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**How Pescadores Become Produtores:
Gender, Family, and Sustainable Living on Brazil's Northeast Coast**



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SIT Brazil: Social Justice and Sustainable Development

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Spring 2012

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Abstract

The familial structure of a Brazilian fishing community is explored through participant observation and eight in-depth ethnographic interviews conducted over the course of three weeks of immersion with a family of *pescadores artesanais* (artisanal fishermen) that now call themselves *catadores de algas* (seaweed collectors). Previous research suggests that the sexual division of labor in this community, along with coastal environment in which the community exists, is in a state of transition. This project explores the emerging practice of communal seaweed cultivation as a form of work that exemplifies changing gender relations in conjunction with a changing coastal environment. It elaborates on the importance of family relationships and the role of women within the broader structure of the community and explores the dynamics of an alternative, ever-evolving, and still imperfect mode of sustainable living—one which depends on identification, interaction, and compassion for the coastal environment. It presents a need for further dialogue between governing bodies and subsistence-based communities in order to avoid the misuse and mistreatment of both the community and the land on which it survives.



A estrutura familiar de uma comunidade pesqueira brasileira está explorada usando observações e oito entrevistas etnográficas durante o tempo de três semanas de imersão com uma família de *pescadores artesanais*, quem agora se chamam de *catadores de algas*. Pesquisas anteriores sugerem que a divisão sexual do trabalho na comunidade, junto com o ambiente costeiro em qual a comunidade existe, está em um estado de transição. Este projeto explora a prática de cultivo de algas comunal como uma forma de trabalho que exemplifica as relações de gênero em mudança conjunto com um ambiente costeira em mudança. Ele elabora da importância das relações familiares e do papel das mulheres dentro da estrutura mais ampla da comunidade e explora a dinâmica de um modo de vida sustentável que é alternativa, sempre em evolução, e ainda imperfeito—que depende da identificação, interação e compaixão para o ambiente costeiro. Apresenta a necessidade de diálogo adicional entre o governo, as organizações de gestão, e as comunidades para evitar o uso indevido e o mau tratamento da comunidade e do terreno em qual ela sobrevive.

Estava acontecendo um grande incêndio na floresta e a beija-flor passava no lago e pegava um pouco de água no bico e passava por cima do incêndio e saltava para pegar água de novo. Iria e voltava, iria e voltava. E os outros pássaros disseram, “Beija-flor, tu ‘tá vendo que tu não vai apagar isso incêndio?” E a ela disse, “Eu estou fazendo a minha parte. Se vocês fizerem de vocês, nos conseguimos apagar o incêndio juntos. Cada um tem que fazer a sua parte.”



There was once a big fire in the forest. A hummingbird passed over the lake and took a little bit of water in its beak and flew over the fire, dropping the water and going back to get more. Back and forth, back and forth. And all the other birds said, “Hummingbird, do you see that you aren’t going to be able to put out this fire like that?” And she replied, “I am doing my part. If you each did your parts, we would be able to put out the fire together. Each one must do his or her part.”

—*Pedro Edivan dos Santos Viana, on sustainable
community development*

Introduction

The sun has just risen over the edge of the clay tile roof. It casts a soft, hazy glow across the house and the sandy cobblestone street. In a few short hours, however, the light will become harsher; the midday Brazilian sun shines with a blinding, near-debilitating intensity. In this fashion, it acts as an essential component of the coastal ecology, warming and nourishing an array of marine life that thrives in the shallow tidal region. The northeast coast is full of small and large varieties of algae, crustaceans, fish, sharks, and countless other organisms that together form a symbiotic and self-sustaining ecosystem. It is this ecosystem that brought me to the northeast coast, and it is the algae—or more specifically the larger varieties of seaweed, and the people who harvest them—that have brought me to this particular coastal community, called Guajiru. The day is breaking faster than my body is used to; still heavy with sleep, my eyes struggle to adjust to the world brightening around me. As I squint and stretch both arms over the edges of my hammock, a man with a large, wrinkled smile, bright eyes, and a strong and pointed nose leans his head into the doorway.

“The tides have arrived,” he says. “It’s time to go!”

“Where are we going this morning?” I ask.

“To the *barraca* to visit the *algas*. They are angry with me because I haven’t been taking care of them. But today we will change that.”

I will soon learn that a *barraca* is a tent-like wooden structure with a thatched roof usually made from palm leaves. This particular *barraca* is the center of operations for a seaweed cultivation project, but that for this man, it is also a second home, a place of business, a restaurant, a meeting space, a recreational place, and, perhaps most importantly, the place where he goes to care for the *algas* (seaweed), also affectionately called *lodo* (muck, mud, or slime).



Much of Brazil's northeast coast has been developed to facilitate increased national and international tourism. Depleted wild fish populations, land reassignment, and urban development have greatly affected the coastal ecosystem and shifted traditional¹ practices in many coastal fishing villages. Recent community development projects have encouraged sustainable environmental practices and facilitated socioeconomic changes; women in particular have responded to environmental preservation efforts and increased their participation in *trabalho coletivo* (collective or community work). Yet teenage pregnancy is also extremely common, and many women in these communities remain the primary caretakers responsible for maintaining the home. The community of Guajiru, about 120km away from the city of Fortaleza, Ceará, is one such village in the midst of environmental and social transformation.

Guajiru is home to roughly 142 families, or 700 people. Houses are distributed on a strip of land between a coastal beach and inland sand dunes. 90 percent of those families participate in *pesca artesanal*.² There are approximately 120 *pescadores* (fishermen) and 50 *pescadoras* (fisherwomen). In addition to fishing, community members collect fruit and participate in subsistence agriculture on the edges of tropical lagoons and sand dunes. Community projects have arisen in Guajiru and in the neighboring community of *Flecheiras*, (a larger beach just six kilometers away), in the last fifteen years that not only provide additional sources of income, but which also feature women as visible community participants and leaders. One such project is the

¹ I use the term 'traditional' with some hesitation. Culture—that of a community or of a particular subsistence strategy—is an ever-changing system of symbols. Thus, the notion of a 'traditional' or 'authentic' culture is nonsensical in many ways. However, I have used it throughout this paper because my informants self-identify as being part of a traditional culture (*cultura tradicional*).

² Artisanal fishing, which exists mostly as a form of subsistence, but which also garners monthly earnings of around \$200.00 Reais or \$109.00 American dollars at the current rate of exchange.

Associação dos Produtores/as de Algas de Flecheiras e Guajiru (APAFG).³ 11 families from Flecheiras and Guajiru founded the organization together 2002,⁴ which facilitates the collection, processing, and sale of seaweed using sustainable harvesting practices and solar-powered drying techniques.

In this time of environmental transformation, the division of labor within Guajiru and Flecheiras' fishing families and the public (workforce) and private (domestic) spheres of this community are also changing. Shifting gender relationships and familial structures—i.e. women's increased involvement in community projects (for profit or otherwise), and their continued role as caregivers in the home—provide a unique framework through which to understand these environmental changes. In these coastal fishing communities, the identities of which are marked by a trade that most can no longer practice, there are groups of people still fighting for and reclaiming the right to the physical space and natural resources they need for family-oriented subsistence and for broader, sustainable community development. This particular case study focuses on the *catadores de algas* (seaweed collectors); it elaborates on the importance of family relationships and the role of women within the broader structure of the community and explores the dynamics of an alternative, ever-evolving, and still imperfect mode of sustainable living—one which depends on identification, interaction, and compassion for the coastal environment. It presents and need for further dialogue between governing bodies and subsistence-based communities in order to avoid the misuse and mistreatment of both the community and the land on which it survives.

³ Association of Seaweed Producers

⁴ In conjunction with the Instituto Terramar and *Projeto Algas: Cultivando Sustentabilidade*, and with support from IDER, Petrobras, UFC, and the Federal Government of Brazil. See appendix for more information on this project and its supporters.

This paper will consider the formation and continuation of a communal (coastal) identity by way of many independent (yet strategically linked) family identities. It will center on the ways in which family dynamics both provide and limit access to sustainable community development and explore the ways in which sponsoring and governing organizations from outside the community facilitate this process. I have focused my research on the role of women in community development and will begin with a discussion of the cultural settings that serve the seaweed collective and the opportunities available to women in those settings. Next, I will elaborate on the structure of family as it relates to the structure of community work and sustainable environmental practices: first, through the formation and operation of the seaweed collective; second, through the events that allow for the production and distribution of seaweed as both an alternative source of income and a representation of a coastal fishing identity; and third, through a discussion of the broader social movements that struggle to define and support this identity.

A Note on Social Relevance

I have chosen this area of research because Guajiru exemplifies a community on the margins of society, both physically and symbolically. This community provides a small-scale example of the large-scale effects of environmental degradation on many of the world's coastal communities, particularly those whose residents practice a subsistence trade like fishing. Other coastal communities are being forced into overcrowded and impoverished conditions, but I believe that the community organizations and the particular familial relationships that exist in Guajiru and Flecheiras have helped residents to avoid, or at least stave off, this same fate.

Theoretical Framework and Contributing Research

Gender, environment, and the division of labor permeate academic literature by way of anthropology, sociology, political theory, economics, and other subjects. Particularly since the 1980s, in keeping with third-wave feminism and an acceptance of a greater degree of intersubjectivity within the anthropological cannon, academics have debated the intersection between gendered identity, perception, and action. Within the broader context of gender, there are three themes that provide a useful framework for my research: the origins, conceptions, and reinventions of female subjugation (and female agency); the theoretical and ethnographic studies of fishing (and egalitarian and/or stratified fishing communities); and literature specific to coastal Brazil that examines socioeconomic structure and existing labor divisions. The relationship between gendered identities and gendered environmental practices, and thus between changes in gender relations and changes in the environment, remains largely unexplored and undervalued.

Rather than accepting that the devaluation of women is a cultural universal, and in opposition to “[Claude] Levi-Strauss’ assumption that the exchange of women by men inaugurated human society” (263), Eleanor Leacock (1983) puts forward an “analysis of women’s oppression” (263) that hinges on a Marxist interpretation of primitive communist society. “Interpreting the Origins of Gender Inequality: Conceptual and Historical Problems” outlines the historical roots of inequality in various cultures (before and after colonization) and parallels the process with the early formation of communism. She uses case studies from native tribes of North America, Australia, Brazil, Melanesia, and Africa to support the argument that gender inequality is not a product of innate psychological or physical human traits, but rather a result of colonization and hierarchical social order. For example, she argues for a shift from female autonomy to female dependence and subordination in Native American cultures during

the colonial period when “male authority was being encouraged by Euro-Americans” (264). Leacock argues that a Marxist perspective is essential to the study of gender inequality in order to highlight the development of “ranking societies” over time rather than assuming universal female subjugation and unchanging class constraints. In her eyes, not only are gender relations misconstrued, but the essence of early communist theory is also often misinterpreted, and only once this economic process is accurately reasserted can the historical origins of female subordination be understood and combated.

Academic literature pertaining to the division of labor often incorporates gender and environment as factors that contribute to “bargaining power” (Agarwal:1997) and “property rights” (Durrenberger & Pálsson:1987). Bina Agarwal (1997) argues that in addition class/caste and property, social norms, though not formal means of control, can still limit women’s “intra-household bargaining position [and] restrict their earning possibilities in multiple ways” (16). Similarly, in a discussion of “ownership at sea,” authors Durrenberger and Pálsson (1987) assert that property relations are not always controlled by formal or legal means; often concepts of ownerships do not order production nor determine who gets what. They instead serve as reminders of informal “perimeter defense” rather than official claims over territory (514-17). The authors recommend that future researchers of coastal fishing communities “expand the view of fishing to include as much of the inland system as is possible; to define the forms of household, capitalist, and other production systems...and their relationships to other components of the economic and political systems; and not to confuse the organization of production with ownership” (519). These recommendations concerning anthropological research on intra-household relations, access to land, and the concept of ownership are useful in considering the interplay between formal and informal modes of resource control in a coastal community,

particularly from the female perspective—i.e. the ways in which women in Guajiru use (and maintain) their bargaining power along with any formal or informal property rights, and the extent to which socioeconomic status and access to land may affect that power.

James Acheson's "Anthropology of Fishing" (1981) discusses gender divisions in the context of fishing communities. The analysis often draws broad comparisons between coastal environments characterized by subsistence fishing economies and the families that live and work there. Yet with each proposed comparison, Acheson also discusses exceptions and the varying cultural explanations for excluding women from the realm of fishing. His comparative approach not only draws from interesting cross-cultural case studies, but it also provides a critique of the "simplistic" anthropological explanations of the sexual division of labor in existing research:

It has been suggested that fishing requires stamina and strength, and women presumably do not have these qualities. A variant explanation is that boats are small and cramped, and there is no room for someone who cannot do their share of the work. However, such explanations give a somewhat simplistic view of the division of labor in fishing societies, because there are a large number of cases where women do participate in fishing. ... The relative mix of men and women in different work situations must always be explained in cultural terms and fishing activities are no different. The conditions under which different mixes of men and women are included in fishing activities has not been delineated. (297-98)

In many ways, Acheson's call for "delineation" of gender roles (both within types of work and conditions or "situations" of that work) is precisely what my study of gender and the environment in Guajiru and Flecheiras aims to explore. However, Acheson still characterizes fishing and fishing communities as having similar structures and behaviors as a result of their marine environment. Other authors (e.g. Carolyn Ellis (1984) in "Community Organization and Family Structure in Two Fishing Communities") have successfully argued that fishing communities may vary greatly in both individual expression and community organization (Ellis 522). As a result, a more effective perspective on the characteristics of fishing communities may

be to examine “the interface between the peripheral community and the mainstream institutions of its society’s center” (Ellis 524). This alternative investigative approach helps to avoid overgeneralization of the specific experiences of the people in these communities, and provide additional levels of meaning in my own research as well as in the broader conception of the anthropology of fishing.

Finally, the Portuguese-language literature specific to Flecheiras and Guajiru—which discusses the socioeconomic realities for coastal communities in Ceará, Brazil—provides an overview and critique of current community, governmental, and non-governmental structures in the coastal northeast. Instituto Terramar’s Shiela Nogueira (2003) focuses her doctoral dissertation on the APAFG and the role of women in developing and furthering the project.⁵ She specifically asks, “what strategies does this project propose to allow for the insertion, or perhaps the re-insertion, of women into sea-work” (107)?⁶ She focuses on how the geography of the area partially determines the divisions of labor and concludes that the sea should be demarcated for both the “cycle” of fishing and the “cycle” of algae production (96). In this way, the spaces—which are also heavily influenced by the tides and the coastal ecology—are no longer divided by gender; she argues that the collection of algae is creating new routines and “new rhythms of work and community in the same, shared, tidal space” (96). Thus, the sexual division of labor in Flecheiras and Guajiru is undoubtedly in transition, along with the ecology of the tidal region and the natural and cultivated algae banks.

This and other resources from the Instituto Terramar provide statistical and ethnographic data to support the possible links between shifting gender roles, community development, and environmental change. Yet they do not explore these shifts in the context of family structure or

⁵ Her ethnographic work was focused almost entirely on the community of Flecheiras

⁶ All text and audio from both primary and secondary sources has been translated from the original Portuguese by the author.

address the impact of environmental change on family (and community) structure. This presents a gap in current research that I hope my fieldwork in Guajiru and Flecheiras may begin to fill. The theoretical and historical perspectives on gender and labor divisions situate the research from Terramar into a broader academic context that is also instrumental in corroborating and organizing my own research. My work in Guajiru aims to address these social and environmental changes from the perspective of the fishing families, their interaction with this unique coastal environment, and their newly established tradition of seaweed cultivation.

Methods

When I purchased my bus ticket for Guajiru, Trairi/CE, I was in many ways accepting an unknown, and perhaps unknowable, fate. I had never been to this community before. I knew from studying the map in my classroom in Fortaleza that the small beach community was one of the three principal beaches of the municipality of Trairi, in the state of Ceará. I had heard from Fortaleza locals that it was a beautiful beach, a few nice *pousadas* and other small inns and hotels that attracted seasonal tourists, usually there to surf or learn *kite*.⁷ I had learned from academic articles and socio-economic diagnostics of the region that Guajiru might also be a potential site for new research—on social movements and the struggle for land rights, on the recognition of the cultural tradition and identity of fishing communities, and on the intersection between gender, the environment, and the division of labor.

⁷ Kite surfing, an increasingly popular leisure activity and arguably the most lucrative tourist attraction in these communities. Lessons cost an average of 75 Reais per hour.

Ticket in hand, I still had no idea where I was going. I was staying with a family, but I had no address, only the first names of my host parents: Marta and Edivan.⁸ There was a phone number, but my call never went through. I asked my program coordinator on the way out the door where I should ask to get off the bus. “Guajiru is at the very end,” he replied. “You tell them you want to stop at the home of Marta and Edivan, and they will know. Everyone knows Marta and Edivan.” And despite my (internalized) skepticism, the bus did exactly that. After about four hours of travel, the road changed from asphalt to sandy cobblestone, and a fellow passenger on the bus told me that this meant we were in Guajiru, and that Marta and Edivan live in “that yellow house, just there.”

My arrival in Guajiru was a complete—though fortunate, they insisted—surprise for my host family since I wasn’t able to call ahead. And yet from the beginning, I was absorbed into a family of 14 (two parents, three brothers, four sisters, and five nieces and nephews) as their “newest addition.” My host father, Edivan, is the longtime leader of the *Associação dos Pescadores/as do Município de Trairi (APESMUT)* and the former president and active member of *APAFG*. He is a native of Flecheiras, while my host mother, Marta, comes from Guajiru, participates in both associations, and is the *dona* and *cozinheira* at the *Barraca das Algas*.⁹ Marta and Edivan were key informants during my three-week research period in Guajiru and Flecheiras. They sat for formal interviews as well as countless informal conversations, stories, and teaching moments. They are known throughout both communities, the greater municipality of Trairi, and in other coastal towns in the state of Ceará as *líderes comunitários* or *líderes do*

⁸ It should be noted that permission was obtained for the use of the (first) names of all people, locations, and organizations. I chose not to use pseudonyms in an effort to show support and solidarity for this community and this family.

⁹ The site of the seaweed collective. Also called the *Centro Ambiental de Algas* (Seaweed Environmental Center)

povo do mar.¹⁰ These titles carry a certain power, influence, and responsibility; I was concerned at first that my association with a particularly influential family could affect my ability to build rapport with new informants. Additionally, their roles as community organizers could have caused them to describe their work in solely a positive light. I feared they might refuse to discuss problems and faults within the project, or that they might not realistically have the patience for my time-intensive research methods and my own cultural limitations as an American college student from a (cold and rainy) urban metropolis 6,000 miles away. I soon found that none of these potential problems created issues or barriers to research. Cultural biases—such as moments of pride or shame and accusations about other community members and movements—certainly existed, but they were almost always self-identified by the informant as an opinion, not a pattern of behavior or a concrete fact.

In addition to being accepted as a participant-observer into this family, I conducted direct observations of community events and specific tasks related to algae cultivation and production. I conducted, recorded, and transcribed a total of eight formal, hour-long interviews with the family and friends of Marta and Edivan that had links to the *Barraca das Algas*, *APAFG*, or the original *Projeto Algas*. I chose informants from two different generations (ranging in age from 18 to 48) in order to gain insight into cultural and environmental transformation over time.¹¹ I also conducted seven informal interviews as a means of clarifying the data gained from the formal ethnographic interviews. I took notes in English and Portuguese whenever possible. All interviews were conducted entirely in Portuguese, and at the time of this writing I am in the

¹⁰ Community leaders; leaders of the “people of the sea” (A self-identified term for groups living and working in or near the ocean.)

¹¹ With the exception of my advisor from Terramar, Jefferson, and my advisor in Guajiru, Edivan, I only conducted formal interviews with women. This allowed me to focus the perspective of my research and build better rapport. I acknowledge the fact that this limits my understanding of labor divisions and community structure; I aim instead to represent a more detailed and culturally informed female perspective.

process of finishing transcriptions of both the original Portuguese and (my own, rudimentary) English translation. For the purposes of clarity and cultural sensitivity, folk terms appear in Portuguese, marked throughout the text in *italics*. Brief descriptions of appear in the text or in footnotes at first use; a complete list of folk terms can be found in the glossary.

Language acquisition, and all of the difficulties and cultural disparities that accompany it, is perhaps the greatest barrier to this research. I relied heavily on the ethnosemantic method as a means of gathering a large amount of cultural detail in a small amount of time. Yet because of my beginner's grasp on the language—I began my stay in Fortaleza, Brazil two months prior to the start of my fieldwork in Guajiru and Flecheiras—I recognize that I have likely misunderstood, or perhaps completely overlooked, a great deal of information. My intention with the following sections of this paper is to use only the data that I gathered, fully understood, and corroborated through lived experience as a *filha do coração*¹² of Marta and Edivan at their home in Guajiru, and as a visiting *catadora de algas* in the community of Flecheiras.

Setting: Land, Sea, and Collective Experience

A Nova Cultura

“There are three kinds of territory in Ceará,” Edivan explains to me as we stand at the edge of a shallow stream. It is cradled on one side by row after row of mangroves, and on the other by a nearly flat expanse of course sand the color of eggshells. “There is *sertão* (desert), *serra* (mountains), and *mar* (ocean).”¹³ We, of course, find ourselves at the edge of *o mar*. The

¹² Literally meaning “daughter of the heart,” this term is used to refer to any visiting or informally adopted member of the family, or a close family friend.

¹³ Field Journal, 17. Informal Interview 4 (Edivan), 18 May 2012, Flecheiras, Trairi/CE.

stream is brackish (*salobra*); its mix of fresh and saltwater marks the convergence of the community's potable water source (which allows for small-scale agriculture and provides water for filtration and consumption) and open sea (the main source of subsistence, revenue, and recreation). The mangroves sustain the richness of the coastal ecosystem, filtering toxins and providing essential nutrients that support a wide range of marine life, from microorganisms to fresh- and saltwater fish, not to mention an abundance of *algas*.

There are hundreds of varieties of seaweed thriving within Flecheiras and Guajiru's system of coastal reefs (there are more than three kilometers of reefs lining Flecheiras alone), and traditional fishing families have a long history of seaweed harvesting that necessitates a wealth of cultural knowledge about tides, the moon and stars, ocean currents, and much more. This skill set is passed on from one generation to the next through experiential learning that begins in early childhood and which originated from indigenous traditions of *pesca artesanal* from the 18th century.¹⁴ It wasn't until 2002, however, that these seaweed collectors, known colloquially as *catadores de lodo*, made a pivotal transition from harvesting *algas* directly from the reefs, (*bancos naturais*), to starting a collective cultivation site in order to grow and harvest one specific algae species, *Gracilaria*,¹⁵ without negatively affecting the delicate and diverse marine ecosystem. The project, initiated by the Instituto Terramar in Fortaleza, provided courses on cultivation, production, and the various applications of *algas marinhas*.¹⁶ Over the years, technological investments arrived from outside organizations, such as solar powered lighting and a *secador* (drying station) for the seaweed. The families involved in the collective each received

¹⁴ Field Journal, 30. "Algas: Cultivando Sustentabilidade." Instituto Terramar. 2008.

¹⁵ *Gracilaria* is a spindly, firm, reddish-brown seaweed that can be used for a variety of goods, most notably for the production of agar, which is used most often for cosmetics or as a natural gelatin food product. It has been affectionately nicknamed *macarrão* (pasta) because it is the size and texture of spaghetti.

¹⁶ With these educational courses came a greater awareness of the legitimacy of seaweed harvesting, and the name shifted from *lodo* to *algas*.

a portion of a government stipend before and after they completed the collection cycle (*ciclo de coleta*), the process in which seaweed is taken from the natural banks, replanted, grown, cared for, and then harvested and prepared for sale and/or subsistence purposes.¹⁷ (See Figure 1 for more information.)

This introduction of a sustainable form of aquaculture, which uses many of the same skills of traditional *pescadores*, has the potential to create a self-perpetuating, alternative income for families in coastal communities where a lifestyle of subsistence fishing is increasingly more difficult to maintain.¹⁸ Yet after roughly ten years, the project is still very much a work in progress. Of the original 11 families, only two or three are currently participating, and only one—Marta and Edivan’s—is continuing the collection cycle on a daily basis. Seaweed has become so much a part of their familial identity that they are known throughout the coastal communities not only as one of many traditional fishing families, but also as the (one and only) *família de algas*. Edivan explains that even after the past ten years, this project specifically, and the idea of environmental sustainability in general, is still a new and evolving idea in Brazil:

In many ways, we are crafting a new culture, which is this culture of *cultivo no mar*. You take a family of *pescadores tradicionais*, and you send them to this new culture, also in the sea. Because the traditional fishermen and women, they aren’t just fishermen. They are, or they represent, cultural values. Flavors. When Marta, for example, gets seaweed, and prepares it, and makes a salad, and then takes that flavor and passes it on to each person that passes by the *barraca*—it is clear that we are furthering these rich cultural values.

This *nova cultura*, one which has its fair share of challenges, is nonetheless an example of sustainable living that links traditional practices to both familial structure and to the social and

¹⁷ Projeto Gestão Costeira Sustentável: Diagnóstico Sócio-Ambiental Participativo. (2003).

¹⁸ Due to increased tourism, land traditionally used for fishing is purchased and developed into beachfront resorts that ban boats and fishing gear from the waterfront; the equipment is viewed as *feia* (ugly or unsightly). For more information, see “Land loss,” pp. 32-35.

physical territory of that preexisting culture. The end result is something entirely new—or at the very least, an adaptation, a shift in cultural identity, for the *pescadores tradicionais*.

Figure 1: Taxonomy of Steps in the Seaweed Collection Cycle (Cycle of Production)

Steps in the Seaweed Collection Cycle (Ciclo de Coleta)	Construção: Construction of rope structures (<i>cordas</i>)	Build a <i>modula</i> (structure) of rope 100meters long.
		Attach Styrofoam or plastic <i>bóias</i> (buoys) every 3-5 meters for flotation.
	Coleção: Collection from coastal reefs (<i>bancos naturais</i>)	Select clean, robust plant.
		Tear off a portion of the plant from the reef, leaving roots for regeneration.
		Gather <i>mudas</i> (sleeding bunches) weighing between 50 and 100grams.
	Fixação: Attach seaweed to ropes	Tie <i>mudas</i> to rope structure one meter apart.
		Secure knots and clean away other <i>algas</i> .
	Plantação: Submerging ropes into ocean (Leave at sea for 30-45 days)	Select cultivation site away from boat traffic and heavy fishing.
		Launch small boat(s) (<i>Rolar o pacote</i>) into ocean, carrying rope structures.
		String ropes out into water, allowing currents to pull structure out to sea. (Make sure <i>algas</i> are submerged about one meter below surface.)
	Limpeza: Cleaning seaweed crops (Three times per week for two weeks; use life vest, snorkel mask, and flippers if needed.)	<i>Rolar o pacote</i> and paddle to cultivation site.
		Jump into ocean and scrub each <i>muda</i> by hand.
		Remove other <i>algas</i> , microorganisms, or small crustaceans and reattach falling or slow-growing bunches.
		Scrape ropes clean with knife.
	Colheita: <i>Tirar</i> (Tearing) seaweed from structures	AFTER 45 to 70 days: <i>Tirar</i> seaweed from ropes. (One structure should yield 200-250kilograms.)
		Fill plastic or burlap sacks and carry to washing station.
	Separação e Lavagem: Separating and cleaning seaweed at washing station	Fill washing station with fresh water and scrub seaweed by hand.
		When water becomes murky, drain table and refill. (Repeat washing process 3 to 4 times.)
	Secagem: Drying	Place in <i>secador</i> (drying table with mesh bottom, ventilation on sides, and solar-panel lid) and spread flat.
		Check color and texture every few hours. If still dark and/or dirty, let soak overnight in a basin of fresh water and limes before returning to drying table.
Comercialização: Packaging and preparing for sale or production	Package <i>algas naturais</i> (dried seaweed in small bunches) for direct (local) sale.	
	Package bulk seaweed for export; store in a dry, enclosed space.	
	Make <i>produtos</i> (products). (See Figure 2 for more information)	

Three beaches, two homes, one family

The physical setting of the *catadores de algas* is also in the process of transformation and adaptation. There are three principal beaches in the municipality of Trairi, Ceará: Guajiru, Flecheiras, and Mundaú. Yet these are only three of many small and relatively isolated coastal communities within a small municipality on the outskirts of a much larger metropolitan area, the state capitol of Fortaleza. From the perspective of the *nativos* (locals) of the beach communities, there is a general pattern of disdain for city life, which at times borders on fear. For the most part, Fortaleza and even Trairi are viewed as places to which locals need to travel for four main reasons: for medical emergencies and more advanced treatments (Guajiru and Flecheiras each have a *posto de saude* (health post), but they only have basic supplies and often run out of medications); to obtain or turn in government documents or funding (such as the *carteira dos pescadores* that any artisanal fisherman or fisherwoman can receive, or the *Bolsa Família* that the majority of women with children also collect);¹⁹ to purchase large amounts of groceries or bigger-ticket items like electronics at a lower price (everything is about twice as expensive in the communities as compared to the city); and for cultural events like concerts, films, or soccer games.²⁰

Aside from these reasons, residents do not have much interest in traveling to the metropolitan areas. Many women expressed a particularly strong dislike for the task of commuting by bus to Trairi to buy groceries because of the extra commute time, the large loads of food bought at one time, and what was described as the “busyness” of the town; more people,

¹⁹ *Carteira (dos pescadores)* is a government document created by the *Ministério da Pesca e Aquicultura* (Ministry of Fishing and Aquaculture), or *MPA*, that registers traditional fishermen with the state and federal government, allowing them to qualify for benefits including rights to fish for subsistence and profit, and a small stipend of about 3,000 Reais at the start of the off-season for lobster fishing. *Bolsa Família* is a system of social welfare, which began in Brazil in 2003, and which gives financial assistance to low-income families; families with young children must send their kids to school in order to qualify. For more information on each of these programs, see Appendix.

²⁰ Field Journal, 9-14. (Observations)

more cars, more unwanted attention from passersby (a whistle, a honk of a car horn, or what in the United States is generally referred to as a “catcall”). They also disliked the fact that the city is more dangerous and more closed off (*fechada*) than the beach communities. This sentiment applies to city residents, too; city people are described as more guarded (*guardado*) and less friendly, less open.²¹

The *familia de algas* has two locations, each well outside the city, to call home. The first is the *casa* in Guajiru—a one-level house with a tile roof, three rooms, an outdoor kitchen, an attached room that was once a restaurant and now a small store (called the *restaurante* or *ArtAlgas*) and sandy backyard space called a *quintal*, complete with several fruit trees, a clothesline, a chicken and several cats. The second is the *barraca* (*das algas*) in Flecheiras—officially a communal space built about ten years ago for the purposes of the seaweed collective, it is considered by the family to be a second home. The structure sits on the side of the paved road that connects the communities to the municipality, just at the entrance of Flecheiras.

A fence constructed of driftwood and tree trimmings surrounds the entire plot of land, which extends from the road to the start of the beach. Recently planted *coqueiros* (coconut-producing palm trees) line one edge of the fence, and the *barraca* itself sits in the middle. It is an open-air structure with a roof thatched from palm leaves and a walled in kitchen on one side. There is no electricity there, which means no refrigeration. There is a gas stove for cooking and a large solar-powered battery in one corner that provides energy for three small mounted lights at nighttime. On the opposite side of the plot of land sits a second walled in room with hammock hooks, a bookshelf and a wooden table. A second thatched, open air structure shelters the seaweed *washing table* and *meeting area* where families can work together to do the *limpeza das*

²¹ Field Journal, 16. Informal interview (Gorgiana, with Juliana). 16 May 2012, Guajiru, Trairi/CE.

algas (see Figure 1) before moving the seaweed to the drying stations (also solar-powered) that sit against the fence.

The beach itself is part of the *cultivo*, too. A gap in the fence leads out to a stretch of sand and ocean in between the two *bancos naturais*. Boats do not pass over the cultivation site, where long ropes attached to buoys string out into the ocean beyond the breaking point of the waves. There is no official prohibition of sea traffic or documentation to protect the land; it is known throughout the community as a communal space, and the network of communication among fishing families is enough to keep boats and trespassers away.

In both home locations, the *casa* and the *barraca*, each member of the family also has a place, a sort of system of tasks and spaces for these tasks (*tarefas*). Yet, since the family has been a part of this system for their whole lives, it is impossible to delineate and separate each individual process; skills, activities, and spaces are constantly overlapping and individual work transforms into communal work seamlessly throughout a day at home in Guajiru or at the *barraca das algas*. The most prevalent distinction occurs between the *cozinha* (kitchen) and the *quintal* (backyard or grounds) and between *cuida* (care) and *proteção* (protection), however. For the most part, only the women cook meals and only the men work on the grounds around the structure of the *barraca* or in the backyard of the house. Similarly, women stay within the structure of the *barraca*, cleaning, taking care of seaweed that has been brought in from the ocean (by men, usually), while men protect the perimeters of the physical space by securing the structure, building the fence, planting trees, or by keeping watch at night, (*segurança*).²² Within these broader sexual divisions, there are also individual variations and specialties in work, which create spaces for both creative expression and individuality within the structure of family—

²² Field Journal, 9-10. Observation A (*Barraca das Algas*)

opportunities to which they would not have had access had they not entered into this *trabalho comunitario*, but which still delineate spaces and opportunities for work on the basis of gender.

A Família de Algas and the Culture of Production

Family Relations and Sustainable Community Development

Kinship ties have played a major role in organizing the division of labor—within Marta and Edivan’s family, the community, and the business of seaweed cultivation. Their sons have found work outside seaweed collection through informal referrals made by an extended family member—such as a cousin that lives and works in Fortaleza, or an uncle that needs help on a project the next beach over. Yet this work is almost never permanent, and they return to Guajiru and Flecheiras to work with the family or independently, but still within the beach community. Their daughters have stayed even closer to home; they work in the seaweed collective when they are not busy with other tasks, such as housecleaning, childcare, or cooking—all of which have traditionally been, and continue to be, tasks reserved for women. Yet this separation of work, which assigns women more to the spaces within the home rather than outside it, does not in this case point to an inequality. Rather, it appears to foster strong individual identities, encourage pride in specific tasks and skills, and support a family-based workforce that effectively maintains a tradition of sustainable living. Or, perhaps more accurately, it helps to reinvent an existing tradition (of fishing and subsistence agriculture), to adapt to a changing environment, and to enter into a new phase of sustainable mariculture, of *cultivo do mar*.

Men’s work, traditionally, is *pesado* (heavy), my host sisters explain to me one afternoon. Women’s work, on the other hand, is often called “simple” or “easy,” a *tarefa* (task) rather than a

trabalho (work).²³ They also explain that women are always juggling many tasks at once, while men come back from raking the yard or bringing in the boat or preparing the fish, and they are done. Their work is over, and so they might rest in a hammock or drink a beer. Women, on the other hand, often have an endless list of tasks to complete, and, “When it comes down to it, men sleep more. And women are always tired.”²⁴

Gabi, age 20, is the only one of Marta and Edivan’s four daughters without a child of her own—her brothers and sisters already have five children (all under the age of six) among them. She explains, sheepishly, that, “none of them are *mine*, but they’re all mine, really.” She takes on the majority of childcare responsibilities during the day because her sisters have to work paying jobs in order to provide for their children. She also cares for the home(s), often staying at the house in Guajiru by herself in the morning while her brothers and parents are at the *barraca* and her sisters are working outside the home. Next, she goes to the *barraca* in the afternoon to inventory or deliver supplies. And on the weekends, she cooks in the kitchen at the *barraca*, which doubles as a small lunchtime restaurant. As she lists all of the different things she does for work, Gabi pauses to explain the sheer magnitude of her responsibilities:

My father and my mother, they have a lot of confidence in me. They leave me responsible for everything: taking care of the house, taking care of the money, paying bills, buying groceries and supplies, always staying home when they go to the barraca to make sure nothing happens here while they’re gone. I also run the store [*lojinha*]. There always has to be someone here all day for that, too, watching over it. I also do craftwork [*trabalho artesanata*]. I do a lot of work with my sisters. I make and sell all of the fish scale pieces [*artesenatas das escamas*]. ... We don’t depend only on the money we get from those, but it helps.²⁵

Throughout all of our conversations, Gabi never said that she had a job, only that she always had plenty of “things to do.” And yet she clearly understood, and took pride in, the contribution that

²³ Field Journal, 19. Informal Interview 5 (Juliana). 28 May 2012, Guajiru.

²⁴ Field Journal, 21. Formal Interview 3 (Gabi). 23 May 2012, Guajiru.

²⁵ Field Journal, 21. Formal Interview 3 (Gabi). 23 May 2012, Guajiru.

she was making to her family and to the seaweed collective; she not only controls the profits from the restaurant at the *barraca*, but she also contributes to the family income in an individual way with her artwork.

In the case of the seaweed project, there has historically also been a gender divide, but not necessarily an inequality. As she explains her commitments and connections to the fishing community, Marta adds to Gabi's perspective on the kinds of contributions that women make to both their family and their community:

A woman who stays at home and cleans the house, takes care of the family and cleans and prepares the fish, or who collects seaweed for food, to sell, to make products—she is still a fisherwoman [*pescadora*] and a collector [*catadora*], ... It used to be mostly women collecting seaweed, but always with other members of their families, too, in family groups. Then when the cultivation started—they called it “Seaweed: Cultivating Sustainability” [*Algas: Cultivando Sustentabilidade*—we were able to produce and collect and sell more and more, the loads became heavy and we had to use the small boats [*paquetes*] and use heavy anchors sometimes, or carry large bags of seaweed when they were still wet, so men became more involved. But it was always valuable work, important work, even before the men.²⁶

This gender distinction reinforces not only “heaviness” of men's work, literally and figuratively, but in the same breath it also legitimizes the role of women in the workplace, rather than diminishing it. The structure of work within the seaweed collective often emphasizes family relations over gender relations. This suggests that, for the formation and continuation of this project of “cultivating sustainability,” the familial bonds—and the ability of each family member to become proficient in specific tasks as well as group work—are a highly valued component of the collective process, and of the community as a whole.

On production value and the application of algas

²⁶ Field Journal, 16-17. Informal Interview 3 (Marta). 17 May 2012, Guajiru

The members of the *familia de algas* have always taken a certain pride in their position as leaders, this air of “being known” (*conhecida*) by everyone in town: he is a longtime *pescador* and community organizer from Flecheiras, and she is a *algueira/marisqueira/pescadora*²⁷ (a *conhecida* in her own right) from Guajiru. Their work, along with the work of their children, represents the furthering and the adaptation of these cultural traditions. This family exemplifies the value of bonds formed between communities, between families or groups, and within the generations of a single family. Ten years after the start of *projeto algas*, only a handful of the original 22 families are still involved in the collective. And of those still involved, no one spends nearly as much time at the *barraca*, (the center of production for APAFG), as Marta and Edivan, their children, and their children’s children. Marta explains that over time, however, the family-to-family bonds have not outlasted internal struggle and competition:

Within these groups working together, there are individuals that do things like *artesanatos, aplicação das algas, cosméticos, alimentação*, and this can give an incentive for each group to continue to work. But working together, collecting in the sea together, cleaning together, caring for the seaweed together, this is the way it should also work. ... But that was getting very hard. And it wasn’t enough to better the lives of each family, And we of course we started a sort of *retorno*.²⁸ ... And now it is just continuing between fewer families, two or three, but we are maintaining it. The weight of this small structure here, the *barraca*, but it’s important. It impacts, and is impacted by, all of the families that care for it.²⁹

She is very aware of the importance of maintaining this movement toward alternative and sustainable subsistence strategy. Yet, for the time being at least, she believes that simply “maintaining” the movement is enough. She mentions later that, “we are just one family, yes.

²⁷ Women who work with seaweed (officially called *algueiras*), women who work with other forms of mariculture (*marisqueiras*), and women who go fishing or prepare fish (*pescadoras*) seem to use these terms interchangeably; the tasks are always related and overlapping.

²⁸ *Retorno* means a process of exchange. In this case, it refers to a rotation system in which one family cares for their *cordas* for the entire collection cycle, and then passes ownership responsibilities onto the next family.

²⁹ Field Journal, 23. Formal Interview 6 (Edivan and Marta). 31 May 2012, Flecheiras.

But here, just one family still means many people, many talents.” The talents of this one family are certainly many, and varied. (See Figure 2, next page, for more information)

The family is very concerned with using as much of the *algas* as possible, focusing on their work mainly as a cyclical and communal task, rather than a competitive or commercialized form of revenue. Their community work takes them to conferences, campaigns, and meetings in communities throughout the northeast coast and even, on occasion, to the nation’s capitol. “We have friends at every beach,” they say. And even so, they are more concerned with maintaining connections between these communities, and keeping these friends along the coast, than with garnering profit:

The work that we do isn’t just to benefit our family; it’s for everyone. [We often wonder about] how many thousands of people have passed by this place, or heard about it in a report or seen it on TV? How many students, researchers, tourists, or even other fishermen from other towns? And for this reason we believe that what we have done here, and what we are doing, has been for the sake of bettering the lives of the people here. If this were all just for my personal benefit, I would have had a nice house with a car or something by now. But this isn’t what we want. We just want to survive. We buy food today, and other days we don’t have money for anything. But we continue constructing this history. And we recognize that not everyone wants this kind of life.³⁰

Here, Edivan elaborates on their reasons for continuing, adapting, and transforming a traditional subsistence practice. Yet neither he nor Marta directly addresses the potential problem of simply “maintaining,” and not expanding and furthering, the environmental movement. They are a fishing family that no longer goes fishing, at least not in the traditional sense.³¹ And they are the *família de algas*, but they are currently the *only* family. They recognize that not all families are inclined to work toward the same goals as they are, and yet they don’t know exactly how to

³⁰ Field Journal, 26. Formal Interview 6 (Edivan and Marta). 31 May 2012, Flecheiras.

³¹ Only the oldest son, João Lenon, used to fish with his father. The rest of the children were either uninterested, or else became extremely seasick whenever they did go out in the ocean.

Figure 2: Paradigm of Seaweed Uses

Contrast Set: <i>Aplicações das algas</i> (Seaweed uses)	Dimensions of Contrast			
	Within (<i>dentro</i>) or outside (<i>fora</i>) the ocean ecosystem?	Who is responsible for production (Individual, group, naturally occurring)	Function (Profit, leisure, subsistence, coastal ecology)	Collective (<i>coletiva</i>) or private (<i>privada</i>) use/benefit?
Alimentação (food and nutrition): Products include— Sauces, soups, salads, yogurts, mousses, <i>gelatinas</i> (pudding-like dishes), <i>cocalgas</i> (from the term <i>cocada</i> , a coconut-vanilla custard, and <i>algas procesada</i> [to be put into other food products as a gelling agent] or <i>secas</i> [in the original, dried form, to be added to any recipe])	<i>Fora</i>	Individual/group (Marta, plus daughters)	For profit and subsistence	Collective
Cosmético: (Beauty products): Products include— Lotion, shampoo and conditioner, liquid soap, bar soap, massage oil, exfoliating gel, exfoliating bar soap. (Each product is made <i>só algas</i> (only with seaweed extract) or <i>com fruta</i> (with added fruit extracts [pitanga, passion fruit, strawberry, peach, or mango]))	<i>Fora</i>	Individual (Juliana)	For profit	Both
Farmasútica (Pharmaceutical products, mainly clinic diagnostic kits.)	<i>Fora</i>	Group (collectively prepared for export)	For profit	Private (exported)
Artesanatos (craftwork in the form of decorative objects, furniture, and artwork)	<i>Fora</i>	Individual/group (Gabi, plus Clarisse and friends)	For profit	Both
Agar (byproduct of seaweed in gel form): For national and international export	<i>Fora</i>	Group (collectively prepared for export)	For profit	Private (exported)
Support other forms of ocean life	<i>Dentro</i>	Naturally occurring	For subsistence and to sustain coastal ecology	Collective
Oxygen regeneration cycle (*thought to produce more oxygen than all of the trees in the Amazon)	<i>Dentro</i>	Naturally occurring	Coastal ecology	Collective
Recreational activities (for locals) (including fishing, visiting coastal reefs, visiting the project, and children's games involving seaweed)	Both	Naturally occurring	For leisure and for education about the coastal ecology	Collective
Tourist attraction (the project, the products, and the coastal reefs)	Both	Group/naturally occurring	For profit	Both

change the mind of a courageous yet stubborn fisherman³² who does not understand the cultural value and the potential profit of working with seaweed. The most apparent divergence in understanding seems to be that traditional fishing families are used to reaping the benefits of their work immediately, rather than waiting for a cycle of cultivation, cleaning, and processing with an uncertain and often delayed monetary reward.³³ The algae collective is a shared experience, one which unites two coastal communities in the same cycle of production, but one which also relies heavily on the participation and the individual talents of one family, rather than many. This creates an uncertain future for this project specifically, and for future sustainability efforts introduced by outside organizations and left to develop independently in coastal subsistence communities.

Access and Barriers to Opportunity

The uncertainty of the future of *Projeto Algas* in Flecheiras and Guajiru is particularly apparent when generational gaps—in knowledge, understanding, and systems of value—are taken into consideration. Young people are most often choosing to pursue education and careers outside of the physical space of the community, or at least outside of the traditional cultural practices of the community. And while at first it may seem that the members of Flecheiras and Guajiru, particularly the younger residents, are apathetic to the environmental cause maintained by the *familia de algas*, there is actually a range of cultural factors that contribute to the perceived disinterest in the project. These various limitations on opportunities—for education, for work, for leisure and personal freedom—affect the quality of life of the residents of these

³² Being stubborn (*teimoso*) and having courage or will-power (*couragem*) are two adjectives frequently used to describe traditional fishermen. Neither one carries a strong negative connotation, nor would these terms be used as compliments.

³³ The *algueir@s* only receive the second half of their earnings for the raw export of seaweed if their loads reach a certain weight, and they may lose a portion of profits depending on the (ever-changing) national and international markets.

communities. Some limit women more than men, but most often it is the barriers themselves that create inequalities on an individual, familial, and communal basis. Until this generation of *nativos* of Guajiru and Flecheiras can negotiate these limitations, sustainable living in the form of the *cultivo*—while still extremely beneficial to the coastal environment—will not better the quality of life for families or for the community as a whole.

During the course of my research, I found four main barriers to opportunities, factors that limited the amount of personal freedom and independence of (young) people in Guajiru and Flecheiras. The first three are very much interrelated; they are: access to income, transportation, and education. The fourth is more complex, and is also both a barrier and a pathway to opportunity; for this reason, it must be discussed separately: it is the event of having and raising children. Children further strengthen existing kinship bonds and are constant sources of joy and enrichment; yet having a child, particularly at a young age, also severely limits personal freedom and ability to pursue things like education, a steady job, or a better quality of life (and the ability to afford a separate home, basic amenities, or transportation to and from work).

Access to money for the purposes of continuing the daily tasks at the *barraca* is the most pressing limitation on the continuation of the project. The restaurant portion of the *barraca* is actually losing money, according to the handwritten and extremely detailed inventory and income books that Gabi keeps in order to monitor the family finances. One probable reason for this profit loss is that anyone who comes to work on any part of the seaweed collecting cycle, for any length of time, eats at the *barraca* for free while they work. Thus, the restaurant exists as much for the collective itself as it does for an alternative source of income. And without a steady, independent source of income, many people depend on communal activities like a shared meal or hitching a ride (*pegar carona*) to and from work or school (rather than paying for a bus or taxi).

This holds true for the *família de algas*; when the whole family needs to go to the *barraca* for the weekend to staff the collective and the restaurant, they often have to pile into an uncle's car, send two people via *moto* (motorcycle), and a third (and sometimes fourth) on the family's one and only bicycle.³⁴ Gorgiana, age 21, also remembers that about ten years ago, the family would have to wait for their father to get home with fish to eat for lunch (when he still worked as a *pescador*) before they could go to school. Often, he would be delayed coming home, and they would miss classes waiting to eat.³⁵

Access to education and transportation overlap constantly in the lives of young people in the beach communities. Elementary school and middle school can be completed in Guajiru, but in order to complete the third and final level of school, students must commute to and from Flecheiras every day by bus. Going to high school also makes it harder for teenagers to work or help their families at home, which stresses the family income even more than the cost of attending school alone. Gorgiana decided to take English classes (which are only offered once a week in Trairi, a 20-30-minute bus ride from Guajiru) to improve her chances of finding a better job.³⁶ But she missed three classes in a row because she couldn't find transportation home. The classes are offered in the evenings so that people who work during the day can still attend, but the busses stop returning to the beach communities after dark, and so the only way to go home is to pay for a taxi, which she couldn't afford. "Right now it's just a waste because I'm paying for the classes even though I can't go," she explains to me one day. "One day I'll take the English classes at the University in Fortaleza, the good ones. But then I would need reliable

³⁴ Field Journal, 6-7. (Events)

³⁵ Field Journal, 27-28. Formal Interview 7 (Gorgiana). 31 May 2012, Guajiru.

³⁶ She currently works as an *empregada domestica*, cleaning the house of a wealthy (foreign) vacation homeowner in Guajiru.

transportation there, too, so who knows. And I have Luiza. I would love to go and learn English in time for the Cup,³⁷ but I can't leave Luiza."³⁸

Luiza is Gorgi's four-year-old daughter. "She is my life," says Gorgiana. "Everything I do—and everything I don't do, or can't do—is for her."³⁹ For this reason, having and caring for children is both a limitation and an inspiration. There are many things that Gorgiana used to do before having a child that she no longer has the opportunity to do, like recreational activities, (She used to surf but says it's too dangerous now, and she doesn't have time), and working at the *barraca* with the family. (Her responsibility now is to work in order to provide for Luiza, send her to school, and help her study; she only goes to the seaweed collective on the weekends when she can bring Luiza with her or when someone is available to watch her.) Getting pregnant at 16 meant that she lost the opportunity to finish out her adolescence. It also meant that the next generation of the *família de algas* was already learning the *nova cultura* of seaweed cultivation and sustainable mariculture. She explains the benefits and the setbacks, and the continuing *tradição das algas*, to me one afternoon after she arrives home from picking Luiza up at school:

When I was pregnant with her, I ate so much seaweed. Plus I was all round, so I was like a turtle! [Laughing] And when she was born, even as a baby, she ate it. Mom always made soft *gelatinas* [deserts] and fruit yogurts from seaweed that Luiza loved. Now she'll snack on them raw like candy. And she'll even eat the salads, if she sees the rest of us doing it anyway. ... But when I first got pregnant—I was the first girl to get pregnant so young around here. I went out on the street once after I had started to show and people stared. They wouldn't stop. One man stopped and said, "Look at that girl, pregnant. She wasn't thinking," like the blame was only on me. After that I didn't go out. ... I stayed in the house for the rest of my pregnancy. I was depressed; I cried all the time. I had my family, but no one else.⁴⁰

³⁷ The Fifa World Cup, 2014, to be hosted by Brazil, and expected to bring flocks of tourists from all over the world to the northeast coast's scenic beach towns.

³⁸ Field Journal, 20. Informal Interview 6 (Gorgiana). 30 May 2012, Guajiru.

³⁹ Field Journal, 28. Formal Interview 7 (Gorgiana). 31 May 2012, Guajiru.

⁴⁰ Field Journal, 28-29. Formal Interview 7 (Gorgiana). 31 May 2012, Guajiru.

It is impossible to understand the multitude of ways that having a child changes someone's life. But in this specific cultural setting, within this environmental movement and this particular family, having children young is very common; it is engrained in the structure of both family and community relations. Gorgiana was one of the first in her generation to become pregnant as a teen, but she says that now, she has several friends that are younger than her but already have three or four children of their own. She mentions that the youngest daughter of the man that stopped her on the street became pregnant a few months after that encounter. "Sometimes I think it was God teaching him to understand," she offers.⁴¹ Her parents are in their early forties with children as old as 24, and her grandparents are in their sixties, so teen pregnancy has been a systematic part of traditional fishing families for generations. It is also important to note that, unlike the other limitations (access to education, steady income, and transportation), having children affects women more than men. This is not to say that fathers, brothers, and uncles are absent from the child-raising practice—in fact in most cases they are very present, positive influences—but rather that children almost always live with their mothers or the extended family on their mother's side, and so the mother ultimately assumes responsibility for her child's daily well-being.

Having multiple generations living together in the same community, (and in many cases in the same house), is an opportunity to pass on cultural values and traditions from an early age, and to ensure the continuation of those values and practices. Luiza's affection for *algas* exemplifies this very positive outcome of raising children at a young age, with the help and support of family members. It also reinforces the existing kinship bonds; having and caring for children is a communal and continual practice shared by all the women (and men, though less

⁴¹ Though I believe that religion (predominately catholic) plays a role in both family and community dynamics, I did not gain enough insight into the cultural value and practice of religion during my research to feel confident including it in this paper, nor do I have the space to discuss it at length.

directly and less often) in the family. Any relative that is not otherwise occupied will be sent to spend time with the children or to watch them while their parents are working. Children keep the family closer together, both physically and emotionally. And since five out of the seven children of the *família de algas* already have children of their own, this family is not likely to separate or leave the communities of Flecheiras and Guajiru, or the seaweed business, anytime soon.

Territory, Identity, and *Sonhos* for the Future

Land loss: the final barrier

Aside from cultural factors that limit family and community relations, there are also factors that help and hinder sustainable community development and social movements in a broader sense. Gláucia, a native of Flecheiras and a current community organizer and former Terramar employee, helped to explain the loss of land, the loss of identity, and the (partial) reclamation of that identity.

Toward the end of the 1990s, the inns and hotels started appearing on our beaches. And we started to have land conflicts because we were used to playing ball, playing other games with friends, all of our free time was spent on the beach. When the *pousadas* arrived, the owners didn't want people to play soccer in front of the *pousada*. They didn't want it to get in the way of the beach access. They wanted to take that beach access away from the *nativos*. There were a lot of conflicts, especially with the fishermen. The owners of the businesses thought the fishing boats, nets, and other equipment was ugly, and somehow disturbing the shoreline. ... One of the most important fishing tools is the knife. And so the fishermen would leave for the boats with a big knife in their hands to work with the fishing nets, and the *donos* of the *pousadas* would call the police and tell them to take the knives away from the fishermen. Lots of conflicts like this happened with the arrival of tourism. ... Then came property speculation, and where there were once dunes and lagoons, there is now a community of displaced fishermen that were once on the beach, but who lost the rights to their land without realizing it.⁴²

⁴² Field Journal, 21. Formal Interview 1 (Gláucia). 19 May 2012, Flecheiras.

While the effects of invasive tourism and land speculation are in many ways a divergence from the themes of this research, they are also inextricably linked to the movement toward environmental awareness and sustainable community development for which the *cultivo de algas* stands. They act as limiting factors by restricting access to the space necessary for practicing a subsistence trade, yet they also act as motivators, as reasons to bring the community together; they help stir up reactions and inspire social change. Gláucia elaborates on this transformation process with an explanation of the early days of the *cultivo*:

By around 2000, our *banco de algas* was completely degraded. Because people would carelessly tear out large portions of seaweed again and again. The *cultivo de algas* brought about change in attitude. Not just for the women of the collective, but for the *população comunitario*—to protect the natural banks, the communal environment, all of it. And today the community is infinitely more aware, more sensitive to the conservation effort. ... The *cultivo* also brought the return of many species of fish, turtles, and shellfish that came back once the natural banks were healthy. It restored a sort of balance to things.⁴³

The “balance” that she sees within both the community and the aquatic ecosystem is perhaps the main objective of the collective. And yet, which continued conflicts over territory, and with an ongoing struggle to maintain cultural traditions, and to adapt to environmental changes in order to create new tradition, the residents of these communities are still a long way from finding balance, or *equilibrio*, in their daily lives. The marked change in understanding concerning the natural reefs shows the process of reinvention and transformation of traditional knowledge and the creation of a new environmental awareness among *nativos*.

In addition to their day-to-day work with the *coletivo*, Marta and Edivan are also part of a larger campaign for land rights for traditional fishing families. They are members of the *Movimento dos Pescadores e Pescadoras Artesanais*, and are supporting the *Campanha*

⁴³ Field Journal, 21. Formal Interview 1 (Gláucia). 19 May 2012, Flecheiras.

Nacional Pela Regularização do Território das Comunidades Tradicionais Pesqueiras,⁴⁴ has the following objectives: to educate *pescadores* about their rights (to land and social and financial benefits), to affirm the *identidade pesqueira artesanal*, to discuss and develop the viability of the artisanal fishing economy, and to reclaim, regulate, and protect coastal fishing territory to ensure the survival of the practice. These goals are in line with many other social movements in Brazil, most notably with *MST (Movimento dos Trabalhadores Sem Terra [Landless Workers' Movement])*. Marta and Edivan discuss the movements as being interrelated in many ways. Their *bandeira* is a blue (aquatic) version of *MST*'s depiction of the outline of Brazil with two rural workers, tools in hand—only in the case of the *pescadores*, they are holding fish and fishing knives.⁴⁵ As for the motivations of the movement, Marta explains:

The changes in the environment here are already affecting this community. In many ways, losing our land is the same as losing our identity as a traditional fishing community. As a traditional family. We have been to two conferences in the past in Brasilia, and one is coming up next week. The fishermen always go to the conferences, but often they vote on things that they don't fully understand. There is a certain intimidation problem, too. They just sit quietly with their arms crossed because they don't understand the language that the government officials are using, or they don't understand what their role is in the greater process. But this is our *luta* and we need to be organized and educated and show that we have an opinion. That is why we are not flying there and staying in a fancy hotel. We are going by bus; we are cooking our own food; we are staying in camps in solidarity with our friends at *MST*. To do anything else would be contrary to the movement itself.⁴⁶

To sit quietly, arms crossed, while your rights are taken away from you might again appear to be a sign of apathy, even surrender. Yet the reality for these groups, which travel long distances to represent coastal fishing communities, is one of shock and, as Marta puts it, “intimidation.”

Without the access to resources for specific education and training, and with an entirely different (but no less complex or valuable) set of skills and cultural knowledge, these groups of fishermen

⁴⁴ Artisanal Fishermen/women's Movement of Brazil; National Campaign for the Regulation of Traditional Fishing Territory

⁴⁵ Field Journal, 18. Informal Interview 4 (Edivan). 18 May 2012, Flecheiras.

⁴⁶ Field Journal, 17. Informal Interview 4 (Edivan, with Marta). 18 May 2012, Flecheiras.

and -women are not prepared to enter into a dialogue with government officials. As a result, they lose both their traditional territory and their traditional identity in the process, and must once again return to the coast to adapt and find new ways, new technologies with which to craft a remade, reclaimed, but still “traditional” identity.

Reclamation of territory as a means for reclaiming and reinventing a coastal fishing identity is arguably the heart of both the broader fishermen’s movement and the more grounded, day-to-day struggles of the men and women of the *coletivo das algas*. Marta and Edivan’s family has been a part of this movement to reclaim territory on both a micro and a macro level. They spend time at the *barraca* caring for the seaweed and for the physical space because if they don’t, they expect that someone, (likely an *extrangeiro*, *turista*, or *gringo*—a foreigner), will come in and take it from them. They have no deed the land, nor to the portion of the ocean where the *algas* are grown; it is understood and respected by the community as space set aside for the collective. The doors are always open to anyone who would like to help, and the *familia das algas* hopes that, in time, more families will return to the work they started together, and which continues to survive, if slowly, without them.

Back to the barraca: the future of algas

The family knows that they will not always be able to be at the *barraca* every day. Things will have to start changing, and fast. The parents hope to move the restaurant location back to their home in Guajiru, where it was before the *barraca* was constructed. They dream of adding on a few rooms to their house to accommodate for the ever-increasing volume of tourists passing through their long-isolated community, and of cooking for all of their friends and

family—catering to the *nativos* and running a business for the sake of *turismo comunitario*.⁴⁷

Their children have other plans; the girls want to transform that same space in the Guajiru house into a salon/store where they can sell *artesanatos*, *cosméticos*, and provide basic spa services.

The boys identify less with the territory of the home; they are eager to move away, to find work in Fortaleza, to play soccer in São Paulo, or to learn English in Trairi. But if even one of these *sonhos* for the future comes true, what will that mean for the *coletivo das algas*?

The work that Terramar has done over the years to monitor the original *projeto de algas* has shown that, as Marta and Edivan thought, just by keeping the *barraca* open, they are making a difference. The land is extremely valuable for development purposes, but at least for now, their presence is respected enough by local and foreign investors that all attempts to purchase the land out from under their control, (there have been three attempts so far), have failed.⁴⁸ They need to increase involvement, because the only way to make a profit off of the operation is to either produce and export a much larger amount of seaweed for sale as raw material for industry, or to process and sell the seaweed products (*cosméticos*, *algas secas*, *gel*, etc.) that have a much higher monetary value, but which take more time, and more skills, to make.

Marta and Edivan expect involvement to bounce back, with time. “For now, we are here at the *barraca*,” says Edivan:

But ‘here’ is a communal space. We care for it, but the doors are always open for others to work, too. There’s plenty of space, they just need to have courage. To be hardworking. I go to meetings. I go to Fortaleza to get documents or to send documents. I care for things here. Get fish, clean fish, get seaweed, clean seaweed. Yet people pass by and see us lounging in the hammocks in the shade and think this is all we do.⁴⁹

Marta chimes in, in agreement, “They say, ‘Edivan’s got the good life! At the beach all day, with plenty of money in his pocket. Just selling seaweed and relaxing!’ but really we are in it for more

⁴⁷ Field Journal, 24. Formal Interview 6 (Edivan and Marta). 31 May 2012, Flecheiras.

⁴⁸ Field Journal, 29. Formal Interview 8 (Jefferson). 06 June 2012, Fortaleza, Ceará.

⁴⁹ Field Journal, 24-25. Formal Interview 6 (Edivan and Marta). 31 May 2012, Flecheiras.

than all that. We are here for the *luta*.” And fought they have—after more than ten years, they are running this community organization precisely the way they want to run it. Despite the varied obstacles to opportunity and to the continuation of the movement, they are still there, visiting and caring for the *algas*—and cooking lunch, every Friday through Sunday.

Conclusion

Sustainable community development projects that are beneficial to both the social community—of individuals, families, and organizations—and to the environmental community—the coastal ecosystem and the other natural processes it affects—are extremely rare. The formation and continuation of a collective seaweed cultivation project is, for this reason alone, a unique and exciting area of study. The history of both the physical location of the project, and of the relations between families and governing or supporting organizations, is helpful for understanding the way social/environmental movements are forming, struggling, and developing in Brazil. The complex familial and individual relations—within this project and its isolated coastal location, and based on gender, access to opportunity, and generational divides—are evidence for the inseparable links between community development, environmental changes, and the persistence of individual and group identities. Yet the specific circumstances, successes, and setbacks of this movement show that, ultimately, cultural identity is flexible, adaptable, and resilient in the face of rapid socio-environmental change.

While it is true that people can never exist without affecting the environment in some way, this project (and the family that pioneered it and now sustains it) exemplifies an alternative form of subsistence living that causes fewer negative impacts on the coastal ecosystem and

supports relatively equal and communal labor practices. Women within this movement have played valuable, and well-valued, roles as both caretakers and active participants in the cycle of seaweed production, collection and (re)cultivation. The process as a whole supports the need for identification and interaction with the environment; it emphasizes compassion and awareness over ignorance.

During my brief period of research, it became apparent that one of the greatest setbacks with this and other social-environmental movements in Brazil (and other parts of the world) is the lack of *entendimento*, (or knowledge and understanding), on the part of governing and supporting organizations—about the reality of the daily lives and the specific cultural skills of the community in which the project is actually taking place. This is an area in need of further research, and one that could significantly affect how projects like this operate in the future.

For the *família de algas*, this dialogue with overarching organizations is essential to the continuation of their work. Their varied, overlapping, and unique entrepreneurial strategies—which combine artisanal craftwork and cosmetics with international exports and a local restaurant business—is also essential to the success, or at least the sustainability, of the seaweed collective. If they lose one component of the operation, be it a source of income, a step in the collection cycle, or a member of the family that chooses another form of work, the rest of the collective process will suffer. In this way, this family and their work represent a sustainable lifestyle that doesn't just exist within a community, but which is a vital, well-functioning, and ever-adapting community in itself.

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Finally, to the communities of Guajiru and Flecheiras—to the people, the organizations, the changing land- and seascapes, and to my (third and fourth) homes—one house, one *barraca*: thank you for allowing me to begin to understand your history, your community and your *sonhos* for the future. To the *família de algas*: thank you for your unending patience, kindness, and thank you also for your stories. (I treasure these, so much so that I would rather conclude this paper with your words than with my own.)

*E*ra um velho que era muito sábio. Ai, um jovem muito estudado, tinha uma certa ciúmeira, né. Não gostava que o velho era tão inteligente. Ai ele disse, “Eu ainda vou pegar aquele velho um dia, e sabe se ele era inteligente mesmo. Ai ele pegou um passarinho, bem pequenininho, e colocou os pés desse passarinho dentro dos dedos. Foi escondido atrás dele quando estava lá conversando e ele chegou lá e disse assim, “O velho! Dizem que você é muito sábio. Me diga agora o que e que eu tenho aqui na mão.” E o velho disse, “É um passarinho.” E ele disse assim, “Viva ou morto?” E o velho respondeu para ele, “Ele está nas suas mãos.”



*T*here once was an old man who was very wise. One day, a well-studied young man came along who became jealous. He didn't like the idea that the old man was so smart. And so he said, “One day I'll get that old man and find out if he is as smart as me.” And so the young man got a tiny bird and held the bird's feet between his fingers. He hid it behind his back while he waited for the man who was there talking, and he said “Old man! They say that you are very wise. Tell me right now what I have here in my hand.” And the old man said, “It is a little bird.” And he said, “Living or dead?” And the old man responded, “It is in your hands.”

—*Pedro Edivan dos Santos Viana, on the future*

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Glossary

<i>Algas (marinhas)</i>	Seaweed
<i>ArtAlgas</i>	Small store (<i>lojinha</i>) operated out of Marta and Edivan's house
<i>Associação dos Produtores/as de Algas de Flecheiras e Guajiru (APAFG)</i>	Association of Seaweed Producers
<i>Associação dos Pescadores/as do Município de Trairi (APESMUT)</i>	Fishermen's Association for the Municipality of Trairi
<i>Barraca (das Algas) (Centro Ambiental de Algas)</i>	Seaweed Environmental Center
<i>Bancos naturais</i>	Natural algae banks, or coastal reefs
<i>Campanha Nacional Pela Regularização do Território das Comunidades Tradicionais Pesqueiras</i>	National Campaign for the Regulation of Traditional Fishing Territory
<i>Casa</i>	House
<i>Catadores de algas/lodo</i>	Seaweed/muck collectors
<i>Coletivo</i>	Collective
<i>Coqueiro</i>	Coconut-producing palm tree
<i>Cozinheiro/a</i>	Cook
<i>Cuida</i>	Care
<i>Cultura Tradicional</i>	Traditional Culture
<i>Cultivo</i>	Cultivation
<i>Ciclo de coleta</i>	Collection Cycle (in reference to seaweed cultivation)
<i>Dono/a</i>	Owner; boss

<i>Equilíbrio</i>	Balance
<i>Família de algas</i>	Seaweed Family (in reference to the family of Marta and Edivan)
<i>Fechada</i>	Closed; closed-off
<i>Flecheiras</i>	Beach community on Brazil's northeast coast. Location of the <i>barraca das algas</i>
<i>Guajiru</i>	Beach community neighboring Flecheiras. Location of homestay and research base.
<i>Guardado</i>	Guarded; closed-off
<i>Identidade pesqueira artesanal</i>	Artisanal fishing identity
<i>IDER (Instituto de Desenvolvimento Sustentável e Energias Renováveis)</i>	Sustainable Development and Renewable Energy Institute (Supporter of <i>Projeto Algas</i> and supplier of solar energy technology)
<i>Instituto Terramar</i>	Non-profit, non-governmental organization founded in 1993 with a focus on human development and socio-environmental sustainability in the coastal communities of Ceará
<i>Kite</i>	Kite-surfing
<i>Líderes Comunitários</i>	Community leaders
<i>Mar</i>	Ocean; sea
<i>Movimento dos Pescadores e Pescadoras Artesanais</i>	Artisanal Fishermen's Movement
<i>Movimento dos Trabalhadores Sem Terra (MST)</i>	Landless Workers' Movement
<i>Nativo</i>	Local; native
<i>Nova Cultura</i>	New culture (in reference to the newly-established tradition of seaweed cultivation)
<i>Paquete</i>	Small boat (used to for fishing and to collect seaweed)
<i>Pegar a carona</i>	Hitch a ride

<i>Pescadores artesanais/tradicionais</i>	Artisanal or traditional fishermen (self-identified term)
<i>Posto de Saúde</i>	Health post
<i>Pousada</i>	Inn
<i>Povo(s) do Mar</i>	People(s) of the Sea (self-identified term)
<i>Proteção</i>	Protection
<i>Quintal</i>	Backyard; grounds
<i>Secador</i>	Dryer (in reference to the solar-powered seaweed dryer at the <i>barraca</i>)
<i>Serra</i>	Mountains (type of land/territory)
<i>Sertão</i>	Desert (type of land/territory)
<i>Tarefa/Trabalho</i>	Task/Work; job
<i>Trabalho coletivo/comunitario</i>	Collective/community work

Appendix

1. Could you have done this project in the USA? What data or sources were unique to the culture in which you did the project?

I could have studied coastal environmental and social changes in the United States, but I could not have done this specific project in another location. The community and the people involved in the project were essential to my specific research question and findings.

2. Could you have done any part of it in the USA? Would the results have been different? How?

The results of a study done entirely in the United States would be different because of a multitude of cultural variations, including but not limited to language, geography, and traditional/historical customs.

3. Did the process of doing the ISP modify your learning style? How was this different from your previous style and approaches to learning?

This project provided me with the opportunity to do fieldwork for the first time. I was able to incorporate my own academic background into a new and exciting methodology.

4. How much of the final monograph is primary data? How much is from secondary sources?

It is almost entirely based on primary data (ethnographic interviews and observations). Previous research and theoretical background is also included.

5. What criteria did you use to evaluate your data for inclusion in the final monograph? Or how did you decide to exclude certain data?

I only included data that I could both understand in Portuguese and corroborate with lived experience or observations. I excluded data that had an unclear translation or that included personal information that my informants did not want to be made public.

6. How did the "drop-offs" or field exercises contribute to the process and completion of the ISP?

Their primary function was to help me get used to interviewing informally, with little preparation, and in a new environment—essentially, to think on my feet.

7. What part of the FSS most significantly influenced the ISP process?

The community project was a great way to practice interviewing and begin to think about themes for this and future projects.

8. What were the principal problems you encountered while doing the ISP? Were you able to resolve these and how?

I regret not having more time to fully transcribe interviews in English and Portuguese. I resolved this for the time being by only including data which I fully transcribed, understood, and was able to translate into English without losing the original meaning.

9. Did you experience any time constraints? How could these have been resolved?

Had I had access to internet or a workspace while in the field, I could have gotten more transcriptions and research done. But I would not have traded my field experience for more time on the written work; I only wish I had more time for both writing and researching.

10. Did your original topic change and evolve as you discovered or did not discover new and different resources? Did the resources available modify or determine the topic?

My topic evolved based on the perspectives and testimonies of my key informants. The background literature remained relevant, and I added detail to my original topic idea once I began observing and participating in the culture.

11. How did you go about finding resources: institutions, interviewees, publications, etc.?

My advisors in Fortaleza and in the United States helped me find background resources. I also conducted my own online searches and spoke with organizations that were involved with the community and/or the project I was studying.

12. What method(s) did you use? How did you decide to use such method(s)?

I relied heavily on the ethnosemantic method. As an Anthropology major, I had a background in ethnographic interviewing, and I expanded my methods to accommodate my specific project and research location.

13. Comment on your relations with your advisor: indispensable? Occasionally helpful? Not very helpful? At what point was he/she most helpful? Were there cultural differences, which influenced your relationship? A different understanding of educational processes and goals? Was working with the advisor instructional?

Extremely helpful, when we were able to find the time to meet. Distance made that difficult, but he was able to give me a lot of the background information that helped me to enter into the field with ideas and potential research topics. This saved a lot of time, overall.

14. Did you reach any dead ends? Hypotheses which turned out to be not useful? Interviews or visits that had no application?

Often interviews fall through, meetings are missed, or plans change. But this didn't affect my research in the long run.

15. What insights did you gain into the culture as a result of doing the ISP, which you might not otherwise have gained?

I gained a wide range of knowledge via my interviews with my informants, only a portion of which I have actually explored in this paper. The structure of the community is rapidly changing, and there are many environmental and social factors at work during this period of transformation or "development."

16. Did the ISP process assist your adjustment to the culture? Integration?

I think my homestay in Fortaleza prepared me most for adjusting into life with a new family and a new community, and that the ISP process helped me specifically to prepare for the academic side of fieldwork.

17. What were the principal lessons you learned from the ISP process?

I learned that interviews allow you to learn a lot of information in a very short amount of time, but that lived experience, observation, and participation in a culture or a community, and building rapport with the people that live there, are also valid research methods. These methods aren't as affected by your foreign language abilities, either.

18. If you met a future student who wanted to do this same project, what would be your recommendations to him/her?

I would recommend this community and this topic for further study. I would recommend that he/she practice Portuguese as much as possible so as to not be hindered by a lack of

understanding. Cultural misunderstandings can already be to manage, so having a good grasp of the language is essential for conducting research in this area.

19. Given what you know now, would you undertake this, or a similar project again?

Absolutely. I hope to return to continue my research as soon as possible.