes the Bahía Fosforescente a special kind of protected and recreational bay. As shown above, the documents and the repetition of its naming in Puerto Rico vary. With no agency assigned to care for it prior to the creation of DRNE, the Bahía Fosforescente is only mentioned in official or government records after the 1970s.

The numerous documents describing the origins and the development of the Parguera Natural Reserve, for the most part, do not concentrate on the Bahía Fosforescente (NOAA Sanctuary Programs Divisions Division 1984; Valdés-Pizzini and Schärer-Umpierre 2011; Valdés-Pizzini et al. 2010; Valdés-Pizzini and Scharer 2014). Not only do legal and conservation documents ignore the Bahía Fosforescente, but also to some degree the anthropological analyses of the areas of Parguera and nearby coastal areas (Brusi 2004, 2008a; Fiske 1992; Valdés-Pizzini 1990). These findings surprised me.

This coastal embayment of Bahía Fosforescente is but one of the abundant and various types of marine ecosystems in Parguera's protected area. The absence of Bahía Fosforescente in the Parguera reserve literature is an example of Perceian "index" that reveals the conflicts between residents and technical experts and their meanings when combining the recreation and

biodiversity conservation uses. The history of the coastal and marine portions of Parguera, including areas such as the Bahía Fosforescente, have made the Parguera Natural Reserve different; for example, the Parguera Reserve is one of two protected areas in Puerto Rico that can be described as early examples of a protected area with coastal and marine portions. The other, as discussed in the previous chapter, is the UNESCO Biosphere Dry Forest.

The different jurisdictions as well as a recent history of environmental conflicts among permanent residents, Puerto Rican and United States governments, and temporary residents contextualizes the complex realities of life near or in the Parguera area as well as within the Parguera Natural Reserve. Parguera can be associated either as a *poblado* or a Natural Reserve. My work revealed through different sources -- archives and interviews -- a sense that locals do not relate to the reserve, but to the *poblado* and the phenomenon of coastal bioluminescence, when referring to their group tour activities at the Bahía Fosforescente in this part of the southwestern coasts of Puerto Rico. Although conservation goals have been “on-paper” central to this bay, at least sporadically, I show that the documents that include the goals tend to be designations and expansions of the Bahía Fosforescente and nearby areas, and not of the Parguera Natural Reserve. These documents also tend to be ecologically-driven descriptions of the abundant ecosystems in the southwest coasts and nearby marine areas, with less attention or interest on people and their uses (Soler-Figueroa 2006; Soler-Figueroa and Otero 2015). No specific enforcement strategy has been identified so far for the Bahía Fosforescente, although the conservation goals have not limited multi-use of this coastal embayment, currently ranging from fishing for subsistence and recreational as well as tourist activities.

All the above-cited archival documents allow me to establish the ways in which the Bahía Fosforescente becomes a special kind of protected area with on-site recreational activities. Like

any protected area -- marine or land -- the goals and activities in these designated areas connect the concept of “biodiversity conservation” (Cronon 1996; Darling 2005; Nazarea 2006). The concepts of stewardship, sustainability, and/or conservation as they are conceived and implemented in protected areas in Puerto Rico, so far, have not limited the possibilities of promoting multiple social uses of the same areas. This has not been the case in the Parguera Reserve’s history, using fishing as an example of extractive activities. In the 1980s and 1990s this natural reserve became the host for a proposal to add it to the NOAA Sanctuary and later for the Puerto Rico Sea Grant program to make changes to its designations, including a no-take fishing zone (Valdés-Pizzini and Scharer 2014). Yet to some extent my findings support that multi-uses have remained an ongoing pattern of use among residents (specifically, non-experts) in the Bahía Fosforescente as well as in the group of the marine and land protected areas in Puerto Rico. In terms of its designation as a protected area, the Bahía Fosforescente actually does not have “on-paper” or in practice a clear connection to the Parguera Natural Reserve regarding management and governance activities.

A notable exception is that the U.S. arrived in the area earlier than the local Puerto Rican government and the public university. For example, in the 1960s the Bahía Fosforescente hosted an international player, the National Geographic magazine, resulting in a publication about bioluminescence as a subject for research. Then in the late 1960s, the U.S. Department of the Interior produced -- even if not recognized by many -- a management plan for the bioluminescent bays. In this management plan, the Bahía Fosforescente had a central role (see the context of this international attention). However, only in the past five years,¹³³ has attention been paid at the

¹³³ Local publications exist for individuals interested in capturing this phenomenon, for example in Vieques bay or Mosquito Bay in light of its popularity as a site for recreational uses at least since the 1990s to the present (Bernache-Baker 1990).

local level regarding the phenomenon of bioluminescence (Carrero-Galarza 2009; Olán-Martínez 2009; Puerto Rico Sea Grant 2009), which does not match what happened elsewhere such as in the U.S. and other countries interested in marine sciences. An iconic example of the local attention to bioluminescence, and thus to the Bahía Fosforescente as its poster child, involves symposiums such as one organized by the Puerto Rico Sea Grant program in 2009 to discuss the topic of bioluminescence. In these fora, the main goal is to discuss bioluminescence as a scientific phenomenon, including recent investigations funded by local Sea Grant program in Puerto Rico. The gatherings also underscore that the coastal bays with bioluminescence are safe for human activities, which adds to the attention among local politicians, business owners, fisher groups, and other experts in Puerto Rico.

The “conservation” or “biodiversity conservation” activities (Igoe, Neves, and Brockington 2010), coupled with recreation uses, reveal what happens on this coastal embayment. Also, these two terms associated with on-site activities illustrate who is interested in this embayment: government officials, divers, international magazine staff, and scientists. This group of local and global actors tend to have varying understandings about bioluminescence and coastal bioluminescence. Scientists have generally talked about a “protected bay” as if the bay is meant to be considered “wilderness” nature (Cronon 1996; Darling 2005), and bioluminescence as an indicator of biodiversity conservation. However, the commercial activities of asking for a transportation fee for visitors to experience coastal bioluminescence adds another layer: recreational activities. Local families come to Parguera to pay for a boating group tour to/from the Bahía Fosforescente from this southwest *poblado* to experience coastal bioluminescence in this bay at night.

Next, I will present the Bahía Fosforescente as it is colloquially known, as a scientific laboratory always accompanied by recreational activities. The role of the University of Puerto Rico with its satellite campus for the Department of Marine Sciences, stipulates that the coastal bioluminescence has had effects beyond the local area, including into a broader scientific subject of bioluminescence that has a long history in modern science dating back to the 1900s. This scientific research attention is constantly accompanied with recreational uses as will become evident in the next section.

Bahía Fosforescente as a Scientific Destination

SPANISH TRANSCRIPT

Entrevistadora:¹³⁴ ¿Pensando en tu relación con el litoral del suroeste, cómo describes tu relación con este área?

Participante: Mi relación es principalmente con Puerto Rico.

...

Nada, y siempre supe que iba, quería hacer estudios graduados. Cuando entré a estudios graduados ... tomé el curso de ..., una de las cosas pues que se habla es de la Bahía, de las bahías bioluminiscentes. Para aquella época, un profesor tenía un proyecto que tenía dinero, y el estudiante que lo estaba ayudando se graduaba. Entonces, [el profesor] preguntó quién estaba interesado. ...

ENGLISH APPROXIMATION

Interviewer:¹³⁵ Thinking about your relationship with the southwest littoral, how do you describe your relationship with this area?

Participant: My relationship is primarily with Puerto Rico.

...

Well, and I always knew that I was, I will pursue graduate school. When I was admitted, ... I took in the course One of the topics covered was the Bahía, about the bioluminescent bays. During that time, a professor had a research study with funding, and his student [research assistant] who helped him was about to graduate. Then, the professor asked about who is interested. ...

¹³⁴ Historia de vida 013, entrevista, 0-5 minutos de un total de 90 minutos.

¹³⁵ Life-story interview 013, 0-5 minutes out of a total of 90 minutes.

This opening excerpt from a longer conversation with Julio (introduced in the previous section) presents his main motivation for becoming among the few local marine scientists working in Puerto Rico. He describes how not only personal, but also academic, reasons influenced him to begin and how he has remained interested in developing ongoing research in Puerto Rico. The opening question in my interview, an open-ended prompt, led him to outline a brief trajectory of his graduate training at the University of Puerto Rico at Mayagüez campus, in the Department of Marine Sciences (DMS), which was created after 1967 (Universidad de Puerto Rico-Mayagüez 2014). The DMS was originally housed in what was known as the Institute of Marine Biology, established in 1954. Most of his graduate training in the UPR Magueyes Island satellite campus, which is contiguous and to the west of the Bahía Fosforescente. His relatively long¹³⁶ pathway as a graduate student demonstrates that little efforts have been or are currently being funded locally. Local research efforts tend not to focus on conducting investigations neither in the southwest nor in Puerto Rico. Julio's response most evidently establishes his iconic relationship with the Bahía Fosforescente in terms of it being his meeting point throughout his life starting as a boy until now as a young adult (Massey 1994, 2005). He partially described this personal and academic trajectory in the selected quote for this section.

In his response early in our conversation, Julio described a series of visits to the Bahía Fosforescente that culminated in his decision to pursue graduate training at UPR and in the DMS physically located in Magueyes Island in Parguera. For example, he discussed his childhood memory of visiting Parguera with his mother and a group of foreigners interested in learning Spanish. He connected the Bahía with the hands-on experience of the bucket with bioluminescent water as a Perceian “index” for his interest in pursuing a research career and

¹³⁶ The time for this graduate student has taken on average longer if compared to national averages enrolled in a similar degree program in the United States.

specifically his decision to enroll at DMS at UPR for graduate training. More recently, as a graduate student Julio obtained funding for final data collection and analysis. Julio commented that the funding also brought a series of related non-academic opportunities. The funding opportunity offers an example of the Perceian “icon” tool, because Julio concentrated in doing research about Puerto Rico as a fieldsite that is of significance for him at various levels, ranging from personal, academic, research, tourist, policy, and educational levels.

Additionally, Julio narrated in this quote that he met, through his affiliation with the UPR Mayagüez, a major investigator who was interested in the bioluminescent bays and especially in the Bahía Fosforescente. This affiliation and his meeting with this investigator and professor through a class refers to the Perceian “indexical” for Julio pursuit of graduate school in Puerto Rico and choosing to conduct research there. He commented on the importance of the presence of this former and prominent investigator in facilitating his decision to conduct investigations in marine science at the UPR and in Puerto Rico.

Two aspects become relevant to further analyze the effects of locating the Julio’s life-story as one of few local marine scientists interested in Puerto Rico. First, as I have outlined above, Julio openly describes his trajectory, which generates an analysis of the origins and the connections between the Magueyes Island campus located in Parguera and the UPR-Mayagüez main campus of the only public university system in Puerto Rico. Second, his interest on marine sciences and Puerto Rico shows differences among local and international scientists in regards to defining the phenomenon of coastal bioluminescence.

As I will show next, the scientific explanations about bioluminescence as an important and rare phenomenon demonstrate, like a Perceian “index” (Kohn 2007), suggest differences between local’s and international scientists’ view about the coastal bioluminescence

phenomenon. Julio's initial response connected that his scientific explanation juxtaposes with a common generalization of visitors who come attracted to experience coastal bioluminescence in the southwest. This juxtaposition is telling. He explained that a local understanding connects to the visitors' beliefs to visit the bioluminescent bays, such as the one in Parguera of the Bahía Fosforescente. Julio and other participants of this study insisted in explaining to me first-hand, for example, why visitors are attracted to seeing more or less bioluminescence brilliance, and why this influences them to come to the southwest bays, and not those located in Fajardo and Vieques. This example reflects conflicts among visitors or residents -- both temporary residents and local marine scientists -- and international marine investigators; all these group think of the same bay or geographical area of the southwest and its phenomenon of coastal bioluminescence in different, at times, contrasting ways.

In general, residents tend to visit three popular areas for experiencing the phenomenon of coastal bioluminescence in a coastal embayment: Lajas, Vieques, and Fajardo. The local understanding or belief of visitors tends to describe in a lower rank this topic of the amount of brilliance of the light that is visible to the human eye at night in the Parguera bays. Thus, I consider that local visitors engage in a Perceian "iconic" maneuver for describing more or less amount of brilliance at any given night, based on their on-site activities of sea bathing and gathering in groups at the Bahía Fosforescente. I consider that residents tend to describe changes in the brilliance of the bioluminescence referring to the changes on the material attributes of this embayment over their lifetime.

It was repeated to me formally and informally by other southwest residents and Puerto Ricans that Parguera bays are losing their brilliance. Contrary to my observations and field notes during my visits in 2013 to 2015, the anecdotal evidence collected from participants (formally

and informally), and by my own experiences through observing the phenomenon of coastal bioluminescence within a calendar year in 2013 to 2015, it does not appear that the Bahía Fosforescente is necessarily showing less brilliance on its coastal surface waters. Also, the local belief that Parguera bays are losing their brilliance does not fit what local and international scientists explain about the phenomenon of bioluminescence. My observations during my visits to the Bahía Fosforescente, however, do show variations when going in a full moon or in various seasons in relation to observing more or less brilliance in this bay.

Scientists tend to agree that coastal bioluminescence requires that microorganisms float on coastal surface seawaters in semi-closed areas like embayments to emit light. No technology has been identified relative to measuring this type of light or replicating how it has been produced -- for instance chemically or biologically -- similar to how this occurs naturally in microorganisms and by many other sea creatures in the deep sea region (Widder 2010).

I had the opportunity to learn about formal and informal scientific projects that argue for and against this topic of more or less brilliance among temporary residents living in Parguera. Julio is a marine scientist who brought to my attention the importance of critically analyzing this premise of observing more or less brilliance from a scientific perspective and from a local understanding or belief. Another temporary resident, Miguel, brought to my attention a different explanation based on his daily hands-on experiences different from Julio's field and scientific experiences. As discussed above, Julio is a local marine scientist, partly motivated by a professor's guidance or mentorship and his interest in conducting research studies in marine areas in Puerto Rico. In this sense, Julio developed research projects most visibly as a Perceian "index," which refers to both his interest in marine sciences and living and doing research in Puerto Rico for which he has affectional ties.

Unlike Julio, Miguel shared a different local understanding about observing more or less brilliance of coastal bioluminescence in the Bahía Fosforescente. I met this participant by chance after attending a public hearing in 2013 hosted by Parguera's local library. I introduced myself briefly and after that we interacted several times, on land and at sea in 2013 to 2014. Unlike Julio, Miguel provided me with other kinds of explanations about bioluminescence as well as with additional on-site experiences that document his opinion about observing more or less brilliance during night visits to the Bahía Fosforescente. The experiences of this temporary resident and his expertise as a local business owner in Parguera for the past two decades suggests a different motivation and explanation as to why visitors can observe more or less brilliance in the same coastal embayment, for example, in the Bahía Fosforescente.

The passion reflected in storytelling often involved not only presenting, but hoping to convince me, about the topic in question of observing and accounting for more or less brilliance of the coastal bioluminescence occurring in the Bahía Fosforescente. During our interactions and in light of my ethnographic project, I had the opportunity to travel to the bay at night with this participant several times over a period of six months.

One of the most common ideas expressed by Julio and Miguel as well as by local and international scientists involves the technological limitations for observing coastal bioluminescence. This perspective is echoed by the internationally-renowned marine scientist expert on bioluminescence, Dr. Edith Widder. Both Miguel and Dr. Widder point out that no technological tool can artificially measure or replicate the brilliance of coastal bioluminescence. In fact, what caught my attention was that Miguel presented me with an alternative to investigating this topic of seeing more or less brilliance in this bay. After considering this for several years after my conversations with this temporary resident and technical expert, I now

realize that Miguel showed me a sort of a native-based explanation for understanding the brilliance inherent to the phenomenon of bioluminescence. Miguel specifically stressed his connections in real-time through his life and business operations in relation to the Bahía Fosforescente. His explanations are telling for the differences between the on-site activities and their meanings and the combined social uses of biodiversity conservation and recreation by Miguel and Julio, both of whom are temporary residents of southwest Puerto Rico.

Unlike complicated scientific theories applying difficult and/or expensive technological laboratory facilities, Miguel has experienced nightly boat trips to the bay for the past 20 years. Through a hands-on experiment using a rudimentary instrument of the human sight, I learned about a scientific project for its systematic and replicable aspects to conduct data collection using a scale of one to ten -- one for less brilliance and ten for the most brilliance -- to be documented in different parts of the bay. While the instrument and scale require recalibration per individual doing this experiment through visits to the same place over time at night -- and while it is inexact¹³⁷ to say the least --, this project caught my attention for its possibilities in terms of the ways the on-site activities and their meanings to the coastal bioluminescence and the Bahía Fosforescente as well as nonlinguistic forms of communication.

The research design can be described as hands-on and simple, if compared with scientific activities done by Julio and other scientists, which revealed to me how, in what ways, and for which reasons the uses of this bay connect with perceptions of change to the phenomenon of bioluminescence and in this case for observing more or less brilliance. The comparison between the on-site activities of Julio's and Miguel's view on this topic of more or less brilliance offered

¹³⁷ In health settings, human pain also faces similar barriers to the limitations of technology for the phenomenon of bioluminescence as a scientific inquiry. No technology can measure pain; the best approach to measure a person's pain is asking to self-identify the amount of pain (self-report). Other environments such as caves and deep sea also face similar technological barriers.

evidence for their multiple social relationships with the same place and its defining attribute of bioluminescence. Based on their social background, each person develops a different and at times conflicting understanding of the place and of themselves in place accompanied by others. The categories of age, employment, residency, and education were important for examining Miguel's and Julio's life-stories in the context of archival documents about the bay.

Taking a step further from these local conversations about describing more or less brilliance in this bay, I contextualize my informal conversations with scientists and business owners who are temporary residents with those happening elsewhere in regards to coastal bioluminescence. Following cultural anthropologists interested in "science studies" (Kirksey and Helmreich 2010), I compare the local definitions about the phenomenon of bioluminescence with those of international marine scientists.¹³⁸ In doing so, I observe that scientists from the United States do not follow local characterizations about bioluminescence and phosphorescent bays. My findings suggest differences in terms of the local and scientific understandings about both the phenomenon of bioluminescence and the Bahía Fosforescente.

Dr. Edith Widder has become an exemplar of this group of marine scientists. Dr. Widder proposes that no existing research has explained the biophysical (chemical and biological) processes that produce the phenomenon of coastal bioluminescence (Widder 2010, 2011). In her TED Talk in 2010, she summarizes her findings and expertise related to the repeated occurrences of bioluminescence in the deep sea, rather than on the surface waters, and not just in exotic

¹³⁸ Dr. Stefan Helmreich at MIT has developed much of his anthropological work to understand the knowledge among marine scientists for example about specific organisms living in the ocean and broadly about the sea (Helmreich 2009, 2011, 2015; Kirksey and Helmreich 2010).

places like Puerto Rico, but in San Diego area waters.¹³⁹ She commented briefly on the origins of the research to search for the mechanism of bioluminescence dating as early as the 1900s by the French physiologist Raphael Dubois. Briefly, Dr. Widder firmly states that ongoing investigations now focus on the chemical aspects of bioluminescence because of its pivotal role in “life.”¹⁴⁰ What Dr. Widder and others abroad have found does not fit what locals residing in the southwest and working on the Bahía Fosforescente were eager to tell me in 2013 to 2014.

Similar to the explanations of Dr. Widder and other international scientists, the historical events in Parguera provide another example of the difficulty in separating the “aura” around the National Geographic magazine article and discerning if or when this publication established ties with the scientific research community or their activities. In this sense, I interpret that the local understandings about the National Geographic magazine article illustrate a Perceian “index” example of the conflation of its connection to local scientific research activities among residents of Puerto Rico. In this study, permanent residents and scientists expressed their belief that the arrival of a team from National Geographic in Parguera in the 1960s links the magazine with research investigators. Review of this 1960 publication (Zahl 1960) and a life-story interview as well as local documents confirmed this activity of the National Geographic in Parguera’s Bahía Fosforescente.

However, I submit that the arrival, goals, and the mission of the National Geographic

¹³⁹ Her Ted Talk 2010 transcript states: “But you don't always have to go down to the depths of the ocean to see a light show like this. You can see it in surface waters. This is some shot, by Dr. Mike Latz at Scripps Institution, of a dolphin swimming through bioluminescent plankton. And this isn't someplace exotic like one of the bioluminescent bays in Puerto Rico, this was actually shot in San Diego Harbor.”

¹⁴⁰ “Life” refers to the living species such as the microorganisms called dinoflagellate, which emits the bioluminescence.

Society and its magazine, as defined in their websites and publications, lie in travel¹⁴¹ or leisure-oriented activities -- not research. For example, the magazine is known for its incredible photographs, travel stories, and other leisure-oriented messages. Similar to conventional travel and leisure publications, European countries and the United States have promoted these kinds of travel and leisure goals or activities. Unlike the local opinions about the 1960s visit of the National Geographic to Parguera, I consider these two events -- the visit and the publication of an article citing the Bahía Fosforescente and the phenomenon of bioluminescence -- as not reflecting linkages to the on-site activities of conducting local scientific research and activities in the bay. Unquestionably, both the phenomenon of bioluminescence itself as a scientific area of interest as well as the local and international attention to iconic Parguera and Bahía Fosforescente have been pivotal. I propose that, if analyzed in context with the separation of National Geographic from local research activities, the visit of this team by the National Geographic magazine and its publication in the 1960s and another in the 1970s (Colin 1977; Zahl 1960) resulted in changes to the attributes of the area as a leisure and scientific destination in Puerto Rico and around the world. For example, the international attention also brought local interest for a group to engage in scientific research goals and activities locally in Parguera. However, the creation and the maintenance of a research-based facility in Parguera, next to the Bahía Fosforescente, point to other kinds of changes to the inherent attributes of this bay not connected directly with the National Geographic.

The arrival and publication of the National Geographic coincided with a public hearing where locals expressed their understandings about this team, which also provides context as to why the Bahía Fosforescente became a main attraction in the southwest and in Puerto Rico. A

¹⁴¹ In my anthropological training, I have read the work of Mary Louise Pratt, who describes the role of “travelers” and their impact in travel writing for creating specific images of places and presumably of those dwelling in these areas in Europe and around the world -- see her book *Imperial Eyes: Travel Writing and Transculturation*.

1961 public hearing by the Puerto Rican government in Parguera indicates local residents' understanding about the National Geographic international exposure to Parguera and the Bahía. As indicated above, I found a sharp contrast between residents' understanding (then and now) describing the connections between the National Geographic and the Bahía Fosforescente.

While the National Geographic is neither a research nor an academic institution, it shaped the underpinnings of the local scientific “scene” in Parguera, after its team arrived in Puerto Rico. The international attention coupled with local interest and resources shifted the attention from the DMS to Parguera, in relation to the position that the Magueyes Island could have if constructed as a satellite campus in the UPR-Mayagüez by the 1970s.

The origins and the history of the DMS began in the 1960s and 1970s, and these efforts were instrumental in the creation of the Magueyes Island¹⁴² campus in Parguera. Originally used as a zoo facility that was transferred to the municipality of Mayagüez, the Magueyes cay -- as locals refer to this area of Parguera -- was selected as a satellite campus for the graduate program in marine sciences and its field-based research efforts. Although another campus of the UPR system located in the eastern part of the main island had coastal marine biology as a field to earn a bachelor's degree, the construction of the Magueyes Island campus near the UPR Mayagüez provided the home of the newly founded Department of Marine Sciences.

The creation of the DMS and its graduate program in 1968 (among the first ever in Puerto Rico granting a doctoral degree¹⁴³) dates back to 1954 to the Institute of Marine Biology in the UPR Mayagüez, and it has remained active for the past 50 years (Valdés-Pizzini and Schärer-

¹⁴² The adjective of “island” is not meant for inhabited area, but for its larger size if compared to the islets and cays that are common in the Parguera marine landscape.

¹⁴³ Personal communication 2007 with the individual who obtained among the first degrees in this department at this university.

Umpierre 2011). Around the same date, a field station was established on the 18-acre Magueyes Island when the zoo facilities were removed and the use of this area changed to a satellite campus for marine sciences. Today, as students and others tend to describe the “Magueyes Island” in relation to UPR, this area is now primarily used as a satellite campus for training in a graduate program at master and doctoral levels. Magueyes also hosts other programs, such as K-12 teacher’s training and marine capabilities in terms of laboratory and equipment.¹⁴⁴ In this sense, Magueyes offers an example of how scientific uses connected with other activities, such as diving and international attention, like a domino effect, resulted in more attention to the Bahía Fosforescente. In terms of the DMS and Magueyes, my findings show that the bioluminescence and the Bahía Fosforescente gained relatively sporadic attention by faculty and graduate students. Other areas of Parguera, namely coral reefs, have obtained more attention than the bay and its bioluminescence in relation to DMS’ scientific goals and practices.

One of the DMS deans, Dr. Máximo Cerrame-Vivas, as narrated by a participant in this study, established a network among divers, faculty members (and marine scientists), and residents in the 1970s. Local divers were instructed by divers from the United States who were, at the time, leading a hotel resort diving program oriented to tourist uses in Puerto Rico. As explained by a participant, residents were trained to be divers partly to develop marine sciences capabilities for conducting research at the proposed Magueyes Island satellite campus for the graduate program in marine sciences. Different from the use of the technical skills of diving suitable for scientific research, local residents also extended their diving training to develop local

¹⁴⁴ From the DMS website (Universidad de Puerto Rico-Mayagüez 2014): “The DMS Magueyes facilities include 5 laboratory buildings with approximately 27,000 square feet. The main building houses administrative offices, two general teaching laboratories, one large class room, a small conference room, a student computer center, faculty offices and the research laboratories. Additional laboratories, faculty offices and laboratories and student offices are distributed in the remainder 4 buildings. Several laboratories have a running seawater system and aquarium. A NOAA tide and weather station wave-data recording station operated housed at the site.”

businesses for selling diving trips to visitors to experience Parguera's coral reefs. In this sense, the development of Magueyes Island as a satellite campus of DMS actually involved a complex history of the multi-uses of Parguera's abundant marine ecosystems and areas, not only for scientific research, including the bay. The above information connects the diving training, the creation of local business around Parguera's coral reefs, and the scientific research happening in the Magueyes campus. This context situates the DMS interest of scientists and faculty members studying marine life, including that located in Puerto Rico and in the southwest, which partly affected the types of on-site activities of the Bahía Fosforescente and its phenomenon of coastal bioluminescence.

Scientists arrived much later than fishers, divers, and international magazine staff to the Bahía Fosforescente. I interpret the arrival of scientists as revealing changes to this coastal embayment connected to their understanding of the phenomenon of coastal bioluminescence. As presented here, the explanations by local marine scientists about the bioluminescence and about this bay also do not correspond to those of marine scientists working in the United States. More interestingly, the scientific research activities have not limited, but have in a sense encouraged, the recreational uses of the Bahía Fosforescente, as shown with the diving example highlighted earlier in this section.

The recreation and conservation uses of the Bahía Fosforescente as explained in this section explain the changes in the material and social aspects of the inherent attributes of this bay area. Most notably, I observe that residents indicated they perceive changes in the social dimensions by their different understandings of this place over time. In section three, local fishers have indicated that originally the bay, although protected, was a preferred fishing ground for local families and to support the Parguera economy; three local families took their ability to

navigate the Parguera waters to develop a leisure-oriented business, or economic enterprise, around the coastal bioluminescence. After the fishers, the arrival of technical experts brought a current conception of the bay as needing protection, given that the legal designation of this area being part of a marine protected area of Puerto Rico provided for biodiversity conservation goals and activities. Additionally, not only managers of the protected bay arrived, but also local and international scientists, many of whom were now working in a satellite campus in Parguera at the Magueyes Island cay. The scientists brought a different conception of the bay as a scientific laboratory (Helmreich 2015). Once the bay gained its original iconic role as the main bay with bioluminescence in the southwest area, it gained multiple uses including those of conservation, research, commercial, and recreation. Next, I will explain the variation for what residents, especially visitors, mean when narrating their thoughts of this bay as a recreational area.

Bahía Fosforescente as a Recreational Bay

Phosphorescent bays are located to the extreme east and west sides of the main coastal settlement of Parguera *poblado*, including some areas not used for tourist/leisure purposes. No specific reasons have been found, other than arbitrary ones, to locate the pick-up and drop-off location to/from the bay in the *poblado* of Parguera. The Bahía Fosforescente refers to the main and largest phosphorescent bay located next to the coastal settlements of Salinas Fortuna and Los Hornos in the southwest municipality of Lajas and towards the east side of the popular *poblado* of Parguera. At least one other bay, Moncio José, for its French name -- but often pronounced in Puerto Rican Spanish -- lies to the west of this *poblado*. A third bay was mentioned in terms of where local companies in Parguera currently take clients, yet no particular name was identified by participants.

Many of the night group tours in Parguera allow their clients (or visitors) to touch the bay water or swim in the bay, and a few of them have only recently started to offer kayak and paddle boat services. These services exist in the two or possibly three popular bays in the southwest of Puerto Rico meant for recreation, offering the experience of observing “light” on the warm and surface ocean waters of the Caribbean Sea. The Bahía Fosforescente is geographically located most distant from the Parguera *poblado*. Other services for night group tours offer kayaks and paddle boats, which tend to cater to the bay located in the opposite, or west, direction from the Bahía Fosforescente. The rest of the night group tours, mostly motorized boats of different sizes¹⁴⁵ and charging a diverse range of prices, tend to go to the Bahía Fosforescente.

In Puerto Rico, visitors -- residents and foreigners -- participate in these night trips and would not necessarily make a connection that these coastal embayments in which they are having fun are protected areas. They do not tend, most importantly, to identify conservation designations or labels when narrating their on-site activities and social uses of the Bahía Fosforescente. In 2015, a local leisure-oriented industry centered on the bioluminescence provided an array of tour operators in three areas of Puerto Rico with bioluminescent bays with recreational uses: Parguera (southwest), Fajardo (east), and Vieques (island-municipality on the east). Also, the mechanisms are ample in which visitors are taken on night group tours to experience the phenomenon of bioluminescence. In Parguera, motorized boats remain the staple type of boat transportation for local visitors (observations in 2011 and 2013-15). In Vieques and Fajardo, the use of kayak-based group trips is the staple means for maritime transportation (observations in 2007, 2011, and 2014). Only recently, since approximately 2007, additional tour operators arrived in

¹⁴⁵ I found that Bahía Fosforescente attracts boats of several sizes, such as *lancha*, catamaran, and six-person small boats.

Parguera to add the kayaking experience for visitors to the bioluminescence on coastal surface waters of the bays (observations in 2011 and 2013-15).

The history of how, why, and in which ways the Parguera bioluminescence industry was created, developed, and possibly stalled -- as of the economic situation in 2015 -- has not been written. The role of Parguera's phosphorescent bays in terms of their impacts to the development and growth of the bioluminescence industry in Fajardo and Vieques is unclear; yet Parguera remains an iconic place in the minds and the lives of Puerto Ricans (Brusi 2004). Given the findings from this study, I note that this *poblado* is popular for its peculiar coastal bioluminescence in the Bahía Fosforescente. For example, for the past six decades the *poblado* of Parguera has offered a particular "coastal village" environment -- either of a community or a postcard landscape (Brusi 2004, 2008a, 2008b) -- in terms of the images and activities that bring Puerto Ricans here (via what many consider are local or internal tourist efforts) to make this area a central point of the bioluminescence industry. This "aura" that applies to the Parguera *poblado* may not apply in the same scale/degree to residential settlements near the bays in Vieques or Fajardo.

Historically, access to the Parguera bays involved a different scenario than it does today. In 2014, a native-born Parguera fisher, Héctor, in his 60s, highlighted the important iconic role played by a boat, *La Criolla*, in terms of recreational uses of the Bahía Fosforescente as early as the 1950s. The use of *La Criolla* started at a historical moment when wind sailing (rather than motorized boats) was the primary means to navigate the nearby marine areas of Parguera.

SPANISH TRANSCRIPT

Entrevistadora:¹⁴⁶ te hago la pregunta, ¿Qué habían barcos motorizados, y barcos no motorizados?

Participante: eso fue en la infancia. Mira hasta me acuerdo de los nombres. Aquí había un solo bote que daba paseo, que era de los Cancel. Se llamaba “La Criolla.” El bote.

Entrevistadora: aja. ¿ese era el bote motorizado?

Participante: aja. La Criolla. Y La Criolla se dedicaba a dar paseitos a algunas personas que venían los sábados y los domingos. Y cuando no se estaba utilizando sábado y domingo, se utilizaba en la semana para llevar los los yoleros chinchorreros. Eso de chinchorrear ahora en tierra, como dice, eso es viejo pa nosotros. Las yolas eh chinchorreras estaban en el agua. Y este bote, La Criolla, cogia 3, 4, 3 o 5 de esas yolas, una detrás de la otra

Entrevistadora: las arrastraba

Participante: las arrastraba y las llevaba a diferentes cayos.

Entrevistadora: Ok ¿era una actividad?

Participante: Y después ellos venían de allá pa acá, a remo. Y después venían y le vendían la pesca, al dueño de la Criolla. A Don apellido Cancel a Don Toñín Cancel.

Entrevistadora: Toñín

Participante: Antonio Cancel. Le decían Toñín Cancel, le decían. Le vendían la pesca. El les hacia el favor por las mañanas.

ENGLISH APPROXIMATION

Interviewer:¹⁴⁷ Let me ask you, were there motorized and non motorized boats?

Participant: This was when I was a boy. Wow, I even remember of the name. There was a boat that would offer “paseos,” from the Cancel [family]. The name was La Criolla. The boat.

Interviewer: Ajá, was that a motorized boat?

Participant: Ajá. La Criolla was dedicated to offer trips for some individuals on Saturdays and Sundays. When it was not used on Saturday and Sunday, La Criolla would take during the week to transport all of us *yoleros chinchorreros* [artisanal fishers]. Look, *chinchorrear* as an activity now inland, is old for us. The small boats, the *chinchorreras*, were usually on the water. And this boat, La Criolla take 3, 4, or 5 from those small boats, one after the other

Interviewer: It would transport them?

Participant: Yes transport them to different cays [in Parguera].

Interviewer: Ok was this a normal activity?

¹⁴⁶ Historia de vida 008, entrevista, 58:34 minutos.

¹⁴⁷ Life-story interview 008, 58:34 minutes.

Participant: Then, we would row from the cays [after finishing and lunch], rowing. We then would sell catch, to the owner of La Criolla. To Don last name Cancel to Don Toñín Cancel.

Interviewer: Toñín

Participant: Antonio Cancel. Everyone would call him Toñín Cancel. We sold him the catch of the day. He would offer a gift every morning [to fishers].

Héctor described *La Criolla*, a big *lancha* owned by a local native-born Pargueran businessman, which served as the main transportation to/from the Bahía Fosforescente for night group tours. Today, the night group tours are a staple kind of activity or use of this part of the southwest coasts. I apply a Peircean tool called “icon” to show the connections for what Héctor narrated as what he noted as changes to the attributes of the Bahía Fosforescente, including the commercial development in this area towards its recreational uses of night group tours starting in the 1950s and continuing through the present. The Bahía is the home of the first example of a local relationship that resulted in the bioluminescence industry, or a commercial operation where local tour operators through their own business take local visitors to experience bioluminescence for a fee. Héctor explained that a motorized *lancha* called *La Criolla* both took people to see “light” on the sea waters at night, and helped local fishers during the day for their daily fishing activities given its motorized capacity when the rest of boating occurring in Parguera was by wind-driven *yolas* (yawls). What is implicit in Héctor’s personal anecdote is the protagonistic role of the Bahía Fosforescente in relation to the origins and the growth of a commercial and recreational industry centered on the bioluminescence and in this bay in Puerto Rico. The Bahía served as the role model for local relationships in what later was transformed to a global process: the selling of the experience of bioluminescence. In this case, the Bahía is iconic for both the commercial and recreational uses of the bay targeting locals as one of the main segments of visitors to this area.

No specific sources have been identified to date for describing the history of the bioluminescence industry in the Bahía Fosforescente, in Puerto Rico or elsewhere in the world. In addition to Héctor, another life-story interview in Parguera with another native fisher begins to describe this recent history connecting the commercial and recreational uses for offering night group trips in the Bahía Fosforescente. The difference with Parguera's Bahía Fosforescente involves its attraction mainly to locals, or Puerto Ricans who for the most part live in Puerto Rico,¹⁴⁸ as stressed by participants of this study as well as by other sources of information such as documents and observations on-site in the Parguera *poblado* and in night group tours.

Like the opening of Héctor's quote, the Bahía Fosforescente has given visibility to Parguera *poblado* since the 1960s and it has remained important for over 50 years as a tourist and recreational destination for both locals and foreigners. The place name, or toponymy, suggests two key terms -- "*Bahía*" and "*fosforescente*" -- for its linkage to the history of the origins and the maintenance of the local relationships of a bioluminescent industry in the southwest and its corresponding relationships globally. Prior to the marketing slogan "biobay"¹⁴⁹ in the tourist propaganda for Puerto Rico in the U.S. and abroad, the naming of this southwest area of the Bahía Fosforescente offers indicators for the similar leisure-driven types of on-site activities and their meanings that residents establish with this area. For instance, locals insist on naming the area by its original name in vernacular Spanish or its colloquial name (or toponymy), and for separating it from the recent variants of terms of "biobay" and bioluminescent bays. Additionally, the preference for the term "phosphorescent bay" over others such as

¹⁴⁸ Another related group of visitors are Puerto Ricans living in the US who come to Puerto Rico to be introduced to the Parguera *poblado* and specifically its Bahía Fosforescente.

¹⁴⁹ The marketing for selling Puerto Rico as a tourist destination involves pictures taken at "night-time" tours and terms such as "biobay," "bioluminescence," and "bioluminescent bays."

“bioluminescent bays” separates Parguera from Fajardo or Vieques bay. This is not only meant for marketing purposes, but also for extending the range of uses of the area including commercial profits, recreation, and tourist activities. Also, the place name of “Bahía Fosforescente” is peculiar in reference to the iconic socio-cultural meaning assigned by locals to this bay to denote the inherent attributes of being the original one for a bioluminescence industry. The iconic aura of the Bahía Fosforescente is nurtured from the multiple uses of recreation and its night group tours occurring on site in this part of the southwest coasts. I observed a trend that the scientific use and attention, as described in the previous section, also guides tourist and local propaganda about Puerto Rico as a leisure destination, and its special offering of this bioluminescence phenomenon tends to describe inherent attributes of the embayments such as the Bahía Fosforescente.

Often, residents or participants insisted that I be careful when naming both Parguera and the Bahía Fosforescente. Their advice alerted me to the importance for naming this bay correctly. After some time, I realized participants hinted me to underline the sociocultural ways in which their uses of the naming of the area point to the complex and multiple social relationships, and of the tensions and conflicts as well as the commonalities observed among groups of residents. Also, residents or participants indicated noting changes to the inherent attributes of the bay. For example, the toponymy or naming of Bahía Fosforescente in Spanish with its original naming separates both Parguera *poblado* and the bay of the Bahía Fosforescente in relation to their recreational or leisure-oriented uses among groups of visitors such as residents and short-term visitors.

As a regular visitor of the southwest bioluminescent bays from 2013 to 2014, I observed that the experience of seeing “light” involves noting a growth in terms of now having more

options and businesses than prior to the 1990s. This growth is iconic and similar to the social importance of the naming of the Bahía Fosforescente, the first location to offer these recreational services in Puerto Rico.

SPANISH TRANSCRIPT

Entrevistadora:¹⁵⁰ ¿Cuándo usted habló de [nombre de negocio], qué usted habló que empezaron, a cuál era que iba?
Participante: iban a este Mata la gata. A Caracoles.
Entrevistadora: ¿pero a que Bahía?
Participante: a la Bahía fosforescente, a esta de acá.
Entrevistadora: pero no aquella otra porque era muy peligrosa.
Participante: no porque pa entrar pa dentro. Era más peligrosa. Siempre escogimos ésta.
Entrevistadora: ¿Y a cuánta gente traían por bote?
Participante: eh, tenía, aquel tiempo, la primera tenía pa 15 pasajeros. Mi pai tenía se compró otra. Eran pa 30.
Entrevistadora: ¿Cuánto cobraban por persona?
Participante: Primero comprabanos \$2 dólares. ahora son \$5, \$6, \$7 por persona.
Entrevistadora: ¿Y cuántas veces, iban por noche?
Participante: Dos veces lo mas.
Entrevistadora: Dos veces lo más.
Participante: Porque salíamos 730pm de aquí y en lo que iban allá le daban. Luego a las 9pm salían palla hasta las 11pm, 1130pm.
Entrevistadora: ok
Participante: dos viajes na mas lo más que podían dar

ENGLISH APPROXIMATION

Interviewer:¹⁵¹ When you talked about [name of business], which bay was that you referred in terms of where they took people?
Participant: We went to Mata la gata [cay]. A Caracoles [another cay].
Interviewer: But which bay you went?
Participant: To the Bahía Fosforescente, the one over here [pointed to the east].
Interviewer: But not the other one because it was dangerous.
Participant: No because to go in. Was more dangerous. We always preferred this one.
Interviewer: How many people you had per boat?
Participant: Eh, we had, at that time, the first had 15 individuals. My dad bought another one. That was for 30.
Interviewer: How much did you ask per person?
Participant: First, \$2 dollars. Now, is \$5, \$6, \$7 per person.

¹⁵⁰ Historia de vida 008, alrededor de 29-30 minutos de un total de 50 minutos.

¹⁵¹ Life-story interview 008, approximately at 29-30 minutes out of 50 minutes.

Interviewer: How often you guys went out in a given night?

Participant: Two times the most.

Interviewer: Two times the most

Participant: We began at 730 pm from here [Parguera] and then we need to go there.

Then at 9 pm another would go out until 11 pm, 1130 pm.

Interviewer: Ok

Participant: Two trips were the most we can do per night

Don Luis, a Puerto Rican man in his 70s who has been born and raised in the *poblado* of Parguera, describes how the Bahía Fosforescente reflects his fishing and commercial uses that connect to his iconic understanding of how his own family, original settlers of Parguera, launched a business for offering recreational services to experience bioluminescence over 40 years ago. The life-story of Don Luis points to facts that as an outsider I rarely heard discussed by others in public. Permanent residents of Parguera such as Héctor and Luis tend to know how local families built upon their uses of night group tours in the Bahía Fosforescente to create and develop commercial ventures capitalizing on coastal bioluminescence.¹⁵² Don Luis presented a missing link that I only knew existed after speaking with Don Héctor. It was a matter of time for me to find this missing piece of the puzzle. As shown in the quote, Don Luis experienced first-hand participation in the origins and the development (the recent history) of what I called a local bioluminescence industry centered around the Bahía Fosforescente and its phenomenon of observing light on surface coastal waters of embayments. Being a member of one of three local families in Parguera, as a tour operator Don Luis led among the first series of night group tours to local visitors approximately 30 to 50 years ago.

Don Luis indicated that an initial fee of \$2 per person for night group tours occurred in boats of different sizes during the 1950s. He also rapidly observed that there has been an increase

¹⁵² The identification of this bioluminescence industry always reminded me of the salt industry, and its inherent connections to southwest Puerto Rico. While the origins and the development are distinct, the southwest has been the home for various economic activities that affect the local and global economies.

in the fee from \$2 to \$7 over time. My findings show that this increase in the fee came with additional services for visitors, including new businesses by Puerto Rican residents from other parts of Puerto Rico who settled in Parguera.

Today, the range of services offered for night tours in Parguera involve different durations, mechanisms, and businesses promoting the experience of bioluminescence:

- a luxury charter (50 people or so) where you can relax and swim
- kayak rides and a tour in a small boat (6 people)
- small boats (6 people)
- medium size boats (30 people)
- inexpensive (\$7 ride per person) large charters or *lanchas* (200-250 people)

What separates Parguera from other biobays in Puerto Rico involves both the ability to see “light” on the sea-water in the coastal lagoon through night group tours mostly in motorized boats and swimming¹⁵³ (when permitted). These two conditions in Parguera’s bays offer relatively more comfortable and lower cost fees per person, which allows visitors to bring their family and friends, and facilitates the experience of going to Parguera’s phosphorescent bays. A common experience in Parguera for the Bahía Fosforescente is a motorized boat in a night group tour. In this type of tour, visitors bring their companions to form their groups of people they know *a priori* plus other visitors (namely strangers) that go together in a large group tour. The tour occurs at night to be able to see this phenomenon of light on the waters (notable exceptions are small-sized tours of three to six persons per tour).

The growth in terms of the number of companies and services for local visitors is not limited to the recreational uses that I consider already dominate in Parguera’s Bahía

¹⁵³ This option for swimming at night in warm coastal waters with light has been forbidden in other biobay locations of Fajardo and Vieques.

Fosforescente. A Puerto Rican coastal bioluminescence industry can be traced to its origins in the southwest, and exploding much later in the 1990s and 2000s, because of the Fajardo and Vieques bays that also offer the selling of this type of experience, both recreational and tourist, in the eastern region.

Final remarks - The Recreational Uses of the Bahía Fosforescente

Similar to the previous chapter about the recreational uses of Manglillo beach, the findings from this study show that one of the main group of visitors to the recreational bay of Bahía Fosforescente are residents of the southwest. The three sections presented in this chapter show that the Bahía Fosforescente still attracts Puerto Ricans -- residents of Puerto Rico and individuals who self-identify as “Puerto Rican” in terms of their race and ethnicity and culture. Although using observational and anecdotal evidence, the on-site observations coupled with archival documents and formal and informal interviews provided me with the individual profile of this segment who tend to be attracted to visit the Bahía Fosforescente.

My findings show the recent history of the Bahía Fosforescente, which is closely connected to the origins and the development of the Parguera *poblado* and the coastal bioluminescence industry as a kind of voluntary, leisure, and low-cost activity that offers both recreation and tourist activities that have had economic impacts. The on-site activities of sea bathing and gathering in groups and their assignment of meanings vary per studied groups of residents, experts, and short-term visitors.

As expected from the theoretical frameworks of uneven geographic development of the global sense of place, the processes of the dialectics among groups of residents as visitors of this coastal embayment become a means to explain the interconnections between on-site activities

and their meanings of the place and of themselves in place. Also, the dialectical processes assist me to explain the observed transformations by residents to the social and material attributes of this bay, over time and in the present. The bioluminescence and specifically the coastal bioluminescence become clear examples given by residents of the inherent attributes of the Bahía Fosforescente. These two aspects of the dialectics are central to the concept applied in this study of the coasts defined as “social spaces.” The primacy of recreation or leisure uses connected to their meanings assigned by residents to the on-sites activities produced the following three combinations of multiple social uses: biodiversity conservation and recreation, scientific research and recreation, and different understandings of recreation. Different ethnographic evidence was presented in this analysis: life-stories, written sources, and on-site field observations. In the next chapter, I analyze the phenomenon of coastal bioluminescence as narrated by residents by adding a concurrent process to the dialectics: the political-economic context of the Puerto Rican coasts and its effects on the Bahía Fosforescente.

The history of the Bahía Fosforescente requires considering that this is a special kind of protected bay: what I define as a coastal lagoon with bioluminescence or with coastal bioluminescence. This assumption involves recognizing a coastal area in which its surface waters host an organism that with movement emits light, most visible at night, and that falls within the boundaries of a local natural reserve in Puerto Rico. The findings presented in this chapter develop a new perspective about the Bahía Fosforescente through the analysis of the on-site activities by residents as visitors to this bay area located in the southwest of Puerto Rico. Several assumptions were central in this analysis of the coasts as social spaces. The on-site activities are defined as processes and interactions to suggest their processual nature. This means that I imagined the on-site activities and the linguistic and nonlinguistic forms of communications by

residents to be similar to “trajectories” or “stories” happening in place. These trajectories then allow me to mark the rapid and varied changes in this protected bay, supported by people’s meanings to their on-site activities and/or their observed changes to the social and material inherent attributes of this coastal place. In applying the uneven geographic development and global sense of place frameworks, I examine the multiple and dynamic changes on this protected bay in terms of how, when, and in what ways the area itself serves as the meeting point to develop a specific understanding about the phenomenon of light over the coastal waters of this bay; I assume at the outset that this connects a recreational as well as a scientific and research inquiry (Massey 1994, 2005).

Given these findings, I describe a new conceptualization in which the Bahía Fosforescente is imagined through the conflicts and the common understandings among residents thinking about this area as a protected and recreational bay. Permanent and temporary residents differ in their appreciation of the coastal bioluminescence and of the place of Bahía Fosforescente. As shown in the last section, various families who work in fisheries living in Parguera *poblado* in the 1950s develop their understanding about this phenomenon and place that evolve into launching a recreational and tourist leisure-oriented industry that changed the bay, the *poblado*, the region, and Puerto Rico; this happened much before than the introduction of this bioluminescence industry at the other two popular biobays located in the east of Puerto Rico. Shortly after fishers, the international actor of the National Geography Magazine arrived to Parguera *poblado* interested in exploring the phenomenon of bioluminescence, and resulted in a publication in the 1960s. The arrival of an international player and the local understandings of its role for scientific research influence the activities of local scientists. During the 1960s, local scientists differ from the views of divers and business owners of Parguera *poblado* as

participants explained their lifelong relationship with the southwest coasts of Puerto Rico. Moreover, the same trend of conflicts or opposing views apply to how local marine scientists think in relation to the international scientific groups who work within the same discipline and interested in studying the phenomenon of bioluminescence, which is often most commonly found at sea. Yet, even within the world of marine science, the coastal bioluminescence has been recognized by international and local scientists to be unique and it continues to attract attention for a variety of reasons. Surprisingly, the temporary residents -- a scientist and a business owner -- shared a similar view about the way in which a local belief about observing more or less brilliance have attracted visitors, specifically residents, to the southwest to the Bahía Fosforescente and to the *poblado* of Parguera.

In this chapter, I examine the on-site activities of sea-bathing and gathering in groups and their meanings to the combined uses of scientific research and recreation. For the recreational activities, there is no doubt this bay has experienced impacts in terms of serving as the first prototype to promote profits from leisure activities that has impacts to the local economy. This means that the coastal bioluminescence attracts visitors to come to the southwest area, such as those choosing to stay overnight in the Parguera *poblado*. Given the ties to a local protected area, the Parguera Natural Reserve, the Bahía Fosforescente is possibly among the earliest designations of a “marine protected area” in Puerto Rico, having been established in the 1970s. As shown above, the ties to biodiversity conservation or to its natural reserve are weak. Therefore, I explore another dimension of activities meant for conservation and specifically biodiversity conservation, which is often repeated on documents, in observations on-site at the bay, and among participants or residents of the southwest in this study, that of the scientific research.

I make a difference between tourist and recreation activities in regards to the bioluminescence industry that is supported by my findings. First, locals, either residents and/or Puerto Ricans living in the United States having similar socioeconomic backgrounds,¹⁵⁴ tend to arrive in Parguera by “word of mouth.” This form of advertisement attracts a social profile that fits what is offered by the Bahía Fosforescente and Parguera bays as a recreational destination based on its public access by car and boat with low-cost fees per person. This profile also corresponds to a shared local understanding or conceptualization of recreational coasts among locals about the bays, or the coasts in general, also deemed to be recreational and “public” areas of Puerto Rico.

Alternatively, the Vieques and Fajardo bays target a different “niche” in terms of the social profile for tourist¹⁵⁵ activities, such as the foreigner or residents of the United States, which composes one of the largest segments of visitors to these other bays in order to experience bioluminescence. The services offered as night groups involve kayaks and luxury catamarans, including traveling by sea to/from Fajardo marinas to Vieques’ Mosquito bay. The internet serves as the main mechanism for advertisement for Fajardo and Vieques bays. This “biobay” propaganda targets foreigners, namely the U.S. residents from middle to upper socioeconomic classes, as it is conventional for presenting the tourist destination of Puerto Rico in the Caribbean. The costs of the night-time tours in Fajardo and Vieques are increasingly expensive (starting at \$45 to over \$100 per person) if compared to Parguera (\$7 to \$35) and often require

¹⁵⁴ I follow the work of anthropologist Jorge Duany to refer to middle and low income socioeconomic groups who are residents of Puerto Rico, and who self-identify as a cultural group as Puerto Ricans (Duany 2002).

¹⁵⁵ I make a distinction between recreational and tourist activities. I consider that the economic revenue of tourist versus recreational uses in Puerto Rico offers a way to begin to describe the commonalities and differences. In this study, I define recreation as leisure activities -- similar to tourist ones --except that the ways in which groups and subgroups of locals engage in leisure activities is described in detail in the findings from this study. The characteristics of these recreation based social relationships among locals in Puerto Rico tend to reveal differences if compared to the mass-tourist or any other tourist activity connected to this Caribbean destination.

advanced reservations due to the high demands and short term periods of these clients, especially during peak tourist seasons in the summer and winter.

Notable differences have been highlighted in this chapter between Parguera and the other bays located in Vieques and Fajardo. These differences resulted in my distinction between recreational and tourist, although both are recognized to offer primarily leisure activities for different groups to experience the phenomenon of coastal bioluminescence in Puerto Rico. Central to the experience of bioluminescence in Parguera lies having others accompany to join a low-cost night-time group tour. For instance, the locations of the bays attract specific segments of all visitors interested in this phenomenon of bioluminescence. Parguera bay tends to point like an Perceian “index” tool (Kohn 2007) to the local residents and individuals of Puerto Rican descent. These individuals tend to prefer certain activities such as swimming and low cost fees per person for a group trip. These services all affect aspects related to this experience of seeing the coastal bioluminescence.

Therefore, a visitor to the southwest Bahía Fosforescente, I observed, tends to be a resident of Puerto Rico and/or an individual of Puerto Rican descent always accompanied by family and friends interested in seeing coastal bioluminescence. This group tends to pay the lowest fee possible (\$7 per individual, which for a family of four adds up to \$28) for a one-hour trip that tends to begin around 6 pm or 7 pm, depending on when the sun goes down and departing every hour until 10 pm or so every night. The visit to the Bahía Fosforescente is often accompanied with other activities occurring in the Parguera *poblado*, such as visits to restaurants, bars, and shops; these activities are also common in other Puerto Rican *poblad*os. This Puerto Rican visitor¹⁵⁶ does not have the same preferences in terms of physical activities,

¹⁵⁶ Both locals and foreigners engage in either recreational and tourist related activities in voluntary manner, which reflects the goals of leisure.

price, and leisure activities as a foreigner, who tends to be on a shorter schedule and possibly has more financial resources to spend in a given night.

CHAPTER 6

THE VARIATION AMONG LOCAL RELATIONSHIPS WITH THE SOUTHWEST PUERTO RICAN COASTS (DISCUSSION)

Introduction

In addition to the social processes previously illustrated in chapters 4 and 5, a concurrent one exists among varied groups of residents of Puerto Rico. This concurrent social process relates to the effects of the political and economic context of the southwest coasts of Puerto Rico. By this, I refer to a pattern that corresponds with another of the shared or the common understandings among groups of residents with diverse social backgrounds (e.g., age, employment, education, and place of residency). As will be shown in this chapter, residents' understandings are separate and distinct from the laws and the interpretation of technical experts of those legal items, which informs the existence of the political and economic context that applies to Manglillo beach and Bahía Fosforescente. Three ethnographic examples will be discussed: the “open access” of the coasts, the ownership and management of the coasts, and the association by residents with the Caribbean Sea and the two chosen areas of study.

The Political and Economic context of the Puerto Rican coasts

The first ethnographic example discusses the issues of “open access” relative to residents' uses of the southwest coasts of Puerto Rico. In anthropology, the concept of “open access” has been discussed in relation to the tragedy of the commons (McCay and Acheson 1987), specifically in relation to common property rights theory. Like in other fields, anthropologists have applied “open access” to fisheries relative to analyzing issues of ownership and user rights

of the ocean of fishing activities. In Puerto Rico, issues of “open access” continue to raise a variety of perspectives among residents. Different groups of residents, as shown by the findings of this qualitative study, bring varied and overlapping laws that apply to the uses of the southwest coasts and to similar environments located elsewhere in this tropical archipelago. Of the studied areas, Manglillo’s forest beach shows most visibly the peculiarities of the effects of the political and economic context of the Puerto Rican coasts regarding the “open access” question; the Bahía Fosforescente also provides evidence of these patterns.

Today, local scholars describe Puerto Rico as having an undefined political status (Godreau 2002), commonly referred to as a United States territory and/or Commonwealth. As described in chapter 3, Puerto Rico has colonial legacies lasting over 500 years (Trías-Monges 1999) -- first from Spain and since 1898 from the United States. This definition of Puerto Rico as being an undefined political unit or society, among few worldwide having this status, is important for the discussion of the next three ethnographic examples. For each example, I will discuss the specific consequences that emerge from the residents’ uses and their interpretations of specific laws that affect their local spatial understanding about Manglillo and Bahía Fosforescente.

As briefly introduced in chapter 4, the forest managers of the UNESCO Dry Forest have repeatedly indicated “on-paper” a different perspective from those of the visitors regarding the question of open access to this place. For example, the forest managers of the UNESCO Dry Forest consider that Manglillo is similar to any other marine recreational area of this forest, and as such Manglillo can be enclosed to offer a recreational area to visitors in what is a state-owned and internationally-recognized forest. This rationale among the forest managers has influenced their planning and construction of a fence around the marine recreational and bathing area of

Manglillo (see chapter 4). Unlike the forest managers, the visitors -- primarily residents of Puerto Rico -- who come to Manglillo tend to think of this coastal area as a beach. As such, residents consider that this beach has “open access” for them to engage in on-site activities, such as sea bathing and gathering in groups. Hence, the visitors recently made a hole in the fence to open it up and maintain their rights over open access to this Puerto Rican southwest beach.

Neither of these groups is incorrect, because each refers to overlapping laws that apply to the same coastal area of Manglillo. This situation guides my interpretation to explain the social process for how, when, and in what ways the political and economic context of Puerto Rico affects, for example, the contentious issue of open access among different groups of residents and their interpretations about the southwest coasts. This study offers ethnographic evidence about the range and types of the on-site activities on the coasts and their varied meanings assigned by members of different social groups based on their backgrounds. As briefly noted above, the forest managers and the visitors to Manglillo share distinct explanations for their claims about open access supported by overlapping and potentially conflicting laws, depending upon the interpretation of them. Through their assigned meaning to their on-site activities in Manglillo, each group shows their association with a different law and a claim about “open access” over the same geographical area. This finding corresponds with former investigations that explain the complex, multi-layered, and conflicting nature of the numerous existing laws that apply to the Puerto Rican coasts (Brusi 2004; Concepción 1998; Fontáñez 2009; Misión Industrial de Puerto Rico 1987; Valdés-Pizzini 2006).

For instance, the forest managers often refer to laws that designate Manglillo as part of a forest. Among the laws that forest managers refer to are those that label this area as a “protected area” or forest (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975) in

which the category of “marine recreational area” has been applied. Alternatively, visitors to this area refer to another law that designates the coasts of Puerto Rico to be “public domains” (Fontánez 2009). As such, residents perceive that this law grants them ownership and user rights, such as public access, to/from Manglillo as part of the Puerto Rican coasts, and participants specifically recognize this place to be a coastal type of a beach. Historically, residents have made claims about the Puerto Rican beaches being public areas. Since the 1970s, residents at different beach locations have established this connection between the beaches and “public” areas based on their claims for uses and rights in these coastal areas (Misión Industrial de Puerto Rico 1987).

Both of the explanations -- from the forest managers and from the visitors -- apply to Manglillo, due to Puerto Rico having overlapping, conflicting, and long-standing laws regarding the coasts. Each group cites a different law to explain their specific understanding about Manglillo as either a forest beach or a public beach informed by a similar range of on-site activities and differing based upon their social backgrounds. I also found that the same interpretations can be applied to other coastal areas that lie in another “protected area” in Puerto Rico, for example, the Bahía Fosforescente in the Parguera Natural Reserve.

The second ethnographic example discusses the issues of “ownership” and “management” of the southwest coasts of Puerto Rico. By “ownership,” I refer to the legal jurisdiction of who owns the Puerto Rican coasts. By “management,” I consider the ways in which the planning, maintenance, and implementation of activities occur in an area located on the Puerto Rican coasts. Both “ownership” -- which is a component of the environmental governance (Lemos and Agrawal 2006) -- and “management” inform the variety of perspectives among residents of Puerto Rico. As in the previous example of the open access, residents make claims using different laws about the same area of Bahía Fosforescente regarding their

ownership of this place, as well as at similar environments located elsewhere in this tropical archipelago. Of the studied areas, the Bahía Fosforescente shows most visibly the peculiarities of the claims by residents regarding ownership and management, which connects to analyzing the effects of the political and economic context of the Puerto Rican coasts. Specifically, I focus on the different views regarding ownership rights over the same geographical area of the Bahía Fosforescente, and observe no claims among visitors regarding the ability to manage this area, which is a common claim among government officials; the Manglillo beach also provides evidence of these patterns.

In terms of ownership and management of the Bahía Fosforescente, government officials from Puerto Rico and the United States have repeatedly indicated “on-paper” a different perspective than those of the visitors (see chapter 5). For example, the government officials of the Parguera Natural Reserve consider that the Bahía Fosforescente is similar to any other part of a “protected area” -- either land or marine -- that require monitoring and control¹⁵⁷ in lieu of their ownership rights, and their belief in the goals and activities of “biodiversity conservation” (Nazarea 2006; West 2006; West, Igoe, and Brockington 2006). The same rationale applied to the United States government officials depicted in the 1968 management plan by the US Department of Interior (U.S Department of Interior National Park Service 1968). Unlike the government officials, the findings from this study show that visitors come to Parguera *poblado* (Brusi 2004; Fiske 1992; Valdés-Pizzini 1990; Valdés-Pizzini and Scharer 2014) primarily to pay a low transportation fee to enjoy the recreational experience of coastal bioluminescence. In this sense, this bay offers recreational uses to the visitors, who claim ownership of the bay

¹⁵⁷ Dean Bavington makes an argument about the need for “management” in fisheries, and the connections with the collapse of fishing practices in Newfoundland in Canada (Bavington 2010b, 2010a).

because it is part of the Puerto Rican coasts. As in the previous ethnographic example, both groups are using laws to support their view about their rights of ownership of the same geographical area. This pattern does not extend to the management of the bay among visitors.

In this ethnographic example, the government officials interpret the law to designate the Bahía Fosforescente as part of a “marine protected area” or MPA. The laws that apply to the Bahía Fosforescente, include Puerto Rico’s designation of the Parguera Natural Reserve and extension (Fuentes-Santiago et al. 2000), as well as those of the United States in the 1968 US management plan (U.S Department of Interior National Park Service 1968), and a failed attempt to change the designation to the US NOAA Sanctuary program (NOAA Sanctuary Programs Divisions Division 1984). These laws reflect the category of “natural reserve,” which is one of several labels employed by the government of Puerto Rico for what they define as “protected areas” (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006).

As in the Manglillo example, visitors refer to several laws that designate the coasts of Puerto Rico as “public domains” (Fontáñez 2009). In this case, the residents make claims regarding their ownership and user rights -- such as public access -- to the coasts. Permanent residents claim having ownership to enter the Bahía Fosforescente primarily to engage in commercial activities such as recreational boating tours that affect the local economy. Unlike permanent residents, visitors to Parguera come to pay the transportation fee to enjoy the phenomenon of coastal bioluminescence at night accompanied by family and friends. Both groups establish an association of rights over “ownership” and “public access” -- or user rights -- that is oriented towards recreational uses of the bay that reflect different laws, and varied users and decision-makers make ownership claims of the same place which are informed by similar on-site activities.

The third ethnographic example discusses the centrality of the Caribbean Sea as a reference point for residents, which helps them to recognize the studied areas located geographically or as a category applied for the southwest coasts of Puerto Rico. Literary writers have been among a few groups who are convinced of the important role of the sea in everyday life (Benítez-Rojo 2010; Rodríguez-Juliá 1995; Llenín-Figueroa 2012; Lugo-Marrero 2011). As discussed in chapter 3, literary writers within Caribbean societies (Allsopp 2001; Harrison 2008) have been and continue to be among the most eloquent in describing how, when, and in what ways the sea affects residents and their activities on the coasts. Although having ample literary written expressions and residents engaging in oral traditions connected to sea-based activities, local scholars and journalists have repeated that the residents have turned their backs to the sea (Cavina 2014; Santini-Rivera 2013; Rivera-Ruiz 2007). While residents or participants of this study have expressed a connection between the Caribbean Sea and the chosen areas of study, the political and economic context of the Puerto Rican coasts do not tend to consider this fluidity and vitality of the seas in everyday life. This attention to the sea does not tend to be part, for example, of local political debates and legislation.¹⁵⁸

Of the studied areas, Bahía Fosforescente shows most visibly the peculiarities of the effects of the political and economic context of the Puerto Rican coasts. I focus on the residents' insistence on moving from land to sea, from east to west, in all directions, because they tend not to recognize the legal divisions and laws that enclose these southwest coasts. As participants explained, they know the legal divisions of Lajas and Guánica, and tend to not use these categories. Alternatively, residents apply other categories of *barrios* and most often *poblados*, which imply that they refer to smaller units representing both geographical area and social

¹⁵⁸ This pattern also applies to other domains, namely scientific research.

groupings. More importantly, participants of this study narrated that having a life-long connection to the same geographical area has provided them a sense of “movement” and “fluidity” that is best captured through their repetition of the iconic image of the Caribbean Sea.

Participants spoke of the sea, or of the Caribbean Sea, as a reference point to them, when describing their on-site activities and their assigned meanings. Also, the participants use nonlinguistic forms of communication for the Caribbean Sea, including icon and index to refer to this embayment and its phenomenon of coastal bioluminescence. For example, residents or visitors to these areas associated major biophysical attributes such as areas that have “calm, shallow, and tranquil” sea waters, similar to those found in the Caribbean Sea. A juxtaposition between the Atlantic Ocean having rough waters versus those of the calm, shallow and tranquil waters inherent to the Caribbean Sea was often repeated among participants. Additionally, participants indicated that the main attributes of the mangrove channel and the coastal bioluminescence connect to the Caribbean Sea; one way in which participants noted this association included when they connected the sites and their geographical location to be on the south part of the main island of Puerto Rico. More interestingly, permanent residents indicated having learned a sense of sea-oriented or “maritime” perspective. A Lajas permanent resident described that the Parguera coasts form a *caleta*¹⁵⁹ -- or a shoreline that is curvy and that is surrounded by the sea. A permanent resident in Guánica described the coasts of this municipality as tending to be like a peninsula, for which he noted that the sea or the water becomes a dominant feature of this coastal landscape. Most interestingly, participants reminded me that the meaning of the word “Guánica” has indigenous roots referring literally to a place that possesses water; a fact that was also celebrated in most of the materials collected from the public library

¹⁵⁹ *Caleta* is a term in Spanish often repeated among sailors.

and this municipality. The same patterns were observed in both the Bahía Fosforescente and Manglillo beach.

Existing laws for the Puerto Rican coasts do not tend to emphasize the sea waters or the sea water environments, or any of the two bodies of salt water that wash this Caribbean archipelago: the Atlantic Ocean on the north and the Caribbean Sea on the south. Therefore, participants' narratives caught my attention for their indication of the sea, or the sea-waters, affecting their ability to engage in their on-site activities and their assigned meanings of this place. Also, participants stressed that the material and social attributes of the Caribbean Sea become most notable for them in terms of having developed a life-long relationship with the same geographical areas located on the southwest of Puerto Rico.

As a result, the existing laws locate the marine and coastal environments in what I see is a “too little, too late” approach within the political and economic context of the Puerto Rican coasts. This may have resulted in the marine and coastal areas tending to gain less attention, funding, and visibility across sectors in policy-making and public discussions in Puerto Rico. This trend is not limited to local, regional, and Puerto Rico-wide scales. It is similar to how social investigators in other societies point out that the social dimensions have been included “too little, too late” either as a strategy or during the implementation of the “marine protected areas” around the world (Christie et al. 2003; West, Igoe, and Brockington 2006). I consider that Puerto Rico fits with what a small group of scholars have theorized regarding the peculiarities of the coasts and the sea given the unique property rights, or coastal property rights (Acheson 2015;

Schlüter et al. 2013; McCay 2008; McCay and Acheson 1987).¹⁶⁰ Yet, this small group of scholars discusses cases in which the unique attributes of coastal property rights, including ownership and user rights on the coasts and at sea, affect different groups and societies as well as in different parts of these sea-water environments. Like a larger number of anthropologists, water becomes a salient feature of everyday life (Orlove and Catton 2010). My findings point to the importance of adding sea-water into these ongoing conversations.

In Puerto Rico, environmental experts tend to mark the origins of the “marine protected areas” relatively late, often locating it within the 1990s or later. They may repeat this fact because, during this decade, a large number of marine areas were created and added to the total number of “protected areas” in Puerto Rico (“Nuestras Áreas Naturales Protegidas” 2017). However, as discussed here, several protected areas had marine and coastal portions before this period. For example, the Dry Forest in Puerto Rico has possessed marine and coastal areas since its origins in the 1900s (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975). A local scholar documented that even before this forest was designated as “protected” under Spain’s ruling, it possessed coastal and marine portions of what he describes as the precedents of the dry forest in the late 1800s (Domínguez-Cristóbal 2003). Another example of a protected area with marine portions is Parguera Natural Reserve (Fuentes-Santiago et al. 2000), which was designated soon after the DNRE government agency was created in the 1970s (López 1999).

I have developed this critical analysis about the linkages between the laws and people’s interpretation of them in hopes of broadening the political debates in Puerto Rico. I propose that

¹⁶⁰ Often, land and agriculture have dominated conversations about theories and applications for environmental governance and management in the United States; one of the most obvious example of this is land grant (National Research Council 1995) and agricultural extension (Bunting-Howarth et al. 2013; D. Baker et al. 2001; Wilburn-King et al. 2007) as distributed across the United States.

these debates be more inclusive and holistic in several ways. First, although the laws in Puerto Rico may have accounted for coastal and marine areas, this may not be true regarding issues of management of these areas, within the public debates and scientific activities. In these domains, the marine and coastal areas remain relatively ignored until recently. Second, neither the sea nor the residents tend to be considered by the existing laws or by the interpretations of local judges in Puerto Rico. For example, a common portrayal of the coasts relates to tourism. Often, leisure is associated with tourism to serve as a major source of revenue for Puerto Rico's economy; as a major player in the tourism industry, the government of Puerto Rico has promoted mass tourism that tends to attract mostly foreigners who come for short stays and live primarily in the United States (Hernández- Delgado et al. 2012). Third, Puerto Rico continues to have too many laws, and no specific coastal law that could potentially provide a coherent legal framework to make sense of all the applicable laws that apply to the popular and important areas for the residents' social life. Ultimately, these findings point to the need to develop a more inclusive history of the coasts -- one in which recreation is coupled with tourist and other leisure activities -- and of the "protected areas" that have coastal and marine portions in Puerto Rico. This history of the Puerto Rican coasts should describe the varied and important ways in which the marine and coastal portions affect everyday life for residents. Also, this history should recognize and trace the role of the coasts and oceans during the past two centuries as well as analyze their relation to the multiple uses of these public, recreational, and protected areas.

Final remarks of Chapter 6

Each ethnographic example presented in this chapter points out that different groups of residents develop their varied understandings about the southwest coasts informed by their on-

site activities. As such, this chapter supplements my interpretation of the central theoretical frameworks of the uneven geographic development and the global sense of place (see chapter 1), which centers on the analysis of the tensions or dialectics among these groups of Puerto Rican residents. As explained in chapters 4 and 5, I also examine another concurrent social process of the commonalities or shared understandings among groups and sub-groups of residents in relation to their understanding of their on-site activities in Manglillo and Bahía Fosforescente.

In general, as discussed in the first two ethnographic examples, the understandings tend to differ per group of residents in relation to which law they apply and how they interpret what it offers them regarding coastal property rights. The first two examples portray the complexities of the laws, or the overlapping and conflicting series of applicable laws, to the coasts and oceans of Puerto Rico. At best, this can be depicted as the legal context creating confusion among different users, decision-makers, and policy-makers.

As illustrated by the third ethnographic example, the distance between what residents do when using the southwest coasts has ultimately provided them with more holistic and inclusive ways for placing the sea as central in their everyday lives. Hence, this final example demonstrates that the legal apparatus and processes do not correspond with the ways in which residents relate to the coasts and oceans of Puerto Rico. This distance is problematic, because the laws are meant to offer people rights, power or capacity to act, and other political opportunities that, at this time, remain relatively invisible and limited. Rather, the political and economic context of the Puerto Rican coasts place barriers. These barriers most notably affect the residents, because they are not recognized to be a large segment of visitors of the southwest coasts. Also, these barriers affect the coasts themselves as fluid and changing environments in which people make claims about, for example, their ownership and user rights in Puerto Rico.

CHAPTER 7

RECREATIONAL AND PUBLIC COASTS: DYNAMIC AND HETEROGENEOUS SEA-WATER ENVIRONMENTS (CONCLUSIONS)

Introduction

While my study analyzes the formation of multiple social relationships among residents, the Puerto Rican coasts face increasing and urgent pressures. Historically, among the most contentious problems have been and continue to be the issues of access to and uses of the coasts (Concepción 1998; Fiske 1992; McCaffrey 2009; Misión Industrial de Puerto Rico 1987; Valdés-Pizzini 1990). These issues have been less studied in relation to the impacts to residents in Puerto Rico, unlike in other societies that have given more scientific, policy, and public attention. Puerto Rican anthropologist Manuel Valdés-Pizzini posits that the coasts have transformed themselves into “havens” due to the processes of coastal gentrification (Valdés-Pizzini 2006), which are related to the central theoretical frameworks of uneven development and global sense of place applied in this study. Increased pressures of having over half of the world population living near or on the coasts, conflicts among groups (Johnson and Griffith 2010), and privatization of the coasts (Valdés-Pizzini 2006) have been recognized by anthropologists as examples of gentrification processes. In Puerto Rico, these trends apply concurrently to the declaration of a high public debt in 2015 -- that now is overseen by the US Fiscal Board for Puerto Rico -- that scholars have connected to financial and humanitarian crises (Criollo-Oquero 2015). I believe that facing a crisis may more rapidly change the fate of the Puerto Rican coasts and of residents’ potential to use these areas. In this chapter, I will summarize the main findings from this study in regard to the main research questions. I will then provide context and potential

directions for the role of residents as a major segment of visitors to Manglillo beach and Bahía Fosforescente on the Puerto Rican coasts.

Main Research Questions

To summarize the main findings from this study, I will answer the four main research questions (see chapter 1) to develop the conclusions of this investigation. Below, I will not be answering the questions in the order put forward in chapter 1, but rather in an order that most clearly presents my findings and conclusions overall.

What local-global processes influence the assigning of sociocultural meanings to the coasts, now and over time? The local-global processes that influence the formation of sociocultural meanings among visitors of Manglillo and Bahía Fosforescente relate to conduct analysis of “power dynamics” and of processes of “social inequality” (Massey 2005; Smith 1984). I apply the lens of uneven development (D. Harvey 2006b; Sayers 2014; Smith 1984) and global sense of place (Albet and Benach 2012; Massey 1994, 2005). As presented in the findings from this study, different groups of residents experience varying degrees and levels of public access and varying social uses of the southwest coasts of Puerto Rico. The characteristics of residents affect not only whether an individual prefers to visit a specific beach or phosphorescent bay, but also how that person understands his/her engagement with the on-site activities occurring on the coasts. Like many social scientists, I agree that what people do on the coasts cannot be analyzed in isolation. This first question recognizes that the analysis of the on-site activities of residents in the southwest coasts of Puerto Rico must use theoretical frameworks that think about them as social processes that happen in different locations informed by their political and economic contexts. In this regard, my choice of the framework of uneven

development defines people's on-site activities as social processes. I assume these social processes are embedded in the uneven distributions of material and nonmaterial processes inherent in the so-called moment of the late capitalist societies (D. Harvey 2006b) to describe the contemporary period.

The answer to this first research question involves discussing the global and then the local approach to identify the conclusions from this ethnography. I did this by applying the uneven development accompanied by the global sense of place. Ethnography allows me to compare the activities among permanent and temporary residents with other groups of technical experts and short-term visitors (Nader 2011). By situating the political-economic context of Puerto Rico and how it affects a person's capacity to act, I can explain how the residents develop their understanding about public access and uses of the southwest coasts. The findings point to the variation among groups and subgroups of residents supported by different sources and methods employed in this investigation: participant observations, life-story interviews, and archival research.

How do people define “the coasts” through their on-site activities in Manglillo and Bahía Fosforescente? The findings of this study show that the residents of Puerto Rico believe that their on-site activities of sea bathing and gathering in groups define the Manglillo beach and Bahía Fosforescente as having predominantly recreational activities or uses. I interpret these on-site activities as offering entry points to social processes that form the multiple social relationships among residents and the coasts over time. For this, I observed visitors at chosen sites, and I identified a sampling of 20 individuals to capture their life-stories or lifelong connections with the chosen sites. Moreover, I reviewed documents with scientific, historical, legal, and literary expressions about these relationships.

The second research question goes in a different direction than the previous one: analyzing from a local to a global approach. This bi-directionality is important in an ethnographic study that aims to offer a comparative and critical analysis informed by the political-economic context and by centering on people's actions, or social processes. In this sense, not only the larger or broader political-economic aspects, but also the individual activities and their sociocultural meanings inform the way in which I interpret residents themselves form their multiple social relationships with the coasts.

Moreover, this second question leads me to point out one of the contributions of this qualitative study, which involves highlighting the importance of the variations among residents into the public conversations about the Puerto Rican coasts. Residents comprise a large segment of visitors of the coasts. Available literature about Puerto Rican beaches and phosphorescent bays -- regardless of their genre¹⁶¹ -- tend not to include the residents as a major group interested and/or using the coasts in this Caribbean and tropical archipelago (see chapters 4 and 5). Residents are not homogeneous in terms of who they are, where they go, and how they interpret what they do while visiting the coasts. In Puerto Rico, several laws¹⁶² prohibit that people live on the coasts, which makes everyone "visitors" of these areas (Aguilar-Perera, Scharer, and Valdés-Pizzini 2006). Unlike Puerto Rico, other countries have stressed the importance of the coasts and of residents and other groups using these areas in their everyday life, including Spain, Brazil, Australia, the Dominican Republic, and the United States. Many of these conversations are happening among international scientists interested in tourism and beaches (Barbosa de Araujo and Ferreira da Costa 2008; Botero et al. 2015; Low, Scheld, and Taplin 2013; Martínez-

¹⁶¹ By genre, I refer to historical, legal or official, scientific, literary, and other types of documents.

¹⁶² The laws designating protected areas in Puerto Rico, as in the United States, prohibit people to reside within the boundaries of these areas.

Martínez and Casas-Ripoll 2002; Roca, Villares, and Ortego 2009; Santos et al. 2005; Taffs and Cullen 2005). However, the residents of Puerto Rico also comprise a large number of visitors to the coasts, and scholars must consider the pattern of other societies around the world that tend to recognize residents as an important group of users, decision makers, or interested parties.

Another aspect to answer this second research question is the identification of the multiple human uses or activities occurring in these geographical areas in Puerto Rico. This concept of multi-uses has been cited often in the literature about “protected areas” (Agardy et al. 2003; Nelson and Chomitz 2011) and the UNESCO Biosphere label (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975). In this study, the participants insisted that their meanings to the on-site activities include at least four types of social uses of the coasts: recreation, biodiversity conservation, scientific research, and public access. Although legal designations, such as the UNESCO biosphere, promote this concept of multi-uses, the management of the Puerto Rican coasts -- even those that are protected -- may not reflect this premise in practice. This is especially true in regard to recreational activities by residents occurring on the coasts -- rather than leisure or tourist activities -- which is one of the main findings of this study. The recognition of recreational activities as leisure by the residents is salient to the ways people define their multiple social relationships with these places.

To answer this second question, the findings emphasize that residents develop a “sea-ward” attention, or that they note sea water environments often in their everyday life. This premise has been discussed in other societies around the world (Benítez-Rojo 2010; Bentley, Bridenthal, and Wigen 2007; Cusack 2014; Llenín-Figueroa 2012; Lugo-Marrero 2011; Wigen 2006). In Puerto Rico, local scholars and writers posit that residents have turned their backs to the sea (Cavina 2014; Rivera-Ruiz 2007; Santini-Rivera 2013). However, this study shows

contrary evidence, which is that through their on-site activities, or social processes, residents and visitors positioned their orientation towards the sea. Moreover, residents explain having varying access and use of these coasts in their everyday lives, including in relation to the Manglillo beach and the Bahía Fosforescente. Hence, the residents' sea-orientation on the southwest coasts has turned into a major part of their lives in regular and important ways during the past decades.

Ethnographic evidence indicates that people's activities of sea bathing and gathering in groups mark the origin, growth, and intensification of recreational activities in Manglillo beach and the Bahía Fosforescente. The introduction and growth of recreational activities on the coasts -- from approximately the 1950s to the 1970s -- occurred along with varied social uses. Specifically, recreational or leisure on-site activities and their interpretation through cultural meanings occurred along with their reference to other main social uses of biodiversity conservation, scientific research, and public uses. Residents describe the on-site activities of sea bathing and gathering in groups using the following categories: non-extractive, voluntary, leisure-oriented, and low-cost or free. The onsite activities and their assigned sociocultural meanings as recreation have, in turn, transformed both the residents' meanings of what they do during their visits, and their views of how the social and material characteristics transform their local spatial understandings about the coasts.

How do multiple activities affect -- and how are they affected by -- the relationships or the interactions among people, and how do they in turn affect the social and material aspects of these geographical areas? The third research question brings closer attention to the object of study, which is people's on-site activities occurring on the coasts. By tracing people's activities, I gather both linguistic and nonlinguistic forms of communication to explain how residents develop their multiple social relationships within chosen geographical areas. The

linguistic forms of communication studied show people's life-stories explaining what they do, and how they interpret these activities with regard to the sociocultural meanings about the place itself, and of themselves in place accompanied by people they know. The nonlinguistic forms of communication studied illustrate that the residents also pay attention to what distinguishes the areas they prefer to visit to engage in on-site activities for recreation. When participants noted the material and social aspects of the coasts, they explained that these attributes affected their ability to engage in these on-site activities. The Perceian tools of "index" and "icon" (see chapter 3) serve to find the meanings assigned to the social and material attributes of these geographical areas by residents, which they saw as affecting their on-site activities. The mangrove, the coastal bioluminescence, the muddy sand, and the sea water were listed by residents when describing the social and material attributes of the chosen sites.

My interest in the nonlinguistic forms of communication follows scholars interested in the study of ontology (Kohn 2015). Specifically, this ontological study reveals participants also distinguish what I see as "coastal types" of a beach and a bay or embayment. In this way, the attributes of a place inform how residents think of activities thought of as social processes that form the multiple social relationships of these individuals, and what people themselves understand about what they do during their visits to their chosen places. This kind of coastal type for example, following the lens of global sense of place, is what I refer to as residents having local "scalar" attention. The best examples of the local scalar attention in relation to the social and material attributes include the mangrove beach for Manglillo and the coastal bioluminescence for the bay. Also, residents indicate scalar attention to the embayment and the beach as attributes that separate Manglillo beach from Bahía Fosforescente.

In both studied areas residents distinguish a common feature: the Caribbean Sea or the sea waters. When residents focus on the sea waters, or the sea-water environments, following Massey's work I deem that they have developed a regional "scalar" attention. This premise is supported by the fact that participants often indicated that either Manglillo beach or Bahía Fosforescente lie in the south or southwest region of the main island of Puerto Rico along the Caribbean Sea. These social and material attributes were most notably references that residents use to understand these chosen sites, and as such items that are non-human specific (unlike language use).

Both the local and the regional scalar attention fits Massey's work on the global sense of place, and the social and material attributes were repeatedly identified among residents. This pattern led me to conclude that visitors conceive that both Manglillo beach and Bahía Fosforescente have sea-water attributes or are sea-water environments. Thus, I determined that residents conceive the coasts to be similar to the concept of archipelagic traits. This is my reason for choosing to title this chapter "Recreational and Public Coasts: Dynamic and Heterogeneous Sea-water Environments." While residents describe the on-site activities through words by noting their public and coastal traits, the participants maintained that they traverse chosen sites that have fluid boundaries. Residents narrate that by cutting across what they see as a continuum of land-shore-sea areas, the chosen sites became important in their everyday life. This is what I meant by sea-water environments that are dynamic and heterogeneous. Often, residents expressed having a sea-ward orientation -- stressing the sea and the Caribbean Sea rather than coasts or land, or inland to shore (east to west) -- when narrating their life-stories.

Taking a step further, participants think about the chosen sites as "archipelagos," referring to the primacy of sea waters over other features in these coastal and marine landscapes;

anthropologists have also begun to think about the important role of water (Orlove 2002; Orlove and Catton 2010). Like a small number of anthropologists, I also add the sea-water or salt water environment to the anthropological world (Helmreich 2011; McCay 2001, 2008). Scholars in the humanities and literary writers agree that this sea orientation is not limited to Puerto Rico. This group has made a point of analyzing different societies' preferences towards the sea, or of having a life at sea, occurring at various historical times and among different types of societies around the world (Bentley, Bridenthal, and Wigen 2007; Cusack 2014; Hey-Colón 2014; Hoeppe 2007; Kluwick 2015). The answer to the third research question situates the on-site activities as processes that develop a relationship with these sites that results in this sea-ward orientation. For Manglillo beach, residents connect this coastal area locally to the *poblado* of Playa Santa and to the municipality of Guánica, as well as regionally to the south or southwest region and to the Caribbean Sea. For Bahía Fosforescente, residents connect this coastal area locally to the *poblado* of Parguera and the municipality of Lajas, as well as regionally to the south or southwest region and to the Caribbean Sea.

How do the premises of heterogeneity and spatiality, which are central to the formation of multiple social relationships, relate to finding openings and challenges for social change in the political realm in today's unequal world? The fourth and last question offers a way to extract a timely application from the findings about sociality, spatiality, and heterogeneity or social difference in regards to the political realm in today's unequal world.

Given my training in so-called “public anthropology¹⁶³” (Low 2011; Low, Scheld, and Taplin 2013; Low 2014; West 2005), my hope is that scientific research becomes “usable” by

¹⁶³ As a member of an anthropology department that believes in public anthropology, I read once a piece by Professor Gretchen Schafft where she offers a short description of this term different from applied anthropology and other variations.

individuals of diverse backgrounds and for a variety of purposes, mainly to have societal impact. My motivation to add this fourth question implies my ability to apply research findings into contemporary society as widely as possible across groups, sectors, and purposes. The findings from this study present both limitations and opportunities in the political realm. In terms of the limitations, both the residents and their multiple social relationships with the southwest coasts of Puerto Rico tend to often be dismissed from political discussions, including being absent from the official or legal documents discussing the chosen sites for this study. This kind of omission is a limitation, because in the political world the coasts and resident's activities tend to be invisible. This is even more urgent in an island or archipelagic Caribbean society like Puerto Rico that has a widening of social inequalities in the face of a financial and humanitarian crisis.

In terms of the openings or the opportunities, the formation of what I identify as the local spatial understandings among residents through their on-site activities taking place in Manglillo beach and Bahía Fosforescente led me to uncover their sense of spatiality and sociality in their everyday life. The political-economic context and the global to local processes not only affect how residents think about their on-site activities, but the attributes of the geographical areas also influence the formation of their multiple social relationships with their surroundings. This means that both linguistic and nonlinguistic forms of communications show the long and complex relationships between residents and the southwest coasts of the main island of Puerto Rico. The evidence points most markedly to a variation among groups and sub-groups of residents; thus, I discern how socially diverse individuals have or do not have access (ownership and user rights) - or interpret their access in a variety of ways -- to on-site activities of the major multiple social uses occurring on the coasts.

Moreover, the linkages between the findings and the contentious topic of issues of access and use of the coasts has direct ties to politics in Puerto Rico. I contend that this brings opportunities for the applications of these findings. Residents and their multiple social relationships are often ignored within, for example, the political and public debates, including in the existing written literature about the Puerto Rican coasts. The opportunity here is to add or share the findings and related literature supporting these ideas to ongoing political events and processes, both locally and globally. This pattern of omission applies to the discussions and information on the studied areas of Manglillo beach and Bahía Fosforescente. Not only are the coasts and popular coastal areas ignored, but the residents who are defined as major segments of the visitors are repeatedly omitted from the legal or official documents, public debates, and the scientific reports of Puerto Rico and elsewhere.

Another opportunity arising from these findings lies in featuring the positive impacts on residents when they gain a positive outcome from using the coasts. Residents commented that they gain well-being and relaxation, among other results, from engaging on the on-site activities of sea bathing and gathering in groups. The coasts offer a range of benefits relative to the profits that increase economic revenue from leisure activities like recreation or tourism, where visitors have access to engage in direct contact with their surroundings -- both residents in their everyday life and tourists in their sporadic visits. But more significantly, the coasts offer social and non-monetary benefits, including well-being and belonging in addition to socialization among residents with people they already know during their visits to these popular geographical areas.

The integration of a positive outcome from these findings into the political realm is also salient, because the residents of Puerto Rico lie at a definitive historical juncture that promises to rapidly and in uncertain ways transform the underpinnings of the current society and its members

-- those residing in and moving back and forth to/from Puerto Rico (Duany 2002, 2010; Silver 2010). Since 2015, the inequalities or the gap among groups of different backgrounds are growing most rapidly due to the declared financial crisis that for some also implies a humanitarian crisis. Unquestionably, the uncertainty is higher than at other historical times, given the arrival of new players intending to repay the high public debt, and the simultaneous visibility of Puerto Rico in the political-economic contexts of the United States and abroad such as in the United Nations.

Another opportunity from this qualitative study arises from the finding that regardless of a person's social characteristic, residents of Puerto Rico come to the southwest to find a coastal destination to enjoy recreational activities. Adding this finding into a political conversation about the past, present, and future of the Puerto Rican coasts has the potential of creating hope. Similar to the positive social and non-monetary benefits, I want to imagine how residents maintain the coasts in terms of what these areas have done, are doing, and will continue to do to improve the lives of the residents of Puerto Rico (or all of those who self-identify as "Puerto Ricans"). As presented in this manuscript, through their on-site activities and their assigned meanings residents think of the coasts as "public" areas, leisure destinations, and places to gain well-being. The Puerto Rican society is in flux given the recent changes to the political and economic contexts from 2015 to the present. These changes most likely will either limit or erase the ways in which the residents interact with the coasts in their everyday life. This potential negative outcome is of urgent concern. Given the projected dim future, the impacts of having little scientific or any other type of information about the coasts undermines the political atmosphere in ongoing conversations and legislation. Also, it is urgent that residents using these popular leisure and public areas be included in political discussions regarding the coasts and oceans in

Puerto Rico with the United States and abroad with societies like Spain (for which Puerto Rico has colonial ties) and with current players on the coasts including UNESCO for their international designation of Biosphere reserves.

Issues of the access and uses of the coasts (Implications)

The implications from this study highlight a perspective that is often missing from the discussions regarding the coasts of Puerto Rico. These findings contextualize three important categories addressed in international scientific investigations about marine environments that are relevant to the local and public beach discussions: the residents as visitors, the multiple social uses of the coasts, and the issues of access and uses of the marine environments. Using each of these categories, I will provide an example of the new perspective that the uneven development and the global sense of place theoretical frameworks brought to my attention. Through the analysis of different sources of information about the Guánica beaches and/or the phosphorescent bays of Lajas, I present missing pieces of their conventional history. The Biosphere and the Dry Forest, which is the only state forest with marine portions and beaches in Puerto Rico, tends to focus on the forest history and less on the coastal and marine environments of this protected area. Visitors to the forest often do not recognize that they are within an internationally significant location. Residents or visitors narrated their understanding of visiting and using the popular Manglillo beach, and of the ways in which this mangrove beach (geographical area) transformed itself during their lifetime over the past decades, from the 1970s through the present. Similar to Manglillo beach, the Bahía Fosforescente is a place in which a transportation service originated to bring leisure activities centered around the phenomenon of coastal bioluminescence. This service offers at-night and low-cost group tours. This transportation service (a fee for service)

started in the 1950s, and since then low-cost bioluminescence leisure activities are available not only in the southwest, but also in other parts of Puerto Rico such as the Laguna Grande in Fajardo municipality and Mosquito Bay in Vieques municipality. In fact, Puerto Rico now distinguishes itself for having developed what I envision is a bioluminescence industry that has remained active for decades.

Guánica beaches

More than half of the 28 Guánica beaches lie within the second UNESCO biosphere in Puerto Rico, which was designated in the 1980s. This Biosphere is also known as the Dry Forest¹⁶⁴ and it is owned and managed by the Puerto Rican government. Few visitors would know these facts. The findings from this study underline the irony of having a beach within a forest and the varied ways in which groups and subgroups of residents understand their on-site activities in this beach in relation to their multiple social relationships with that place.

Historically, the label of a UNESCO Biosphere has outline “on paper” several relevant concepts (Departamento de Recursos Naturales y Ambientales de Puerto Rico 1975). One of these concepts is the multiple uses or the multi-uses -- often applied in conservation literature (Agardy 1993; Agardy et al. 2003; Nelson and Chomitz 2011). For UNESCO, the multiple social uses imply a way to address the different range and types of human and/or social activities happening in a protected area that has a variety of goals. This means that the UNESCO selects sites around the world to add to a list of all Biosphere reserves under their purview. In Puerto Rico, UNESCO has established two Biosphere reserves, one of which is the study site for this study: the Dry Forest. Since the designation of this forest as a UNESCO biosphere in the 1980s,

¹⁶⁴ The official name is Guánica State Dry Forest (Departamento de Recursos Naturales y Ambientales de Puerto Rico 2014b).

the multi-uses concept appears “on paper;” yet forest managers in this forest area have understood and implemented this term in varying ways.

From the observations, interviews, and archives of this ethnographic project, the history of the beaches of Guánica and those located in the Biosphere and Dry Forest is long, complex, and different. These beach areas in the forest are different from other beach areas in the southwest of Puerto Rico and from the inland portions of this internationally significant forest (Domínguez-Cristóbal 2003, 2007).

The consequence of noting a new perspective that is often missing from the discussions of beaches in Puerto Rico suggests that the findings underline the importance of three key categories: the residents as visitors, the multiple social uses of beaches, and the issues of access and uses of the coasts and marine environments. What became obvious is that one of the main differences between an international organization, like UNESCO, and the government agency of Puerto Rico that has legal ownership and user rights over the same forest involves the origin, growth, and the implementation of the multiple uses of the beaches. I will explain this in relation to the Manglillo beach area located in the UNESCO Dry Forest.

First, the legal or historical documents and scientific reports tend to dismiss the fact that the residents of Puerto Rico constitute visitors of the beaches that lie within this internationally significant forest. In the recent past, a few social investigations¹⁶⁵ examined how those living next to the forest understand this protected area (Torres-Abreu 2009), while a smaller number of studies over 15 years ago examined beach visitors in specific forest areas, such as Ballena beach (Acosta-Ramírez 1995; Valdés-Pizzini 1994). As shown here, the scientific evidence tends to

¹⁶⁵ In recent decades, the Dry Forest has been the site of hundreds of scientific investigations -- local and international -- that are increasing in total number and by types of institutions (e.g., academic, nonprofit, government, etc.). Many of the scientific studies describe biophysical aspects of this protected area in the forest.

focus more on land portions of the forest and less on the marine portions including the beaches. What has been noticeable from this project is the difference between the Dry Forest and the iconic El Yunque National Forest (Cintrón-Moscoso 2014; Maldonado, Valdés-Pizzini, and Latoni 1999; “Recreation Benefits of Natural Area Characteristics at the El Yunque National Forest” 2009; U.S. Department of Agriculture Forest Service 2014) in that possibly today and in the recent past more people tend to cluster on popular beach areas, including Manglillo, Guiligan, Ballena, Tamarindo, La Jungla, and Atolladora, although a more accurate count of visitors per hiking trails versus beach or marine areas is needed.

More significantly, residents as visitors often do not recognize that the beaches, which are among their preferred areas to visit, lie within a protected area or forest. This finding has been confirmed by other studies (Torres-Abreu 2009; Valdés-Pizzini 1994). More importantly, this ethnographic and qualitative study confirms that the visitors come from many groups or people from all walks of life, including groups and subgroups of residents of the southwest of Puerto Rico.

Second, the interpretation by the Puerto Rican government of the concept of the multi-uses or the multiple uses proposed by UNESCO -- specifically as it relates to beaches -- can be described as being different. In general, the multi-uses concept promotes the capacity to identify what visitors or others engage in in relation to the social uses or activities permitted in an area. The definition by UNESCO of the multiple uses, for example, remains common to different societies around the world, including the United States, through their Biosphere program. In Puerto Rico, the government has applied this multi-use concept in a particular way in its dry forest. For example, local investigators have discussed the recreational activities in this forest spearheaded by the Civil Conservation Corps (CCC) starting in the 1930s (Valdés-Pizzini,

González-Cruz, and Martínez-Reyes 2011). In this study, the 1960s through the 1980s was an important period in which the Manglillo area was transformed from open forest into a marine area, then into a marine recreational area, and finally into a forest *balneario* area (see chapter 4). Each of these labels have at their focus the recreational activities that by the mid-1900s were accepted as part of the protected areas.

This transformation from an open forest area into an enclosed beach development is similar to what happened in a few other areas in this forest and in a Puerto Rico-wide project called *balnearios* (see chapter 4). It is the latter process by which the Manglillo area was converted into a popular bathing area. The process takes a beach and constructs facilities, locally recognized as *balneario* development. This process separates beach or marine portions from the inland portions of this state forest, but also, a forest with beaches is different from other *balneario* beach areas or the larger Puerto Rico-wide *balneario* development. One of the differences is that *balneario* development was spearheaded by two agencies in the central government from the 1970s to the present.

My findings confirm that recreational activities, such as sea bathing and gathering in groups, currently tend to happen near the infrastructure available at a few beaches including Manglillo. Few forest beaches have turned into primary destinations for residents for engaging in on-site activities as visitors, especially for the residents of Puerto Rico. Therefore, the concept of multi-uses or multiple social uses as applied to explain the history of how Manglillo turned into a *balneario* beach can be thought to be qualitatively different from inland portions of the same forest for these reasons. Today, the Dry Forest has gained value for its international designation as forest or protected area that offers different purposes and activities to its visitors and to global society. The most obvious series of activities that are fostered by either the Puerto Rican

government and/or the UNESCO Biosphere program¹⁶⁶ are education, biodiversity conservation, scientific research, and recreation or leisure activities, albeit in varying degrees and at different times.

Lastly, the third category of the issues of access and uses of Manglillo beach in the UNESCO biosphere or the Dry Forest shows a long, complex, and urgent situation. Like a beach facility, several areas that were part of the forest have transformed into urbanized patches¹⁶⁷ within the largest tract of sub-tropical dry forest, such as the San Jacinto and Playa Santa housing settlements or *poblados*. As discussed in chapter 6, the origins and maintenance of an open fence or bypass at Manglillo beach becomes symbolic of the long-standing and complex issues of access and uses by residents. The issues of access and uses of Manglillo beach, as I interpret them, reflect the multiple social relationships that residents have developed with similar areas located in Guánica, in the southwest, and in Puerto Rico. For instance, the fence emerges as change that is visible and is a part of the physical structure of the entrance to this forest *balneario* beach. This open fence epitomizes the variations found in this study in regards to the shifting understandings about access and the uses among residents of Puerto Rico, including the short-term visitors from San Juan and other parts of Puerto Rico, the southwest permanent residents, and the technical experts. Although management officials of this forest area constructed a fence meant to close in the area, the opening of a hole in the form of a bypass or open fence is contradictory to the original purpose. Given that the open fence has remained part of the

¹⁶⁶ Having funds to implement these multiple uses has been a barrier to both organizations for different reasons.

¹⁶⁷ In the past 20 years, the Las Pargas beach area is a site that has been proposed at different historical times to become an urban patch. The proposal in Las Pargas involves a large-scale tourist development that puts at risk visitors' and residents' uses of this area by constructing a large-scale marina, a hotel, and luxury homes. This construction development does not correspond to the current socio-demographics of those residing nearby this beach, which are rural and low-income residents in municipality with high levels of unemployment -- up to 19 percent (see chapter 3).

Manglillo beach entrance for the past five years and counting, I contend that not only visitors but the forest managers have accepted the fence, which presumably may continue to evolve in the future.

The new perspective that arises from connecting these three categories of the residents, multiple social uses and the issues of access and uses of the coasts, involves the variation of the understandings among groups and subgroups of residents. This perspective underlines a long, deep rooted, and complex social relationship among people of different backgrounds with the same geographical areas, over time and at a given moment. For instance, although the Puerto Rican government constructed a fence around Manglillo beach in the mid 1980s, residents continued to arrive as visitors to this area before and after the construction of this fence. I found autobiographies of residents of the southwest indicating the use of Manglillo beach as a bathing area before the fence (Rivera-Easterday 1995; Toro-Toro 1985). After the fence was constructed in the 1980s, a permanent resident protested the enclosing of the area by making claims in a letter asking for public access and ownership in a mainstream newspaper (Muñiz-López 1987). This claim about Manglillo beach by a permanent resident corresponds to similar claims addressing the issues of ownership and user rights to popular beaches by this group in Puerto Rico (Misión Industrial de Puerto Rico 1987). One of the most repeated claims by residents in this study, which may align with other beach areas, is that these are public and recreational areas granted by existing laws of Puerto Rico (Fontáñez 2009).

The new perspective that emerges from the theoretical frameworks applied in this study involves the need to situate the importance of a qualitative and spatial analysis versus the portrayal of beaches in the media, history, and in scientific debates. For example, Manglillo as a forest *balneario* or beach with facilities located in a forest is a unique case, but it is not an

exception. The UNESCO biosphere and the Dry Forest marketing tends to not include the marine portions as places to visit for those interested in learning about this protected area. If the findings from this study are seriously considered, these can be linked to the findings of international beach scholars in Spain, Australia, and the United States. This group suggests the need to develop holistic analyses of the importance of beaches in everyday life. In southwestern Puerto Rico, like in Spain and these other societies, residents comprise a large segment of all visitors to the Manglillo area. Similarly around the world, it is predominantly residents who come to engage in the on-site activities of sea-bathing and gathering in groups. While residents do prefer certain beaches from an abundant array of destinations located next to each other, based on their social background individuals obtain different understandings of the place itself, of themselves with people they know as they arrive there, and of the most salient attributes of the coasts. Their understandings, accompanied with the premise that residents are visitors, require that scholars, politicians, managers, and the public realize the importance and the frequent use of residents as a main group utilizing the forest beaches.

Coastal Bioluminescence

Similar to the way in which I describe Manglillo beach above, one of the bays that lies within the Parguera Reserve (Fuentes-Santiago et al. 2000) provided the impetus for the creation and growth of a transportation service to and from Bahía Fosforescente to allow for the enjoyment of coastal bioluminescence. The story about the role of recreational activities centered on coastal bioluminescence has often been dismissed the name in favor of the impacts of scientific research to the reserve, to Parguera *poblado*, and to bioluminescence. For instance, the most obvious way in which this is observed is in terms of the attention to coastal

bioluminescence as a scientific topic or as a subject at international (Bernache-Baker 1990; Oba and Schultz 2014; Widder 2010, 2011; Wilson and Hastings 2013) and at local levels (Carrero-Galarza 2009; Olán-Martínez 2009; Soler-Figueroa 2006; Soler-Figueroa and Otero 2015; Velez-Candelario 2004). Yet the findings from this study underline the need to think about the multi-uses or multiple uses of the coasts, specifically of the coastal bioluminescence.

Like Manglillo, the Bahía Fosforescente is part of another marine protected area, which is a relatively new mechanism in conservation (Christie et al. 2003). MPAs in effect where the concept of multi-uses is recognized tend to be most notably acknowledged (Agardy et al. 2003). In this regard, my findings underline the need to re-evaluate the ways in which the service and fee of a boating transportation activity introduces leisure activities to the phenomenon of coastal bioluminescence. The southwest of Puerto Rico -- unlike the east or the island municipalities -- attracted first visitors and among them mostly residents. The introduction to leisure activities, or recreational ones, started 70 years ago in Parguera, and presented visitors with the opportunity to experience the phenomenon of coastal bioluminescence accompanied by their families, which has since become a tradition among Puerto Rican residents.

Similar to the marine scientists, residents who participated in this study describe how they enjoy coastal bioluminescence, and how it builds the basis of on-site activities in which individuals gain cultural meanings to form their multiple social relationships with the southwest coasts of Puerto Rico. Residents explain that the boat tour is an opportunity to observe surface water with light that is visible to the human eye. Hence, the findings from this study show an important missing link from the way in which recreation along with other multiple social uses have transformed the Puerto Rican coasts, specifically coastal bioluminescence. This perspective outlines the role of the multiple social relationships among residents and the coasts in Puerto

Rico in order to illustrate the way in the Bahía Fosforescente located in the Parguera Reserve served as the original model for Puerto Rico to become the prototype for selling coastal bioluminescence around the world. Three categories are important to discuss this example: residents as visitors, the multiple uses of the bay, and issues of access and uses of the coasts.

The history of Bahía Fosforescente points to the role of fishers as well as local and international scientific researchers and divers as visitors to this area since the 1950s. However, the findings from this study indicated that the residents of the southwest of Puerto Rico have been choosing this bay and engaging in on-site activities of sea bathing and gathering in groups starting approximately in the 1970s through the present. Residents typically come accompanied by people they know (family or friends) and explain that they distinguish the attributes of the phenomenon of coastal bioluminescence. One of the missing links is the consideration of residents' varied understandings about the bioluminescence from available literature on the subject. Historical, legal or official, scientific reports, and other media documents have often ignored the fact that the bioluminescence becomes a leisure activity that generates profits because of the Bahía Fosforescente's location near the Parguera *poblado*. The omission of the Bahía Fosforescente is possibly the most important aspect, because the uses of the bay mark the origin and development of a leisure industry centered on visitors' service for the enjoyment of the coastal bioluminescence in Puerto Rico; possibly the first such instance of this in the world.

In addition to omitting recognition of the residents as a large segment of visitors to the bay, the multiple uses of the Bahía Fosforescente in this embayment is often dismissed from mainstream public, scientific, and legal conversations in Puerto Rico. For example, the official economic reports and the tourist propaganda for Puerto Rico indicate that economic revenue from leisure activities has direct ties to the beaches and the human activities occurring upon

them. A similar connection between economic revenue and the industry of bioluminescence is often harder to make for various reasons. Beaches become the iconic destination for selling the sun, sand, and sea mass tourist activities to foreigners living in the United States from the middle to upper socioeconomic classes (Hernández- Delgado et al. 2012). Moreover, if Puerto Rico has publicized coastal bioluminescence in mainstream media outlets such as magazines or websites, the Fajardo and Vieques bays, and not Lajas, are identified as the main sites for selling the coastal bioluminescence experience. The group tours using kayaks have become the most popular option for visitors interested in observing coastal bioluminescence at these eastern region locations. Within the political-economic context of Puerto Rico, public interest in Bahía Fosforescente as a generator of revenue from leisure activities emerged in the mid 1950s . The marketing of -- and the exponential rapid growth of -- the eastern locations happened later, approximately in the 1990s and 2000s.

Lastly, the issues of access and uses of the coastal bioluminescence can be associated with the Bahía Fosforescente. For instance, the bay lies geographically distant from a popular destination for Puerto Rican families, Parguera *poblado* (Brusi 2004; Valdés-Pizzini and Scharer 2014). Yet, the idea and the implementation of the experiment of a leisure industry centered around coastal bioluminescence took place among residents of Parguera. Residents in this study insisted on noting the role of fisher groups and business owners in this settlement who collaborated initially to launch this local economic project. Even today, Parguera residents continue to dominate those operating this leisure industry and the economic activity that attracts many visitors to this *poblado*.

The missing link that emerges from applying uneven development and global sense of place is that the Bahía Fosforescente and its phenomenon of coastal bioluminescence has brought

leisure to the residents at the center of this embayment. The introduction, growth, and maintenance of a leisure industry to sell the experience of observing coastal bioluminescence in Parguera is worthy of attention. Not only because Puerto Rico is one of the few places in the world where visitors can enjoy coastal bioluminescence, but also because the southwest and cultural sites such as Parguera *poblado* are important geographical areas in which residents continue to enjoy the coasts and the sea, specifically the coastal bioluminescence.

Concluding remarks

The findings from this anthropological study are timely and urgent because Puerto Rico is at a historical juncture, evolving from 2015 to the present, that promises to transform political and economic aspects of Puerto Rican society. The global to local approach offers a way to pay attention to the ways in which power dynamics and social inequality take form in the lives of residents interested in using the southwest coasts of Puerto Rico. Each of the answers to the four research questions reminded me of the need to critically analyze the ways in which certain groups and places tend to be ignored from public and scholarly debates both within and outside of Puerto Rico. Moreover, the implications section underlines what the application of theoretical frameworks offers beyond this project: a new perspective of everyday relationships between residents and the sea.

In sum, I have found from this study that the issues of access and uses of the Puerto Rican coasts is worthy of attention by many, including scholars, politicians, policy makers, and the public. In 2015, the declaration of a high public debt in Puerto Rico most likely will bring changes to the ways in which people use the coasts. I anticipate that these changes may occur in faster and more dramatic ways than what has happened in the recent past to the coasts and

oceans of Puerto Rico. This possibility concerns me, because people and places that are notably important -- given the evidence presented in this manuscript -- seem to be constantly ignored and disenfranchised, and are now leaving Puerto Rico by the thousands each year.

One of the lessons learned from this study is that residents tend to conceive that the Puerto Rican coasts are public and recreational areas. This conception is not limited to the southwest coasts; it extends to other coastal areas of Puerto Rico as well. Residents or participants of this study insisted that through their visits and on-site activities (direct contact) they have developed their own spatiality and sociality centered on the coasts as important geographical areas in their everyday life in southwest Puerto Rico. This surprised me.

However, even in beaches and phosphorescent bays that are protected, located in rural areas, and relatively isolated from urban development, visible challenges and barriers have existed, exist, and are emerging for the residents that affect their ability to access and/or use the Puerto Rican coasts. From the findings of this study, I propose that political conversations must recognize that the residents comprise a large segment of visitors of the coasts. As visitors, residents bring their local spatial understanding of the coasts, which is a new source of information about the ways people relate to these geographical areas. This information is relevant and must be evaluated by policy makers, managers, journalists, writers, and others interested in understanding the value of these marine environments in past, present, and future Puerto Rican society.

As in many coastal areas around the world, residents of Puerto Rico engage in common on-site activities of sea bathing and gathering in groups in beaches and phosphorescent bays. Yet the recognition of residents as visitors of the coasts and their varied connections or interactions with the sea, specifically with the Caribbean Sea, offers a new entry point to situate the

importance of the coasts in their everyday lives. I believe this is urgent, because Puerto Ricans face and are learning to leverage high stakes in the manifestation of financial and humanitarian crises. If my participants or residents taught me a lesson, this is that a way to manage the crisis is to maintain direct contact with geographical areas that provide them with quality of life or wellbeing. Following their advice, the findings from this study illuminate the importance of the southwest coasts and the need to maintain public access to coastal and nearby marine environments and to provide visitors with free or low cost leisure activities. Through their on-site activities, residents who have diverse backgrounds confirm engaging in similar activities of sea bathing and gathering in groups. They gain varied local spatial understandings about each coastal area, and of themselves accompanied there by people they know. The diverse backgrounds of people's age, education, employment, and residency matters in how they form spatiality and sociality. This social process informed by the on-site activities extends to the coasts and ocean areas. Also, residents indicated noting the ways in which attributes of the place affected what they did during their visits. Therefore, the participants confirm having a shared conception of the coasts having public access or user and ownership rights that provides them with the ability to engage in on-site activities as residents of Puerto Rico. I believe that this is a positive outcome that this project highlights and that can be a source of hope in a time of crisis.

APPENDIX A

PROJECT TIMELINE

The table offers a visual snapshot of the timeline of this project further described in Research Plan. Fieldwork took approximately up to 17 months divided into three areas of work. Anticipated graduation is May 2017.

Month	Activities	Notes
March-April 2013	Area 1- Participant Observations & Identification of and Rapport with Key Informants	-Introductions -Find a place to stay in the southwest (travel to/from San Juan) -Set a space at the University of Puerto Rico-Mayagüez -Preliminary set of participant observations during Low Peak Tourist Season -Applied Fieldwork grant Wenner Gren
May	Area 1- Low Peak Tourist Season	-Moved to Guánica, a residential settlement near chosen areas of interests -Visit other important local areas i.e. social events - “In-situ” observations at beaches and phosphorescent bays
June	Area 1- High Peak Tourist Season	Concurrently, visit other important local areas i.e. social events
July	Area 1- High Peak Tourist Season	Visit other important local areas i.e. social events
August	Area 1 –Low Peak Season (Round 2) Area 2 –Archival Work	-Visit other important local areas i.e. social events -Prepared drafts for Fieldwork Grants due November 2013 e.g. Ford, American University
September	Area 1 –Low Peak Season (Round 2) Area 2 –Archival Work	-Visit other important local areas including social events -Continue working on Dissertation Writing Grants

Month	Activities	Notes
October	Area 2 –Archival Work Area 3 -Prepare a Draft of Semi-Structured Interview Area 3 - Conduct Pilot stage of Semi-structured Interview	-Conduct preliminary Data Analysis Stage 1 -Final Draft of Dissertation Writing Grants Applications -Conduct preliminary Data Analysis Stage 1
November	Area 3 - Semi-structured Interviews	-Submit Dissertation Writing Grants e.g. Ford, AU Anthropology -Conduct a minimum of 6-8 interviews per month (minimum of 30 interviews) -Begin working on partial transcriptions in Spanish after each interview
December	Area 3 - Semi-structured Interviews Area 1 – High Peak Season (Round 2)	-Start to translate partial transcription in Spanish to English
January 2015	Area 3 - Semi-structured Interviews using Life Histories and Participatory Mappings Area 1 –High Peak Season (Round 2)	
February to May	Area 3 - Semi-structured Interviews	
July	Closure and Departure from Field Area 3 - Semi-structured Interviews	-Submit paper for AAA 2015 in Denver (e.g. Post Doc, Job search)

***bold**=high peak tourist season

APPENDIX B

INTERVIEW GUIDE IN SPANISH

Hora Empezar _____

Hora terminar _____

Fecha _____

Dónde _____

Grabación: Si o No

Presentes: _____

Leyenda

[] = no se lee, usualmente instrucciones

Negritas= preguntas de entrevista

INTRODUCCIÓN (15 minutos)

CONSENTIMIENTO (10 minutos)

Usted está invitado a participar de un proyecto de tesis doctoral sobre las playas del Bosque Seco en Guánica y los corales y las bahías fosforescentes de La Parguera, Lajas. El proyecto es realizado por la estudiante candidata a doctorado en Antropología, Aixa Alemán-Díaz, MA, en American University en Washington DC. Nos acompaña un asistente de investigación, que se llama _____ y su afiliación es _____.

¿A usted lo han entrevistado anteriormente? Si o No

¿Cuándo? _____

¿Dónde? _____

El propósito de este proyecto es analizar cómo diferentes grupos de personas, tales como residentes, expertos y turistas, usan (o han usado) tres lugares de interés: 1) las playas del Bosque Seco de Guánica, 2) las bahías fosforescentes y 3) los corales de La Parguera, Lajas. La información recopilada es para uso investigativo, educativo e informativo en formatos de presentaciones y publicaciones. El mismo cuenta con tres fases: observación-participación en estos tres lugares, búsqueda de archivos incluyendo documentos en la literatura, y al menos 10 entrevistas semi-estructuradas con relatos de vidas y mapas participativos.

La información recopilada durante el proyecto es confidencial. La identidad de los participantes se protegerá separando los datos o respuestas de los sujetos (a menos que usted lo indique ahora durante el consentimiento).

El tiempo aproximado para participar de esta entrevista de relatos de vidas y mapas participativos es de 45-90 minutos. Su participación en el proyecto puede ser durante varias fases (además de la entrevista). La entrevista dura entre 45 a 90 minutos (alrededor de una hora u hora y media) para un total de 41 preguntas.

Los riesgos de participar en esta investigación pueden considerarse como mínimos. Los datos recopilados y analizados tendrán uso únicamente con fines educativos e investigativos.

Los beneficios del estudio son documentar la situación de las playas, corales y bahías fosforescentes de Guánica y Lajas, Puerto Rico.

Si decide participar, entiende que su participación es voluntaria, libre y que usted tiene el derecho a no participar o retirarse del proyecto en cualquier momento, sin ninguna penalidad. Tiene el derecho a contestar todas, algunas o ninguna de las preguntas durante la entrevista y recibir copia de esta hoja de consentimiento.

Su nombre y sus respuestas no serán conectadas siguiendo el protocolo de confidencialidad (a menos que usted lo indique lo contrario durante este consentimiento) por ser el proyecto autorizado por el IRB de American University #11133 autorizado desde abril 2011 hasta abril 2014.

Al final podemos determinar si una entrevista de seguimiento es necesaria y esta pudiera tener una duración mínima de 30 minutos. Lo podemos establecer al final de esta entrevista.

¿Accede a participar de este proyecto? Si o No

Favor especificar si es consentimiento oral o escrito.

Dejar copia en papel de hoja de consentimiento para el/la entrevistada/o.

¿Podemos grabar esta entrevista? Si o No

RELATOS DE VIDAS

Cuénteme de su vida en el litoral.

¿Dónde nació? [barrio, sector, pueblo]

¿Dónde se crio?

¿Tiene hermanos/as?

¿Dónde fue a la escuela (si aplica)?

¿vive aún en Guánica o Lajas? ¿Compro casa? ¿Renta? ¿Construyo su casa?

¿Dónde vive su familia ahora?

¿Sabe nadar?

¿Sabe bucear? ¿con tubo? ¿con tanque?

¿a cuales playas ha ido?

¿a cuales arrecifes de coral ha ido?

¿a cuales bahías fosforescentes ha ido?

[**Litoral es un palabra “incolora”]

Dígame fechas importantes de su vida. [mínimo de 3, máximo de 5]

Tener una tablita donde pongas fecha (año) y cada evento.

Historia Laboral

¿A que usted se ha dedicado?

¿A que usted se dedica?

Relación con el Mar

¿Cómo describe su relación con el mar?

Para usted ¿qué es la playa?
¿Qué es la costa?
¿Que son las salinas?
¿Qué son los arrecifes de coral?
¿Que son las bahías fosforescentes?
¿Qué es la bioluminiscencia?

PREGUNTAS ESPECÍFICAS

Mi proyecto se extiende entre Los Morrillos hasta Tamarindo.
¿Puede mencionar/dar una lista de todas las playas de esta zona?
¿Puede mencionar los corales?
¿Puede mencionar las bahías fosforescentes?

De las playas,
¿Cuál es la mejor playa usando escala de 1-10 en Guánica o Lajas?
¿Cuáles son sus criterios para elegir la mejor playa?

De los corales,
¿Cuál es la mejor lugar de arrecifes de coral usando escala de 1-10 en Guánica o Lajas?
¿Cuáles son sus criterios para elegir este arrecife de coral?

Se habla de que los puertorriqueños viven de espaldas al mar, ¿usted ha vivido de espaldas al mar?

FUTURO POSIBLE

¿Qué podemos hacer para proteger la costa?

¿Qué debemos hacer?

Si usted tuviese el poder político y económico, ¿qué haría en la costa?

¿Qué atractivos costeros y marinos tiene esta zona del suroeste?

¿Cuál fue el evento que usted entiende es el más importante para usted con relación a las playas, recursos marinos y costeros? [último ano, 5 anos, 10 anos, o mas general?]

¿Cuáles son los eventos que han pasado en Guánica o Lajas que han cambiado dramáticamente lo que pasa en la costa?

REDES SOCIALES

¿Cuáles son los nombres de cinco (5) personas, en orden de importancia, con quien usted habla o discute X, Y y Z?

¡Muchas Gracias por su disposición y tiempo! ¡Buen día!

APPENDIX C

IRB LETTER APPROVAL

From: Research Compliance <researchcompliance@american.edu>
Subject: IRB continuation of your protocol #11333 - "Environmental Knowledge about the Coast: The Case of Puerto Rico"
Date: March 16, 2015 at 12:42:52 PM EDT
To: aa3237a@student.american.edu, Daniel Sayers <sayers@american.edu>
Cc: Matt Zembrzuski <zembrzus@american.edu>

Dear Aixa Aleman-Diaz,

The IRB has approved your protocol, and you may continue your research. This approval will expire on **03/15/2016**.

Any proposed changes to the protocol must be submitted to the IRB for review and approval prior to implementation, unless such a change is necessary to avoid immediate harm to subjects.

Any unanticipated problems that involve risks to subjects or others must be reported to the IRB in accordance with American University policies and procedures.

Continuations must be submitted 60 days prior to the expiration date. The federal regulations provide for no grace period. Failure to obtain a continuation of your study prior to the expiration date will require discontinuation of all research activities for this study, including enrollment of new subjects.

If necessary, a formal notice of approval can be provided at a later date.

Regards,
Matt Zembrzuski, Research Compliance Manager
Office of Research Integrity
American University

APPENDIX D

INFORMED CONSENT IN SPANISH

Hoja de Consentimiento

Usted está invitado a participar de un proyecto de tesis doctoral sobre los usos sociales en las playas del Bosque Seco en Guánica y los corales y las bahías fosforescentes de La Parguera, Lajas. El proyecto es realizado por la estudiante candidata a doctorado en Antropología, Aixa Alemán-Díaz, MA, en American University en Washington DC.

El propósito de este proyecto es comparar cómo diferentes grupos de personas, tales como residentes, especialistas y turistas, usan (o han usado) tres lugares de interés: 1) las playas del Bosque Seco de Guánica, 2) las bahías fosforescentes y 3) los corales de La Parguera, Lajas. La información recopilada es para uso investigativo, educativo e informativo en formatos de presentaciones y publicaciones. El proyecto cuenta con tres fases: observación-participación en estos tres lugares, búsqueda de archivos incluyendo documentos en la literatura, y al menos 10 entrevistas semi-estructuradas con relatos de vidas y mapas participativos.

La información recopilada durante el proyecto es confidencial. La identidad de los participantes se protegerá separando los datos o respuestas de los sujetos (a menos que usted lo indique ahora durante el consentimiento).

El tiempo aproximado para participar de esta entrevista de relatos de vidas y mapas participativos es de 45-90 minutos. Su participación en el proyecto puede ser durante varias fases (además de la entrevista). La entrevista dura entre 45 a 90 minutos (alrededor de una hora u hora y media) para un total de 26 preguntas.

Los riesgos de participar en esta investigación pueden considerarse como mínimos. Los datos recopilados y analizados tendrán uso únicamente con fines educativos e investigativos.

Los beneficios del estudio son documentar la situación de las playas, corales y bahías fosforescentes de Guánica y Lajas, Puerto Rico.

Si decide participar, entiende que su participación es voluntaria, libre y que usted tiene el derecho a no participar o retirarse del proyecto en cualquier momento, sin ninguna penalidad. Tiene el derecho a contestar todas, algunas o ninguna de las preguntas durante la entrevista y recibir copia de esta hoja de consentimiento.

Su nombre y sus respuestas no serán conectadas siguiendo el protocolo de confidencialidad (a menos que usted lo indique lo contrario durante este consentimiento) por ser el proyecto autorizado por el IRB de American University #11133 autorizado desde abril 2011 hasta marzo 2016.

Al final podemos determinar si una entrevista de seguimiento es necesaria y esta pudiera tener una duración mínima de 30 minutos.

Preguntas sobre el Proyecto

Si tiene preguntas o dudas sobre su participación en este proyecto, favor de solicitar una copia de esta hoja de consentimiento y comunicarse con:

Aixa Alemán-Díaz, MA
Departamento de Antropología
American University

787-376-7950 celular

Daniel O. Sayers, PhD
Departamento de Antropología
American University
sayers@american.edu
Teléfono: 1 202 885-1833

Preguntas sobre mis Derechos de Participar en este proyecto

Dr. David Haaga
Director, “Institutional Review Board”
American University
(202)885-1718
dhaaga@american.edu

Matt Zembrzusi
“IRB Coordinator”
American University
(202)885-3447
irb@american.edu

Consentimiento

He leído esta hoja de consentimiento y entiendo todo lo que se me solicita en participación para el mismo. Accedo a participar de este proyecto. Doy las respuestas a mi mejor entendimiento a estas preguntas. El investigador me dio copia de esta hoja. Yo certifico que tengo 18 años de edad.

(West 2006) Accedo a la grabación (*video/audio*) durante mi entrevista. _____ (iniciales)

Accedo a usar mi nombre en las publicaciones. Quiero que me identifique bajo el nombre de _____ (iniciales).

Nombre de Participante (Letra molde)

Nombre de Participante (Firma)

Fecha

Nombre de Investigador/a (Firma)

Fecha

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