

THE ROLE OF WOMEN IN THE SOCIAL AND ECOLOGICAL RESILIENCE OF  
SAN FELIPE'S FISHERIES

by

LISA AVIGDOR LIGUORI

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## **Abstract**

This thesis focuses on the success achieved by a newly formed women's fishing cooperative in San Felipe, Yucatán, in Mexico. Examining the ways in which this cooperative has been able to identify and embrace new opportunities and find creative solutions to problems reveals that much of their success stems from a capacity to break and continuously remake local rules, wherein a dynamic balance of attention between social and ecological factors is achieved. In this case, long traditions of local resource management, self-enforcement, and personal interpretation of the rules have allowed for a blending of tradition and change-tolerant resilience. In recent years, women's participation in both fishing and conservation has been a catalyst for social change within their port.

This ethnographic study provides insight into how women in San Felipe have become central to decisions affecting resource management. In diverse areas such as the octopus fishery, mangrove conservation, and the social policing of outsiders in the community, fisherwomen's informal influence is often as powerful as decisions made by official institutions. In some cases, the very nature of fisherwomen's unobtrusive rule breaking and subtle enforcement allows them to push boundaries in ways that would not be tolerated otherwise. As a result, constant negotiations of power and subtle testing of social rules have allowed fisherwomen to blur traditional boundaries of gender, race, and class, allowing them access to opportunities from which they would normally be excluded.

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## Acknowledgements

When I met San Felipe's first fisherwoman, she told me that she was terrified of public speaking and that she would prefer to have an encounter with a crocodile than be chosen to give a presentation. Before I arrived, she was overcome with panic while teaching school children how to identify different species of mangroves. However, only four months later, she accepted an invitation to speak on a live radio show in the state capital. I asked her what convinced her to change mind and she just she smiled and said, "I remembered to thank the appropriate people." I want to do the same.

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## Chapter One: Overview and Summary

### 1.1 Area of Study: San Felipe, Yucatán

Located on the northeastern tip of the Yucatán peninsula in Mexico, San Felipe is a coastal community with strong fishing traditions across many generations (Figure 1). Before Spanish conquistadors founded and renamed this port in 1853, the beach was known as *Actam Chuleb* (Instituto Nacional para el Federalismo y Desarrollo Municipal, 2002). These Mayan words mean “the place where water birds come to drink” (Chuenpagdee, 2002).

San Felipe’s population is approximately 1,455: 726 men and 729 women (INEGI, 2000 as cited by Gavaldón and Berdugo, 2004). About 80% of the population directly uses fisheries resources (Gavaldón and Berdugo, 2004). Fishing ranges from small-scale coastal fishing using non-motorized boats with hook and line or nets to larger-scale off-shore trawling in the Gulf of Mexico. Lobster, octopus, and grouper fishing contributes considerably to the local economy. The fishers<sup>1</sup> of San Felipe are particularly well known for their skills in diving, as lobster fishing has been practiced here longer than is the case for other communities in the region. Fishers dive for lobsters, grouper, and octopus while breathing air through a long hose, which is attached to a compressor onboard a boat (Salas *et al.*, 2003).

In the 1970s, fishermen from San Felipe formed a cooperative. Preceding state or federal regulations, members set their own size limits as well as closures for lobster and octopus fishing in San Felipe. In addition, they created their own marine reserve, originally referred to as the “area for the bad times.” Later, when the municipality officially recognized this community reserve, it became known as *Actam Chuleb*. The pressure on San Felipe’s coastal resources is ever increasing, both from within the community (with numbers rising from 330 fishers in 1999 to 426 in 2001), and from neighboring communities (Chuenpagdee *et al.*, 2002). Fishers in San Felipe, whether they are members of the long-standing cooperative or not, tend to comply with the self-enforced rules within the reserve (Chuenpagdee *et al.*, 2002). The cooperative now consists of 230 male members (Gavaldón and Berdugo, 2004), while other fishers belong to small fishing associations or fish independently.

One of these small organizations is a group of thirteen women who recently formed their own cooperative, setting themselves apart from women in nearby ports where fishing is an exclusively male activity. This cooperative, called the *Mujeres Trabajadoras del Mar*, or Women Workers of the Sea, has received international recognition for its success in the emerging spider crab fishery and its conservation initiatives. Women have begun to fish for other species in addition to the spider crab (used as bait during octopus season);

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<sup>1</sup> Throughout this thesis, ‘fishers’ refers to people who fish for a living. For clarity, ‘fishermen’ is used to describe members of the men’s fishing cooperative. ‘Fisherwomen’ refers to members of the women’s fishing cooperative. Locally, fisherwomen often refer to themselves as ‘*pescadores*’ (masculine) instead of ‘*pescadoras*’ (feminine).

some women also venture away from coastal areas to fish in waters up to 5 fathoms deep, a depth that some locals consider the “high seas” (Gavaldón and Berdugo, 2004).

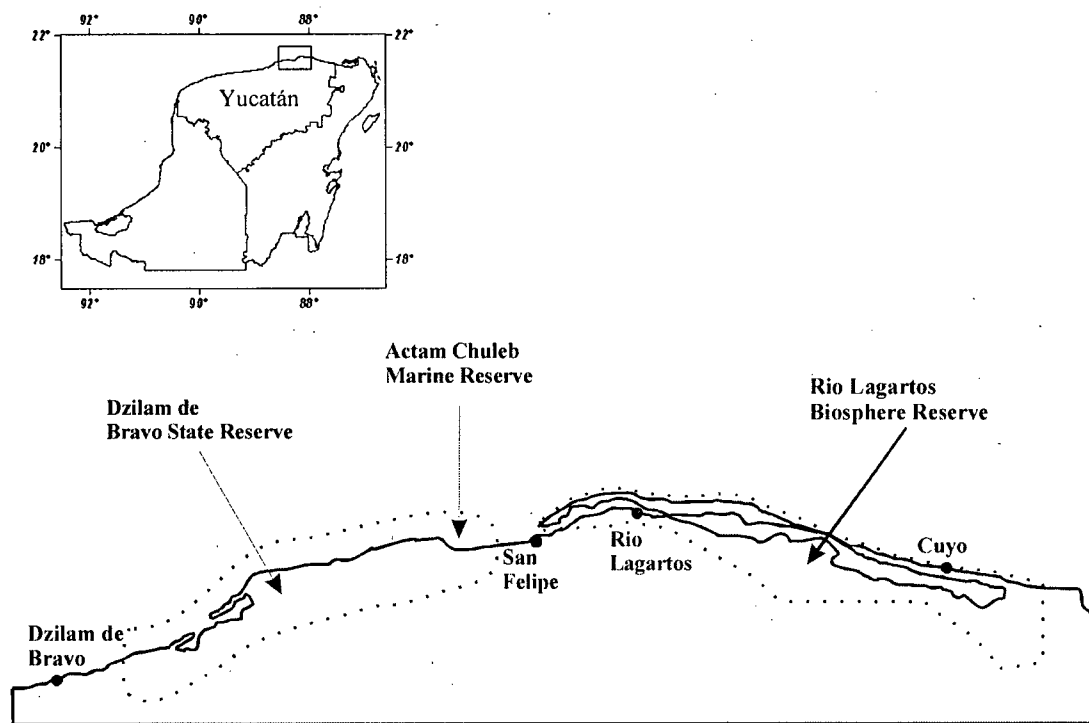


Figure 1. Map of San Felipe showing Actam Chuleb, the community marine reserve (Chuenpagdee *et al.*, 2002.)

## 1.2 Study Focus

This study focuses on the success achieved by a newly formed women’s fishing cooperative in San Felipe. Examining the ways in which this cooperative has been able to identify and embrace new opportunities and find innovative solutions to problems reveals that much of their success comes not from conscientiously following the rules, but from a capacity to break and continuously remake local rules, wherein a dynamic balance of attention between social and ecological factors is achieved. Specifically, knowledge of local ecosystems has allowed women to gain access to coastal resources in a region where women do not traditionally fish for a living. This allowed innovative individuals to take advantage of new opportunities created by shifting global markets. Long traditions of local resource management and personal interpretation/enforcement of the rules has allowed for a blending of tradition and change-tolerant resilience.

Success, as defined by cooperative members, requires personal needs to be met without jeopardizing the greater good of the community. In this thesis, fisherwomen’s success is discussed in terms of social and ecological resilience. Resilience “reflects the degree to which a complex adaptive system is capable of self-organization... and the degree to



which the system can build capacity for learning and adaptation” (Adger *et al.*, 2005). According to Adger (2005), “the concept of resilience is a profound shift in traditional perspectives, which attempt to control changes in systems that are assumed to be stable, to a more realistic viewpoint aimed at sustaining and enhancing the capacity of social-ecological systems to adapt to uncertainty and surprise.” This concept is particularly useful in this study because it is similar to the ways in which local people in San Felipe describe success. Studies of resilience focus not only on how livelihoods and healthy ecosystems are sustained, but also on how systems are enhanced for the future. Similarly, instead of discussing sustainable livelihoods or fisheries, fisherwomen describe their goals in terms of change and progress, often using the phrase “*salir para adelante*.” This means “to move out; to move forward.” This expression helps us to understand that new opportunities related to both fishing and conservation require women to step outside conventional roles. Constant negotiations of power and subtle testing of social rules have allowed women to transgress traditional boundaries of gender, race, and class.

For many fisherwomen, participation in the spider crab fishery marks the beginning, not the final outcome, of their changing roles in resource use and management. While most reports refer to the women’s organization as “the women’s fishing cooperative,” the name they chose reflects larger aspirations. The “Women Workers of the Sea” seek far greater opportunities than their current participation in a seasonal bait fishery can offer. This thesis describes how women’s participation in fishing and conservation has become a catalyst for social change in San Felipe, blurring traditional roles and categories such as men versus women, scientific experts versus local participants, and even indigenous versus non-indigenous people.

Although women are generally absent from formal decision-making arenas in Latin America (Sundberg, 2003), women’s participation in fishing in San Felipe fuels the desire to have their voices heard in resource management. Silvia Salas explains:

Similar to other developing communities, San Felipe community is going through a constant process of social transformation. Women, in particular the emerging fisherwomen, play many important roles in the society, and their demands for participation in management and decision-making have increased. (Salas *et al.*, 2003)

This thesis reveals that women have become central to decisions affecting resource management in San Felipe. Although the well-established men’s fishing cooperative makes most official resource management decisions in this port, the influence women exert through informal channels can be as powerful as formal decisions made by official institutions. In the case of San Felipe, this influence has resulted in new possibilities, both socially and ecologically.

Chapter two describes the emerging spider crab, or maxquil, fishery. Women’s new access to coastal resources has allowed them to negotiate flexible gender roles within the family, to achieve a new degree of financial independence, and to earn growing levels of prestige, both in San Felipe and in the eyes of the global conservation community. This

chapter links the emergence of the spider crab fishery, which has served as a catalyst to a variety of local social changes within the port, with changes in regional and world systems (Kottak, 1999). By exploring how rules are 'self-enforced' in this non-traditional fishery, chapter two considers how members balance individual goals with the responsibility they feel for the collective good of the community. This chapter examines how needs are met through daily negotiations of power, focusing on how fisherwomen's informal, often undercover, participation in resource management contributes to both the ecological and social resilience of octopus/spider crab season. The experiences of Carmen Castillo Mendoza<sup>2</sup>, the first woman to fish for a living in San Felipe, illustrate the power of daily interactions in enforcing and challenging unwritten rules.

Chapter three focuses on a mangrove reforestation project initiated by the *Mujeres Trabajadoras del Mar*. This chapter describes how shifting balances of power and clashing values made this project meaningful to participants in different ways, while shaping local knowledge of mangrove ecosystems. Fisherwomen's interest in reforesting an ecologically important juvenile refuge illustrates another example of their contribution to the ecological resilience of San Felipe's fisheries. According to many locals, ecological resilience depends on human contributions to 'help nature to do a difficult job.' In addition, because this project was designed to provide an alternative livelihood during the low fishing season and because much interest stemmed from members' plans for a future eco-tourism project, their objectives included social as well as ecological aspects of conservation.

Cooperative members, accustomed to teaching themselves and devising their own methods as they do in their fishery, often took scientific advice as a suggestion, not a straightforward rule of reforestation. Their success in this project was largely related to their ability to challenge scientific assumptions and alter a strict methodology that did not address their concerns. The revised methodology, producing improved ecological outcomes, reflected local experience, scientific methods, and personal environmental values. Chapter three focuses on interactions between cooperative members and their project biologist in order to understand how and why project rules were enforced, challenged, and ultimately, changed. Subtle negotiations of power enabled project participants to acknowledge multiple forms of expertise and to address incompatible environmental values.

In addition to fisherwomen's participation in resource management in both the maxquíl fishery and the mangrove reforestation project, chapter four suggests that women played a major role in the social and ecological resilience of San Felipe's fisheries long before many began to use coastal resources or to identify themselves as fishers. This chapter takes a step back, spatially and temporally, to explore how traditional rules of social exclusion may have contributed to local people's ability to protect their resources during a critical period of the Yucatán's socio-political history. The homogeneity of a community, a characteristic that is commonly associated with success in local resource management, can be the product of informal unwritten rules linked to both race and gender. In this case, positive environmental consequences can come at the expense of

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<sup>2</sup> The names appearing throughout this thesis have been changed.

more complicated social ones. This chapter reveals that we cannot understand choices made by 'the community' without exploring both the socio-political history of the region and the daily decisions made by individuals. Like previous chapters, chapter four suggests that resilient fisheries depend on local people's ability to personally interpret, enforce, and challenge customary rules of resource use.

Overall, this thesis illustrates the connection that the *Mujeres Trabajadoras del Mar* perceive between environmental and social responsibility within their port. Carmen Castillo Mendoza's reinterpretation of a vocabulary word she studied during the mangrove reforestation project reveals how local knowledge is personal, dynamic, and embedded in daily life. In Carmen's interpretation of the *ecosistema*, the Spanish word for ecosystem, the prefix "eco," meaning "echo" in Spanish, refers to the actual echoes of social and ecological consequences. Carmen discusses how this idea applies to conflicts that arise within the cooperative:

What they do not realize is that everything is connected. Everything and everyone. Jorge the biologist will tell you, all things are connected, both living and dead. This is called an echosystem because of the echoes that you hear from every interaction. You do something here but it will echo over there. By hurting your partners, your business associates [members of the cooperative], you are hurting the whole group; you are hurting everyone in the whole port. It's bad. It's wrong.

Carmen uses this concept of the 'echosystem' to call attention to the larger consequences of making too many selfish choices. This network of social and environmental connections, named by Carmen but understood by many, helps to explain how individuals understand their entitlement to break rules as long as their individual needs do not jeopardize the collective good of the community. For example, while Carmen consistently breaks conventional rules in situations described in each of the three chapters (redefining access to coastal resources, changing conservation project methodologies, and challenging gender roles and local social norms), she and most cooperative members will not accept behavior which suggests that an individual is placing too much attention on personal goals and forgetting his or her duty to the greater good of the port.

### **1.3 Contribution to the Literature**

Recently, fisheries researchers have been pushing for a focus on small-scale fisheries, protecting local livelihoods and ecosystems, and promoting community involvement in management (Chuenpagdee and Liguori, 2005). The common property literature is singularly important for its challenge to 'inevitable' resource degradation in group-owned/managed natural resources in the developing world (Bromley and Cernea, 1989). Before Ostrom's work, and the work of others such as McKay, Berkes, Acheson, and Lansing, the existing institutions that establish and enforce rules for local resource use were largely invisible to policy makers and scientists (Brogden, 2003). Ostrom stresses that local users have more knowledge of their resources as well as the benefit of more

effective options for monitoring. This literature has been used to promote decentralization of resource management and self-governed institutions and has led to extensive research on co-management and community-based management (Berkes, 1994; Jentoft and McCay, 1995).

According to the “critical enabling conditions for sustainability of the commons” compiled by Agrawal from studies conducted by Ostrom, Wade, and Baland and Platteau, group characteristics include: small in size, clearly defined boundaries, shared norms, past successful experiences, social capital, appropriate leadership (young and familiar with changing external environments; connected to local traditional elite), interdependence among group members; heterogeneity of endowments but homogeneity of identities and interests, and low levels of poverty (Agrawal, 2001). San Felipe, a place known for its strong history of local resource management, fits well the common property “rules for success.”

This important body of work has contributed in particular to a better understanding of what constitutes successful local institutions. However, the list of key factors for sustainability, informally known among researchers as “the rules for success,” cannot fully explain how individuals in a community balance their individual interests with their duties to contribute to, not undermine, the collective good. As Dietz (2005) suggests, where individuals fall along the scope of egoism and altruism is dynamic, not static. In San Felipe, individuals who make sacrifices for the good of their port also feel entitled to break local rules for personal profit.

This thesis contributes to the existing literature in three main ways. Firstly, the common property literature’s focus on “community,” necessary for compiling and comparing lists of key factors for success, fails to capture the smallest-scale interactions between individuals. Studies informed by surveys, questionnaires, workshops, and structured interviews can overlook the subtle and dynamic hierarchies of power that exist among groups that appear to be (a) homogeneous and (b) operating by explicit, not implicit, rules for commons’ governance. This study illustrates the importance of the subtle, daily, and mostly normative ways in which rules regarding resource use are upheld, enforced, challenged, and altered so as to respond to emerging pressures and opportunities.

Secondly, while focusing much-needed attention on local factors, fisheries researchers often do not consider the bigger picture, including the intersection of global and local factors or the socio-political history of the region. As Agrawal (2001) asserts, recent scholarship about the commons does not pay significant attention to external social factors. The literature does not sufficiently acknowledge how local situations “are often created in conjunction with the external and nonlocal environment” (Agrawal, 2001). This thesis examines how local level changes (e.g. women’s participation in fishing, changing values regarding local mangroves, and new perspectives on indigenous identities) are linked to nonlocal influences including adjacent fisheries and population pressures, visiting scientists, and NGO support.

Thirdly, scholars have criticized ecological anthropologists for their romantic preoccupation with “stability rather than change and simple systems rather than complex ones” (Kottak, 1999). Similar criticisms also surface when small-scale fishing communities are portrayed as timeless, isolated, traditional, and ecologically noble (Liguori *et al.*, 2005). Superficially, San Felipe may appear to represent a stable and simple system. It is not difficult to imagine San Felipe as a small-scale utopia set in Yucatecan paradise. A mural on the wall rallies local people to maintain San Felipe’s reputation as the cleanest municipality in the Yucatán. Crime, violence, and poverty are not endemic to this port. The community marine reserve created by the fishermen’s cooperative is likely the first of its kind in the region. However, this study reveals that San Felipe’s success in resource management should not be imagined as static ‘sustainability’ created by following strict rules over time. Cooperative members constantly stress that their goals require them “to move out; to move forward.” As Menzies suggests, we cannot “ignore the dynamic nature of ecological knowledge and its link to wider socio-economic processes” (Menzies, In Press). In the case of the women’s cooperative, success stems from resilience, expressed here as members’ capacity to adjust customary rules to emerging pressures and opportunities in their own lives.

#### **1.4 Methodology**

The primary component of the research methodology relies on ethnographic research methods including participant observation and interviews. Interviews, both structured and unstructured, were conducted with members of the women’s cooperative, their families, and the 5 most recent researchers (biologists, economists, and anthropologists) who have worked in San Felipe. In addition, cooperative members completed a questionnaire designed to give them the opportunity to address key topics anonymously.

After an initial one-week visit to San Felipe in February, 2004, I spent 2.5 months between August and October living in the home of a key informant, Carmen Castillo Mendoza. During this time, I participated as completely as possible in the fishery during the night and the mangrove reforestation project during the day. Observations focused on interactions not only among women as they fished or participated in meetings with other cooperative members, but also during meetings with biologists. Because I was invited to live in the home of San Felipe’s first fisherwoman and participate in the fishery during the height of the spider crab and octopus season, this opportunity facilitated a deeper level of communication as well as a more thorough understanding of the interactions I observed.

Sundberg (2004) presents the research and writing practice called ‘identities-in-the-making’ as a way to analyze how social identities are constructed and how “the daily discourses, practices and performances of conservation projects are instrumental in mapping ways of life that are gendered....” This practice focuses on the ways in which informal social constraints are enforced and challenged during everyday interactions, which is particularly useful in this study. By framing interactions as sites of “encounter and action,” subtle negotiations of power become more obvious (Sundberg, 2004).

In order to participate in the night fishery, I joined groups of 3 to 6 women on their motorboat rides to fishing locations. When we arrived, each member then used her own smaller, motorless boat maneuvered by a push pole. Typically, I would stand in the back of the boat used by Carmen, or one of her daughters, and fish with her from nightfall until dawn. Informal discussions during these periods, at times lasting 10 hours, allowed us to cover topics that would not normally emerge during a formal tape-recorded interview. My participation also meant that every time I joined a cooperative member in her boat, I made her work 125 pounds more difficult.

In October, 2004, I attended the first COASTFISH Small-Scale Fisheries conference in Mérida, Yucatán. The eight members of the women's cooperative who accompanied me there also co-authored and presented a poster at this conference. Members had the opportunity to discuss issues that mattered to them with international scientists, including keynote speakers. The president of the *Mujeres Trabajadoras del Mar* spoke on a fishers panel on behalf of the group. Afterward, conference organizers planned a post-conference field trip to visit San Felipe, which presented an unprecedented opportunity for observation and interviews. It also provided the chance for cooperative members to observe and discuss outsiders' reactions to San Felipe. This allowed me to gain insight into cooperative members' perspectives on the vulnerabilities associated with the transition from experiencing local success to being represented as an international model of sustainability.

In May, 2005, I returned to the Yucatán to present a paper at the Canadian Anthropology Society conference in Mérida. On this third visit to San Felipe, I discussed preliminary results of this study with cooperative members. According to their wishes, the section examining a new fishery that emerged for the first time during my stay in San Felipe does not appear in this thesis. Because there was never a market for this species before 2004 and the rules regarding its harvest are ambiguous, members requested that this information remain unpublished. Therefore, instead of presenting a written analysis here, I held a one-day workshop in San Felipe during which members discussed their observations, opinions, and concerns regarding past and future management and changing markets.

Finally, an informal method that contributed to the success of this study deserves brief mention. With the aid of funding provided by a conservation education NGO, I distributed disposable waterproof cameras to the members of the women's cooperative. The photographs revealed important aspects of their port and their lives. Reviewing these pictures during interviews broadened the topics covered in our discussions and offered insight into individual members' personal adaptations to the mangrove reforestation methodology. In addition, this side-project had the unexpected effect of leveling the balance of power between researcher and local people. The idea for this project came about during my first visit when the cooperative's president, a woman my own age, said, "Ah, so you have come to study us some more." Women who were accustomed to being on the other side of the lens took pictures of me in the same way that visitors so often take pictures of them. As we laughed about the candid shots of me looking less-than-

professional, the tone of our discussions changed markedly from formal discussions to more informal and informative conversations.

This methodology was necessarily a flexible and adaptable one. In addition to unforeseen events such as a hurricane evacuation, everyday life during peak fishing season is hectic and unpredictable. The results of this study are strengthened by the fact that a flexible methodology allowed me to focus on key events occurring while I was living in San Felipe. For example, had the mangrove reforestation project technician not arrived days after my own arrival, my participation in, and therefore, my perspective on, this project may have been drastically different. In addition, daily life during the low fishing season is completely different than during the high fishing season, largely due to greater financial constraints and fewer time constraints. While this study focuses on life in San Felipe during the peak octopus/spider crab season, the opportunity to visit the port on three occasions allows me to present a more realistic picture.

## Chapter Two

### Holes in the Net: Making and Breaking Rules in an Emerging Fishery

#### 2.1 Introduction

It could be argued that San Felipe presents a case in which ecologically sustainable fisheries coincide with social justice. In part, this is made possible by San Felipe's long history of local resource management. Because there is not a clear line separating enforcers from fishers, there is no obvious dichotomy dividing rule-makers and rule-breakers. In effect, few people can afford to care only about the environment, ignoring the need for livelihoods, or vice versa. It is important to understand that the success achieved by these fishers is the outcome of ongoing, often-subtle efforts to maintain a working balance of needs and responsibilities. In San Felipe, fisherwomen sell bait harvested during the nocturnal spider crab, *Libinia dubia*, fishery. Fishermen purchase this bait at dawn for use in the octopus, *Octopus maya* and *O. vulgaris*, fishery. Octopus/spider crab season could be observed as a simple system in which actors more-or-less passively fulfill their roles achieving mutual benefits. However, these fisheries actually illustrate a complicated web of social, environmental, economic, and political limitations and opportunities. Both formal and informal rules for resource use exist, yet there are a myriad of unspoken rules to justify when these rules can be broken, and how, and by whom.

San Felipe is often presented as an exemplary case of local management because of the rules they have created and enforced. The original fishermen's cooperative has taken responsibility for resource management since their organization was formed in the 1970s. They set their own minimum size limits for lobster, designated closed seasons both for octopus and lobster, and even created their own marine reserve, possibly first of its kind in the region (Chuenpagdee *et al.*, 2002). This marine reserve is actually part of a larger state reserve; members of the fishermen's cooperative have maintained and protected this smaller reserve within the larger one since 1988 because they recognized that the area, an important nursery ground for juvenile lobster, was not sufficiently protected by official authorities. Reports note that fishers in San Felipe, regardless of whether they are members of the long-standing cooperative or not, tend to comply with the self-enforced rules within the reserve. Studies suggest that environmental awareness and ethics may contribute to their behavior (Chuenpagdee *et al.*, 2002). However, attention to the local regulations that promote ecological sustainability of San Felipe's fisheries does not necessarily help us to understand how social needs are met or how power is negotiated.

This chapter, which explores how rules are "self-enforced," is not meant to discredit local management in any way but instead to illustrate that rules are flexible and dynamic; they are constantly being re-made. Studies concentrating on cooperation, environmental awareness, and participation in management (all highly valued in the common property literature), may miss the importance of other motivators of San Felipe's success and overlook creative solutions in an emerging fishery. Because rules are personally



interpreted and enforced in San Felipe, a resilient and adaptable system contributes to balancing livelihood and ecosystem concerns.

Small-scale fisheries researchers from across the Yucatán peninsula informally refer to the places and spaces in which rules are broken as “holes in the net” (Taller: Impactos del Huracán Isidoro, February, 2004). They refer to the situations in which rule-breakers pass by unnoticed, or slip through the fingers of enforcement agencies. This expression is interesting in the sense that holes are not actually flaws in any fishing net; they are an integral part of its makeup. This metaphor inadvertently helps us to recognize that, while rarely acknowledged by natural scientists or policy makers, rule-breaking can be a fundamental part of the structure that holds everything together. How people understand and make decisions regarding rules and limitations to fishing (knots) and the opportunities to avoid them (holes) offers insight into how people in San Felipe have managed to maintain a balance, providing for human needs while simultaneously protecting their coastal resources.

The first part of this chapter explores the emergence of the spider crab, or maxquil, fishery in San Felipe and describes the opportunities and constraints that have shaped this non-traditional fishery. The second part of this chapter explores the ways in which fisherwomen balance personal goals with their responsibility to act in the best interest of the port. Further, it examines how members of the women’s cooperative make and uphold their own rules regarding acceptable social behavior. Values shape how individuals personally interpret and enforce rules within the port.

## **2.2 Opportunities and Constraints in an Emerging Fishery**

### **Emergence of a Fishery**

The recent success of the women’s cooperative illustrates an emerging fishery born out of opportunity. However, the first woman to fish maxquil for a living spent nights alone on the water in a motorless boat due to necessity. Widowed at age 23 with three children to care for, Carmen Castillo Mendoza found herself with limited options. She was able to provide for her family because of the fishing skills she learned working with her father since she was a child. Before he developed the maxquil fishery and designed the gear, maxquil was not typically used as bait for octopus. His innovations allowed Carmen to work in this nocturnal fishery and still care for her children during the day. She learned that gender roles could be negotiated and that societal rules did not apply to her. She became the first women to fish for a living in the region (Fraga, pers. com., 2004).

Carmen, being the oldest child, learned to fish by age eight. When her father would leave for weeks at a time to go shark fishing in a larger port, she was left with the burden of knowing that the money her mother earned by washing and ironing soldiers’ clothing would not be enough. The tin of animal crackers her father left behind for her brothers and sisters rarely lasted until his return. During the storm season, older boys made bets daring Carmen to swim out to the buoys in rough weather. By age thirteen, she learned to

prepare daily for the challenges. Carmen would brave the choppy waters earning 10 pesos at a time, enough to buy milk, coffee, sugar and cookies for her six younger siblings. She learned at a young age to turn limitations into opportunities.

When Carmen was 12 years old, her father would take her to fishing spots and leave her to swim and dive for octopus and lobster on her own. Exhausted after a full day's work, Carmen would still have to make her way home in a small boat using only a pole to push herself back to port. Often, fishermen returning to port after a day on the water would offer to tie her boat to theirs and pull her home. One of the first times Carmen accepted the invitation, the man told her to climb into his boat and immediately grabbed her. By the time she realized that he intended to rape her, he had overpowered her. Carmen recalls calculating her chances: as an exhausted 12 year old, the odds were not in her favor. She convinced the man to motor towards a nearby beach, promising to cooperate. Instead, when he released her, she sliced his forearm so deeply with a knife she held behind her back that he was forced to return to port immediately for medical attention. Situations such as this were not obscure events in Carmen's childhood; instead, these were everyday realities for a young woman alone on the water. In Carmen's situation, many who offered to help were harmless and, when currents were strong, she knew that accepting a ride would save her hours of painful labor. Carmen learned that some risks are necessary in order to survive and to succeed in life. As a result, over thirty years later, multiple men in San Felipe still bear scars across their arms from Carmen's knife.

Through her teenage years, Carmen hid her hair in a hat to disguise her gender while she fished. She came to be known as the port's original fisherwoman, but her participation in this traditionally male activity was viewed as abnormal (Fraga, pers. comm., 2004). Although Carmen's disregard for social norms both inspired and offended people in the community, she earned respect within the port. After she married, she continued to fish to provide for her children. At seven months pregnant, Carmen's oldest daughter stood behind her through the night, arms wrapped around her waist to support the weight of her belly as she pushed her boat through the water with her pole.

### **Shifting Markets**

In San Felipe, two methods are used to capture octopus. Diving for octopus is often the most profitable method, but fishing with *jimbas* requires less investment in expensive gear and is also lucrative. In this method, one fisher on a small boat manipulates many fishing lines like a marionette. On one end, each line is attached to one of two long bamboo poles, extending over the water from the front and the back of the boat. A whole maxquil is tied to other end of each line. When an octopus sees a maxquil underwater and attaches to it, a skilled fisher can carefully pull it out of the water, leaving the maxquil bait intact for re-use. In the 1990s, octopus stocks crashed in Northern Africa, which caused the market to skyrocket in the Yucatán (Fraga, pers. comm., 2004). As octopus prices increased, fishermen could afford to buy more bait and a lucrative market quickly emerged for the maxquil. Although Carmen knew nothing of octopus stocks in Africa, she was pregnant with her fourth child and she knew that she needed help in order to meet the demands of San Felipe's fishermen. Sofia Flores Medina joined Carmen and her

daughters in the fishery and soon they were teaching other women in the port. Carmen's experience and her willingness to teach others coincided with shifting markets, allowing this work to become profitable for many women. Their success translated to increased income for their families and economic gain for the port as a whole.

During octopus season, women work at night, influenced by both the ecological and social aspects of the fishery. Nighttime is optimal for harvesting maxquil, and, while men rest for octopus fishing (a necessarily daytime activity), their bait is freshly harvested by dawn. The season in which maxquil is useful coincides with the four-month-long, highly-regulated octopus season; for the remainder of the year, maxquil are neither harvested nor sold. According to Julia Fraga, "Men were hesitant to allow their wives to participate in this fishery. But, according to one man, the profits quickly changed their minds. He said, 'Now, the sun goes down and I'm already getting her buckets ready for her!'" (Fraga, pers. comm., 2004). Fisherwomen's non-traditional work became not only tolerable to the port's fishermen, but also very valuable. The complementary nature of the two fisheries has allowed women to negotiate flexible gender roles within the family, power and prestige within the community, as well as a greater degree of economic independence (Gavaldón and Berdugo, 2004). As Susana Vargas Renato explains, "When someone asks me what I do I say: I fish. I am a fisher. And I am so proud to say it. I fish! I feel something inside me when I tell people that."

Between July and January, women who fish in San Felipe spend 50% of their time working on the water and 35% in domestic labor and community duties. In contrast, during the same season, men spend 40% of their time fishing and 10% involved in domestic duties (which consists of child care while women prepare to go fishing) (Gavaldón and Berdugo, 2004). However, women are still not officially recognized as fishers by the government. Due to an interesting loophole, the maxquil crab is not listed as a commercial species: it is described in official documents as a community resource not to be sold outside the port (Gavaldón and Berdugo, 2004). This detail prevents women from being officially registered as "fisherwomen," making them ineligible for subsidies or other government assistance (such as the funds made available to repair gear after Hurricane Isidoro).

The majority of women in the *Mujeres Trabajadoras del Mar* and their families have health insurance, a benefit their husbands receive as members of San Felipe's men's cooperative. However, because Carmen's second husband was not a member, when he died, Carmen was left alone again to provide for her family. "I'm not going to lie to you," she said, "Sometimes when I was alone I would sit and cry, feeling so angry and desperate about my situation." At one point, when an injury and infection left her unable to walk, doctors considered amputating her leg. She remembers:

I said to myself, "If they cut off my leg, I'll get into my boat and, with one leg, I'll find a stone and tie a rope around it and jump in the water and die. But then who would take care of my children? So I thought again, "If they cut off my leg, I'll get into my boat and, with one leg, I'll... I'll fish".

That's how the mind works, you know? You have to think constantly, "What am I going to do now?"

Carmen's experiences have taught her to prepare constantly for the future.

Carmen continues to teach her daughters that opportunity does not come to those who are not prepared for it. For example, during maxquil season in 2004, market demand arose for another species that was previously not utilized as bait. Members of the *Mujeres Trabajadoras del Mar* were prepared with local knowledge of the ecosystem, skills in nocturnal fishing, and reputations for being reliable and hardworking fishers. Carmen's daughter, Eva Rivera Castillo, immediately invested part of her savings in a new bulb with higher wattage for her headlamp. Anticipating increasing demands for bait, others soon followed her example. With brighter lights, members could see camouflaged creatures more clearly underwater; less strain on their eyes allowed them to focus for more hours at a time and to fish more efficiently. Eva and her husband then invented a switch attached to her baseball cap which allowed her to turn the light on and off without disconnecting the wires. This innovation allowed her to conserve her battery, using energy only when necessary. Soon, other members were placing orders with Eva to have switches installed in their hats. In addition to her ability to anticipate opportunity, Eva's preparation, creativity, and hard work made the season successful. By late October, she was able to purchase her first washing machine.

The emergence of the women's fishing cooperative illustrates how local changes "are often created in conjunction with the external and nonlocal environment" (Agrawal, 2001). Market changes created a window of opportunity, which allowed women to transgress traditional boundaries and gain access to coastal resources. This social change was possible because several individuals' quick and innovative responses allowed them to use shifting global markets to their advantage, ultimately creating a fishery that continues to benefit the whole community.

### **Competition and Cooperation**

In 2004, the *Mujeres Trabajadoras del Mar* divided into two groups to ease conflicts among members. Carmen and Sofia, both highly experienced leaders with access to motorboats, were designated *jefas del grupo*, or group bosses. Both leaders agreed on a set price for maxquil in order to avoid direct competition between the groups. As they have in years past, they began the season with a low price per kilo, increasing it throughout the season to parallel fishermen's increasing profits as octopus prices climb. In Carmen's group, fishermen personally place orders at her eldest daughter's house each evening depending on their individual needs.

Working as part of a group presents both opportunities and limitations for individual fisherwomen. For Carmen, someone who has worked her whole life as an independent fisher, great challenges come with being a member of this cooperative. She has taken on the responsibility of not only making certain she can harvest enough to satisfy the bait demands of the fishermen, as she has always done, but now she is also responsible for

finding spots that can provide enough maxquil for the four or five women she transports. She is partly responsible for their livelihoods and must be patient with the women who are new to fishing; she worries more than she'd like to about the three members who never learned to swim. The members of the cooperative who have more experience, and generally have spare gear to rent, benefit from the few pesos they earn by sharing their equipment. Each woman who does not own her own gear must rent a battery from another member, pay for the daily charging, and contribute money to cover the cost of fuel. However, collaboration can also be costly. More experienced members often harvest less for themselves because they feel responsible for others. Waiting for late arrivals, choosing fishing spots that can accommodate a group, and inevitable conflicts within and between groups all ultimately limit harvest.

It would seem that the cooperative's division would further limit their ability to harvest efficiently. Instead, competition often contributes to their success. Each member knows that if she were to rest instead of fishing on any given evening, her group might not complete their order and clients could deem the other group more reliable in the future. In addition, members pressure each other to maintain high standards for the product they deliver to the group for sale. When very small maxquil find their way into the bucket, fishermen call them *llaveros*, or key chains. Fishermen cannot use the smallest maxquil and, by selling them, each group risks losing clients to the other group. Although no size limits exist in the maxquil fishery, the stigma attached to selling *llaveros* is a powerful incentive to cull one's catch before they are weighed for sale. A second level of 'quality control' also exists after an individual fisherwoman counts her crabs. Carmen's eldest daughter sorts her group's entire catch and generally releases juveniles crabs each morning, making a note to subtract a certain number of *llaveros* from the responsible member's profit. Even on nights when the groups are in danger of not meeting their order, the biggest of the small crabs are sorted and sold and the smallest "key chains" are generally released. Eva Rivera Castillo explains that it is in no one's best interest to harvest juvenile maxquil: "It is important that our product is a good quality product. We fish good maxquil." Environmental concerns are important, but, at times, less so than maintaining the reputation of one's group and fulfilling one's responsibility to clients. Competition within and between groups contributes to the *Mujeres Trabajadoras del Mar*'s reputation as reliable providers of high quality product.

However, the changes that began to take place in the first few months after the cooperative's division were noticeable to everyone. Before, one would commonly hear direct invitations such as, "Over here! Come this direction, there are many crabs in the sandy patches." This sentiment soon became encoded in other phrases: "Can you bring the knife over here? I forgot mine at home," or "Come over here and share your water with me." In addition, each group began fishing earlier in order to prevent the others from taking the best locations. The tension did not go unnoticed on nights when as many as 13 individual lights could be seen making circles in a certain area, each member pushing her boat with a pole, taking care to avoid the others and making very little conversation.

The central question in theories of cooperation explores the conditions under which cooperation can emerge, despite immediate payoffs that encourage defection (Brogden,

2003). However, in this case, it is not immediate payoffs, but instead long-term future opportunities, that discourage defection. As several members of the women's cooperative stress, their determination to stick together despite bitter fighting, confusion, and personal and professional differences has more to do with the future than either the past or the present. While the members of the women's cooperative have been involved in long-term working relationships, their loyalty (to a group some insist is falling apart on a daily basis) is not always based on trust or cooperation. Instead, members have the ability to see the potential opportunities that come with working together; they see that the future benefits far outweigh the daily drama. Members recognize that benefits coming from outside the community (from NGOs, researchers, and tourists) will more accessible to an organized group of female nocturnal fishers. "The projects" is the almost unanimous answer when members are asked why they do not consider leaving the group even when they are feeling furious and frustrated. When asked what it would take to make members of the cooperative stop fighting and cooperate, they laugh. "We would have to stop being who we are," said Carmen Castillo Mendoza. "We would have to stop being humans," agreed Eva Rivera Castillo. Through conflicts that would have caused another group to dissolve, this cooperative continues to accomplish their goals. They teach us that success is not always pretty and that cooperation can have little to do with consensus.

## **2.3 Unwritten Rules of Resource Management**

### **Holes in the Net**

Participating in a non-traditional fishery means that fisherwomen have the flexibility to make their own rules, build their own gear, and set their own schedules. Much of their success is related to the responsibility individuals feel to do the best work possible in every situation; members often do not wait for permission from higher authorities before taking action. The following example reveals how several fisherwomen, who have become experts at turning limitations into opportunities, made independent decisions to change the rules when they recognized the unlikelihood of success in a project designed by outside scientists and NGOs.

The *Mujeres Trabajadoras del Mar*'s aquaculture project was designed to maintain maxquil in captivity for sale throughout the octopus season. The project failed for a variety of reasons and several members said they preferred to abandon the project rather than continue with the conflicts it had caused. One local man who has worked closely with the women's cooperative blamed the technician who was sent to oversee this project. Because 'Aquaculture' falls under the branch of 'Agriculture' in the regional government system, the technician arrived completely unprepared for the task. According to Enrique Gonzalez, "The technician chose a net that deteriorated in water!" The president of the *Mujeres Trabajadoras del Mar*, however, has a different memory of the project's collapse. In her opinion, the project was poorly designed from start: too many crabs were piled into an area in which the water became very warm during the low tide. In addition, there was no plan designating how much or how often the crabs in the pen should be fed. In the end, however, the crabs did not last in captivity; many were

allegedly stolen before they could be sold. Rumors circulated that even members of *Mujeres Trabajadoras del Mar*, recognizing the doomed nature of the project, took it upon themselves to utilize the crabs before they were taken by others or died. Once distrust spread through the group, speculation caused bitter fighting and aggravated old conflicts. "But as for the nets deteriorating in water," Isabel Rivera Castillo mused, "There is a different story there." She explains:

We often had to fix the nets, to re-sew the places where crabs were escaping. But we soon realized that we were fixing and fixing and too many crabs were missing to truly be escaping through those holes. They were being taken. We noticed, during all those times patching the net, that the material on the aquaculture project was just perfect for our *jamos*, the nets we use to catch maxquil. We each started taking small pieces of the net for our own *jamos*. We started with small pieces. And anyways, it was *our* project, after all. There were too many problems. Too many fights.... But the holes in the net? Some are there because we put them there.

Breaking the project rules allowed members to salvage unexpected benefits from a completely unsuccessful project. Individuals decided that they each had more to gain by destroying the net and utilizing the materials independently than by mending the net and continuing with a project that was damaging their cooperative as a whole.

### **Enforcing Social Rules**

Although the failed aquaculture project illustrates how individuals act in their own best interests and abandon activities that do not serve their needs, members of the cooperative also actively monitor the group for behavior that is considered selfish. Cooperative members use social pressure to punish each other, and others, for socially irresponsible behavior. The following encounter illustrates how individuals influence the behavior of others through informal and creative "punishments."

On one occasion, three members of the cooperative set out with Carmen in her motorboat, pulling behind them three smaller boats which would later be used by each of the women to fish maxquil. Carmen posed a question over the hum of the motor, "If this boat started to sink, what would you do? Rosario? Quick! Don't think. What would you do? Susana? Fast! What would you do? Hurry! We are sinking here: what do we do?" Carmen's questions served to remind less experienced fisherwomen that "the mind must always be working, even when the body is resting." Rosario and Susana, laughing at the pop quiz, suggested swimming to shore or screaming for help. Carmen smiled at them both, shaking her head, and reminded the group that they were tied to three fully buoyant smaller boats.

When they reached the fishing spot that Carmen selected, each woman climbed into her little boat and loaded her own gear: a push pole, a spoon shaped net used to harvest each crab individually, a bucket, a car battery, and a baseball cap with a lamp bulb bolted to the front. The women connected their homemade headlamps to their batteries and began

to spread out in different directions. Each woman kept track of the others, always recognizing the lights belonging to members of Carmen's group. When Carmen, her daughter, and I motored off in her larger boat to a different location, we could never have anticipated the irony of that evening's pop quiz.

That night, when a distant light flashed incessantly in Carmen's direction, she appeared not to notice anything out of the ordinary. As time passed and one flashing light became two, Eva urged her mother to take notice. Carmen explained that she could not baby-sit all night and still expect to catch the quantity of maxquil ordered by the fishermen for tomorrow. Tonight, they had a large order to fill and Carmen refused to be interrupted.

The others resorted to shouting for attention and Carmen learned that Susana's borrowed boat had sprung a leak. Susana was overcome with panic. When bailing frantically with a plastic 2-liter Coca-Cola bottle produced no results, she then attempted to burn the plastic over the hole to seal the leak. "I'm sinking!" she cried through her tears, begging Carmen to motor over to her and take her home to port. She offered money to cover the cost of gasoline. Rosario, by her side in her own little boat, vouched that the leak could not be stopped.

Carmen, however, had little patience for the hysteria. She reminded the women that their boats were floating in water not even up their knees. Why not push the leaky boat to shallow water nearby, tie it to a push pole stuck in the mud to mark the spot, let it sink, and return tomorrow to retrieve it? Carmen suggested that, if Susana boarded Rosario's boat, the two of them could work together and split the profits. According to Carmen, nearly an hour's ride back to port would be an unnecessary waste of everyone's time and money. More importantly, they would never harvest enough maxquil to complete the order. If they were even two kilograms short (approximately 20 crabs), one fisherman would lose an entire day of fishing due to their inability to provide the bait he ordered. Carmen's voice cracked in frustration as she reminded the group that not a single person with her that evening had remembered to contribute money for gasoline; the tank held barely enough to return home. If they made the trip at this point, the night's work would be over for everyone.

However, Susana's sobs in the distance soon became too much for Carmen to bear. Behind her stoic expression, she had become nauseous and upset. The motor revved suddenly and the shocked women climbed aboard and headed home. On the ride home that night, Susana's tears returned when she realized that she would be blamed for the poor catch of their entire group. To everyone's surprise, Carmen spoke to her gently, "Calm down. We'll tell everyone that there was an accident with one of our members and there was a crocodile involved. That will get them talking! Everything will be fine," she said.

Special circumstances such as this force Carmen to choose between social responsibilities that normally coincide: both the fishermen and the fisherwomen depend on her decisions. Carmen initially prioritized providing bait to the fishermen over comforting a member of her group, yet something changed her mind. Carmen later explained that hearing the



others whispering "ambitious" and "selfish" in the darkness made her completely lose her focus; her determination to complete the order was quickly overcome. In daily conversation, to describe a woman as *ambiciosa* is an insult, suggesting that she is greedy, or concerned only about herself. Hard work and the drive to improve one's life is no cause for reproach in San Felipe. In fact, the word *conformista* has equally negative connotations: complacent, conformist, and lacking desire to improve life for one's children. However, when an individual crosses the unclear line into ambition, guilt provoked by gossip makes the offender think twice. The fact that these whispers affected Carmen, a stubborn and strong-willed individual, illustrates the power of informal social pressure.

Susana's wishes were respected and Carmen made special efforts to shield her from blame. However, the next morning, Carmen resolved to "punish" her. She told Susana that she would not take her to fishing spots in her motorboat for three days. The lesson to learn was that each person must think on her own and take care of herself. "I am not punishing you because I am bad. One day I won't be out there with you ..." she told Susana quietly. In addition, when Carmen explained both the punishment and the offense to Susana, she asked that Susana reconsider the ungrateful comments she had made the night before. On this occasion, Carmen was chastised for behavior that was considered too ambitious. Susana was punished for weakness and for gossiping about her group leader. This example illustrates how the roles of enforcer and offender are not fixed; any cooperative member is vulnerable to being reproached by any other member when her actions are considered socially irresponsible.

Carmen also considers herself authorized to "punish" members of the men's cooperative when their behavior is unacceptable. The responsibility Carmen feels for the women who make their livelihoods during this season, in addition to pride and a sense of entitlement, motivate her to take part in a scheme to remind the fishermen in San Felipe that they, too, have a responsibility to the women who work in this fishery.

Occasionally, before the octopus season starts, maxquil are so abundant that Carmen hears rumors about fishermen who are planning to collect their own maxquil instead of paying the prices asked by the *Mujeres Trabajadoras del Mar*. Carmen cannot tolerate this behavior, which she considers to be selfish and inappropriate, because the fishermen know better than anyone how much the fisherwomen depend on sales to make their livings. Carmen's solution is a creative one. Before the octopus season opens and there is no use for maxquil in San Felipe, she spends several nights alone on the water fishing and fishing. She sells maxquil undercover to contacts she has made in Mérida, the capital city, to a business equipped with freezers. The low price and the risks involved are not important to Carmen. Her goal is to fish maxquil so that the overabundance is less noticeable, thus preventing the men from imagining that collecting their own bait would be easier. There are very few secrets in San Felipe and Carmen's pre-season strategy serves as a deliberate and reproachful reminder to the fishermen: We are depending on you. Do not forget that you also depend on us.

Carmen's actions, possibly the furthest thing from rational choices or profit-maximizing behavior, remind us that there is nothing simple about the balance achieved in a successful fishery. According to Carmen, one can never rest; one must always be thinking about what could happen next. Her reputation within the community commands respect, even when her actions would not normally be tolerated. Carmen's connections to businesses outside San Felipe give her the power to stage this kind of personal protest and her skill produces noticeable results. Carmen considers it not only her right but also her duty to warn fishermen when they show potential for selfish decision-making. These incidents demonstrate on a very small scale how the success of the maxquil fishery is influenced by a complicated and dynamic web of relationships and responsibilities. In this fishery, social factors can be as influential as environmental and market factors.

### **The Good of the Port**

Carmen's strict expectations for San Felipe's fishermen parallel the expectations she has for herself. In fact, many members of the *Mujeres Trabajadoras del Mar* describe their duty to be responsible for the common good of their community, even when it affects their profits. Often, women and men both remark happily when an afternoon is very breezy. This inevitably limits the women's ability to harvest because each crab must be spotted and captured individually; breezy nights cause a rippling on the water's surface that makes camouflaged maxquil nearly impossible to see. However, windy days present optimal conditions for those fishing octopus with *jimbas*. Breeze causes the maxquil tied to the line to move realistically through the water, making it more attractive to octopus. On numerous occasions, I was scolded for complaining about wind. "Wind may make things more difficult for us, but we need it," Rosario Solis Carvahal explained. "Breeze is good for catching octopus and that is good for San Felipe." The "us" and the "we" in her statement refer to split loyalties: her own profit and the greater good of the community. The importance of balancing personal profit and community gain is reinforced further for women whose husbands fish octopus for a living. This same sense of duty motivates members of the women's cooperative to work nearly every night during the season, even when exhausted, ill, or in pain. Several of the women complain of losing their eyesight from the strain of focusing long hours in the dark (Gavaldón and Berdugo, 2004); nearly all mention their forgetfulness and difficulty concentrating, most likely due to fatigue and sleep deprivation.

Many times, even when other opportunities presented themselves, cooperative members honored their commitment to provide bait. For example, when a workshop to learn the craft of making items out of fish skin was offered in another town, four members went to represent the cooperative. The crafts, designed to be sold to tourists in the future, symbolized an important opportunity for the *Mujeres Trabajadoras del Mar*. A program put forth by the state government provided all the workshop materials, food, and lodging. However, the women insisted on returning to San Felipe each night because of their responsibility to fish. The remaining members of the cooperative ultimately supported their decision and contributed the money necessary for the extra travel each day. Members tend to agree: one must be ready to embrace new opportunities but not at the expense of current commitments. Similarly, even though Carmen herself knows how to

dive for octopus and could earn a similar amount of money in a few early morning hours as she does fishing all night for maxquil, she does not choose this option, which would allow her less physical strain, less stress, and more time with her family. Over and over, Carmen and her group refer to their responsibility to fill the orders for the people who are depending on them. In this sense, a successful maxquil and octopus season has more to do with respect and responsibility than either regulations or environmental ethics. Because of this, many cooperative members believe they are entitled to certain flexibilities in the rules governing coastal resources.

### **Daily Participation in Management**

It is important to stress that this fishery requiring low technology and seemingly simple roles (women fish at night, men utilize bait during the day) is a complex system that works because of countless strategic conversations, negotiations, and purposeful actions that would never be noticed by an outsider. Women's informal participation in resource management is very effective. On the surface, it seems that San Felipe's local politicians and the influential fishermen's cooperative make the rules and fisherwomen respect them. In actuality, fisherwomen make their own exemptions to rules they feel entitled to break.

As described earlier in this chapter, maxquil is officially designated as a community resource. This federal listing exists not as a conservation measure but instead because, until recently, maxquil has been commercially useless. The law, supported by the municipal government, means that maxquil cannot be sold outside San Felipe. Because of the octopus fishery's enormous contribution to the local economy, municipal leaders are careful that the benefits of the maxquil remain within the community. One night, a few hours before dawn, three women spoke in low voices as we unloaded sacks of live maxquil at the dock. When a refrigerated truck seemed to appear out of nowhere, one fisherwoman directed it down a small, dark street. She explained, "We have to be careful. The president of San Felipe takes very good care of the maxquil." This undercover sale of maxquil was surprising to me initially because it seemed to contradict cooperative members' wholehearted concern for the good of the port.

This occasional deviation from local rules is rationalized because, due to a myriad of constraints, cooperative members are rarely able to harvest more maxquil than San Felipe's fishermen require. Selling to outside contacts provides additional income while allowing the *Mujeres Trabajadoras del Mar* to maintain affordable bait prices for San Felipe's fishermen. In this instance, group leaders feel more responsibility to provide for their families and for less-experienced fisherwomen in each group than to conserve maxquil for use strictly within the municipality. Both group leaders' experience provides access to business networks outside the port and some members' influential husbands and home telephones also contribute to rapport with outside businesses. These connections provide an undercover opportunity for both groups to sell extra maxquil at a fee well above the price they set within San Felipe.

As the above example suggests, rules apply differently to different people at different times. Rule breaking in such a small port is never truly "secret;" instead, actions that push

the limits of local rules suggest how women negotiate power within the community without directly challenging those in positions of authority. The following example also suggests how rules and punishments depend on the perpetrator.

According to Salas, San Felipe's marine reserve is "patrolled at night by a group of hired vigilantes, particularly to keep fishers out of the reserve, [and] high fines are charged if found in the area" (Salas *et al.*, 2003). Locals are well aware of the strict punishments for illegal fishing within the reserve: a 200 dollar fine, the confiscation of gear, and repossession of the fishing vessel for repeat offenders. Several years ago, the current caused Miguel Brito Correa's brand new net to drift such that the edge moved past the reserve's white marker. Even as a prominent member of the men's cooperative, his unintentional offense was not excused. Thousands of dollars in gear were confiscated by the cooperative. Currently, the only form of fishing allowed in the reserve is hook-and-line subsistence fishing. In a survey conducted in 2001, however, respondents listed harvest of maxquil as an activity that should be allowed in the reserve (Chuenpagdee *et al.*, 2004).

Even after all the nights I spent on the water with the women's cooperative, squinting to find crabs under the spotlight, it wasn't until an visitor pointed out the obvious that I realized how much freedom the women actually have to personally interpret local rules. On many of the nights, as thirteen individual spotlights moved in slow circles through shallow water, we were fishing in the middle of the reserve.

According to Salas, fisherwomen's demands for participation in management can "potentially increase the existing disparity between fishers and other community members, as it adds another user group whose preferences may differ from the existing groups" (Salas *et al.*, 2003). While this is true, seeking formal participation in local management may not always be necessary. In this case, fisherwomen are already informally negotiating exemptions and adapting rules to accommodate their changing needs. This day-to-day 'participation in management' is powerful specifically because it is subtle and often overlooked.

To my surprise, locals in San Felipe did not regard women's transgression of the reserve's boundary as problematic. According to one fisherman, the reserve is important specifically because, aside from providing a refuge for juvenile lobster, it creates a place where women and elderly fishermen can work to provide for their families. By "elderly fishermen," this informant refers to Carmen's father who developed the fishery and continues to spend his nights alone on the water. According to locals, fisherwomen's occasional harvest from the reserve does not affect species of great commercial importance because they target maxquil instead of lobster or grouper. As a result, their disregard for rules is not perceived as threatening but instead beneficial to the community in subtle ways.

Therefore, when survey responses indicated that maxquil harvest should be allowed within the reserve, this did not suggest that the women's cooperative planned to officially challenge established rules. This would not have been necessary. Addressing their

concerns in official venues would be time-consuming, less likely to produce desirable results, and could potentially cause conflicts within the port. Instead, because of their personal connections to members of the men's fishing cooperative (their husbands, sons, and brothers), fisherwomen do not see a need for official permission to break local rules when they are acting in the best interest of the community. Fisherwomen's informal participation in management allows them to balance their own needs with their responsibilities on a daily, case-by-case basis.

Understanding the dynamism of decision-making and the subtle exceptions to local rules in San Felipe is crucial when attempting co-management. For example, Salas expresses her concern that researchers' support of the *Actam Chuleb* reserve may lead to its designation as a Special Area within the Dzilam de Bravo State Reserve. On paper, this would represent a great success for co-management because San Felipe's dedication to protecting the reserve has not been officially recognized outside the municipality. The fishermen's cooperative has no legal authority to fine or confiscate gear from fishermen from other communities who are caught fishing within the reserve (Salas, pers. comm., 2004). This kind of official designation could fix the area as a no-take zone with set boundaries and rules. However, the community did not originally intend to create a no-take reserve in this "area for the bad times," as its original name suggests. A 'special area' designation would mean that the community and the men's cooperative would have much less flexibility with which to respond to both changing environmental and social factors (Salas, pers. comm., 2004).

### **Untangling Ethics**

As fisherwomen's informal permission to fish within the reserve suggests, environmental ethics cannot be clearly separated from social responsibility in San Felipe. Daily life in San Felipe revolves around fishing. The children's game of tag is instead known as "fish" and toddlers taunting each other into a chase don't yell "catch me" but rather, "fish me!" Boys and girls play school and store and house in little boats that have been beached for repair. When asked why the fishers of San Felipe have been able to protect their resources from over-exploitation and degradation, why they have continued to maintain a marine reserve they created in 1988, and why they consider themselves so different from neighboring communities, Diego Menendez Aguilar did not hesitate to answer. He pointed one finger down towards his two-year-old son seated next to him in the boat. Diego explained, "When I was little, I went fishing and I was taught that I could fish and fish and fish. And with everything that I could catch for the rest of my life, I would never run out of fish. But, I was taught, then my sons and daughters would never know them."

When I described this interaction to a Mexican biologist, I interpreted Diego's index finger pointing down at his son to mean "the future":

**Lisa:** And it is amazing how he just gestured so matter-of-factly down towards his toddler. To symbolize the future.

**Biologist:** The family.

**Lisa:** Yes, for the future.

**Biologist:** For the *family*.

Puzzled by her adamant reaction, I later realized the difference in our interpretations. I had been impressed with this young fisherman's version of environmental ethics familiar to conservationists trained in the United States or Canada. I noted his appreciation of the intrinsic value of coastal resources and the importance of protecting them for future generations. The Mexican biologist, and most likely Diego, referred to a related, but different, mission: using resources responsibly so that both his family and his son's family will be provided for.

Often, decisions that an outsider would not deem as "best practices" which may even seem to contradict an "environmental ethic" are actually compromises made to account for both ecological and community concerns. For instance, in previous years, Carmen describes saving hundreds of beached horseshoe crabs from unnecessary death during the heat of low tide. She always thought it was a pity for them to die for no reason. However, one evening as we struggled to meet the maxquill order for the next day, Carmen scooped fifteen horseshoe crabs out of the water, stabbing them and throwing them overboard to "bait" the water around us. The discrepancy between her different treatments of the species, counterintuitive for North American conservationists, is completely logical for Carmen. Similarly, like most everyone else in San Felipe, Diego captures female octopus even though it is illegal. However, when he is diving and he hooks a female, he takes the time underwater to place small rocks around the hole to protect her eggs from predatory fish. "Not everyone does this," he said, "And I'm not sure how well it works. But, you know... it's just something that I do. I think it makes a difference."

Stabbing horseshoe crabs and harvesting a female octopus with eggs both represent decisions that would not be acceptable in the eyes of the global conservation community. However, examining these interactions reveals a different style of resource protection. For example, North American conservation often relies on setting boundaries and leaving certain areas or species completely untouched. Conservation requires a certain distance to be placed between a resource user and the coastal ecosystem. In San Felipe, however, environmental values are more embedded in daily life, making ethics active and dynamic. For example, instead of leaving horseshoe crabs alone, Carmen alternately kills them and rescues them, depending on the situation. Instead of not harvesting a female octopus, Diego kills the mother and then actively builds a shelter to protect her eggs. Similarly, instead of not littering, trash is purposefully discarded in the streets and then removed according to an organized schedule.

On one occasion, as a toddler skipped happily down the road past the painted mural naming San Felipe as the state's cleanest municipality, he tossed a candy wrapper to the ground. As I watched the litter fall, as if in slow motion, I saw the boy's mother smirking at me. I smiled, too, embarrassed by my own shock. She laughed, talking to her son but looking at me, "That's right. Let's be sure to give the ladies some work for tomorrow. If

no one threw trash on the ground, they would certainly lose their jobs. Good boy. It will be a sad day when the ladies wake up before dawn and cannot find a piece of trash to sweep." She later teased me; I had not been the first visitor unable to conceal my distain at a falling candy wrapper. Her explanation illustrated something very simple that is so easily overlooked: San Felipe may well be the cleanest municipality in the state, but it is not because they do not litter. Instead, it is because they clean. Organized cleaning schedules and crews assure that the streets are swept and washed before sunrise, providing income for older women in the port. Once again, even something as simple as litter is part of a series of decisions involving more than strict environmental ethics.

In reports about San Felipe, the community is often applauded for their responsible use of coastal resources and their environmental awareness in general. In these papers, octopus, lobster, grouper, and maxquil are invariably referred to as "resources" or "species"; the variety of marine life available for harvest is often described as "biodiversity" (Chuenpagdee *et al.*, 2002). However, local people, both fishermen and fisherwomen, refer to this marine life as "product." Logically, people who depend on coastal resources for their livelihoods will decide to protect them in different ways than those who admire biodiversity hot spots from afar. The dynamic and personal nature of environmental values in San Felipe illustrates that decisions affecting resource management cannot be examined without considering social and economic concerns.

## 2.4 Discussion

The interactions that take place during octopus season demonstrate the importance of personal interpretation of rules in San Felipe, and the potentials that exist for daily negotiations of power. The dynamic struggle to balance individual needs with needs of the group reminds us that the *Mujeres Trabajadoras del Mar* want to achieve new things, to excel, and improve the lives of their children; their aspirations surpass simply maintaining the status quo or seeking "sustainable" solutions. Being ready to embrace opportunities means being flexible and creative.

The success enjoyed by the *Mujeres Trabajadoras del Mar* results not from simple participation in a fishing system in which benefits are fairly distributed, but instead from their active involvement in maintaining a complicated and intricate balance of rewards and responsibilities. The local system of self-enforcement leaves space for creative solutions and the web of individual checks and balances ensures that environmental ethics are not divorced from social responsibility. In this case, maintaining sustainable fisheries and local control over resources is not about carefully maintaining stasis or following strict rules. Instead, it involves individuals considering the consequences of the decisions that they make, even the selfish ones. In this case, a complicated balance is not necessarily a fragile one. According to Carmen, the person who risks nothing, gains nothing; any change presents potential for new opportunities. However, maintaining this balance takes work, each and every day.

## Chapter Three: Reforestation and the Co-Production of Knowledge

### 3.1 Introduction

The meaningful involvement of stakeholders in fisheries research and management has recently become more widely appreciated, but it is not the norm (Chuenpagdee *et al.*, 2005). The interactions between San Felipe's women's cooperative, the *Mujeres Trabajadoras del Mar*, and outside researchers and conservation project leaders offer real life examples of what co-management, participatory research, and integrated coastal management literature advocate: participation, partnership, transparency, and local ownership of the process. The tug-of-war between biologist and cooperative members during San Felipe's mangrove reforestation project indicates that it is not simply facilitating participation that is important in managing common property resources. Local people's ability to define and challenge project goals is key to project success. In this case, knowledge emerged through collaboration between a scientist and cooperative members, fundamentally restructuring project objectives, methods, and outcomes (Satterfield, pers. comm., 2005).

While the ambiguous role of foreign NGOs often leads to problematic and short-term alliances (Watts, 2000), this project represents an atypical case in the literature. The ways in which this strict project methodology became flexible illustrates the dynamic production of knowledge that made this project both difficult and successful. Throughout the project, cooperative members fought to have their voices heard, even while they were forming their opinions and learning basic mangrove ecology. In this case, "stewardship of the resource" and "environmental ethics" were not taught by the project technician. Instead, these concepts were collaboratively and independently tested and redefined. As Eden suggests, "we need to look not only at the element of understanding and scientific awareness that is discussed in the notion of extending expertise, but also at how people connect their own lives to the environment" (Eden, 1996).

Local knowledge is nearly always a combination of dynamic, experiential knowledge and scientific information. For example, Weeks notes that it is difficult to isolate "a purely scientifically-based knowledge from a practically gained local knowledge in the context of a contemporary, literate, and media saturated society" (Weeks, 1995). This project offers a new perspective on local ecological knowledge because fishers are working in an ecosystem that they do not know. Members of this cooperative do not have generations of experience working in the mangroves; they are still defining their agendas. Much research has been done on the appropriation of scientific discourse by non-scientists (Weeks, 1995) and yet we rarely read about the discussions that take place after a workshop is over and the biologist has left the room. While some environmental concepts are memorized word-for-word or ignored completely, others make sense in different ways and are processed and applied creatively to new situations unfolding during a project. In this case, "emerging science fosters a new methodology... uncertainty is not



banished but is managed, and values are not predisposed but made explicit" creating new forms of expertise (Funtowicz and Ravetz, 1993).

Interestingly, instead of citing re-growth and reproduction of a healthy mangrove ecosystem as the main project goal, the original grant proposal states that the primary long-term benefit of this project is the creation of knowledge. This "theoretical and practical" knowledge base would allow the *Mujeres Trabajadoras del Mar* to contribute to future reforestation projects both locally and in the surrounding region (PNUD Informe Parcial, 2004). New knowledge, combined with skills that cooperative members would learn during the project, would "permit them to have the greatest possibility of success, to optimize their resources (economic and human), and furthermore to receive a better economic compensation owed to their capabilities in the future" (PNUD Informe Parcial, 2004). In other words, this project aimed to make the members of the women's cooperative experts at mangrove reforestation. Whether or not they encountered this official description of their goal, members indeed approached this project with a determination to know, to understand, and to improve the process designed for successful mangrove reforestation. The integrity of this emerging local ecological knowledge, like traditional ecological knowledge, is dynamically linked to broader social and economic processes (Menzies and Butler, In Press).

This chapter explores the co-production of knowledge in three parts. First, an overview of the reforestation project describes project history and introduces key players. The next part explores how shifting balances of power ensured that the project reflected the aspirations of cooperative members. Finally, the third part examines how clashing values made this project meaningful to participants in different ways. Subtle, daily negotiations involving both power and values made this project successful and powerfully shaped the production of knowledge of mangrove ecosystems in San Felipe.

### **3.2 Overview of the Project**

#### **The Mangrove Ecosystem**

San Felipe is located in an ecologically diverse region, about 15 kilometers from the internationally recognized Rio Lagartos Reserve, one of the two Biosphere Reserves in the Yucatán peninsula. These reserves were established by The United Nations Educational, Scientific, and Cultural Organization [UNESCO] to protect endangered and diverse species and to conserve the transition zone between land and sea (Kaplowitz, 1998). Coastal fishes, crustaceans, and mollusks depend on mangrove habitat as a juvenile refuge; they rely on the supply of raw, organic material as their most important food base. Indeed, 80-90% of the commercial fisheries in the Gulf of Mexico depend on mangrove ecosystems (Hamilton, Dixon, and Miller, 1989). Mangroves also support subsistence livelihoods for many tropical coastal communities (Hamilton, Dixon, and Miller, 1989). However, according to Kaplowitz (1998), "most of the Yucatán Peninsula's coastal resources and inhabitants are not part of a systematic state, federal, or non-governmental environmental protection or resource management scheme." In the

Yucatán, mangroves are used for subsistence harvesting, for commercial activity, for garbage dumps, and for building sites. In recent years, awareness has grown regarding the economic value of conserving mangroves in their “natural or semi-natural” state (Kaplowitz, 1998).

Because of their internationally recognized ecological importance, mangroves often become a site where agendas clash. In many cases, conservation projects end up reflecting North American conservation values instead of local peoples’ needs and aspirations (Sundberg, pers. comm., 2004). For example, when Ducks Unlimited Mexico, America, and Canada (DUMAC) began their dike project in the Yucatán to preserve waterfowl habitat in the mid-1990s in the aftermath of Hurricane Gilberto, this international NGO paid little attention to local livelihoods. The project intended to preserve habitat for wintering migratory species but it “cut off seawater incursion into the lagoon and the circulatory flow of marine life,” drastically diminishing productivity of the lagoon as a fishing resource (Kaplowitz, 1998). According to one person whose livelihood depended on the harvest of mangrove shellfish, “We have problems with experts.... The DUMAC project, they said, would maintain the flow of water and fish, but they closed the flow of water and [so] now there are no fish, no chivita [shellfish], no wetland.... We must undo what DUMAC has done” (Kaplowitz, 1998). This example of international good intentions with dire local consequences is not uncommon. San Felipe, however, has experienced a very different situation.

### **The Project History**

After Hurricane Isidoro devastated local mangroves in 2002, the *Mujeres Trabajadoras del Mar* sought to protect and reforest their mangrove resources for the future. With the help of a local anthropologist and funding from the United Nations, cooperative members developed the first project of this kind in San Felipe. Their goal was to give new life to the mangroves in place called Cambuná. Many factors motivated cooperative members to pursue this project. Mangroves provide a juvenile refuge to the maxquíl, as well as to other species of great commercial importance in San Felipe. Secondly, mangroves provide a barrier protecting the port during storms such as the 2004 Hurricane Iván, which caused a complete evacuation of San Felipe during this project. Thirdly, the *Mujeres Trabajadoras del Mar* are determined to pursue an eco-tourism project in the future and they hope to make the mangroves, now commonly described as “dead” and “burned,” green and beautiful again. Finally; this project, originally planned to take place during the storm season, offered alternative work with supplemental income for 13 women during the months known as “the time of crisis” in San Felipe.

From the beginning, the *Mujeres Trabajadoras del Mar* considered this project to be *their project*. This attitude was encouraged by Mexican graduate students who have worked with them in recent years (Gavaldón, pers. comm., 2005). Members of the cooperative used phrases like “we pay the biologist” when discussing their workshops about mangrove ecology and they considered the United Nations grant to be their own money. This perspective is striking. Instead of describing interactions with a new biologist in terms of a teacher-student relationship or a collaborative partnership, from their

perspective, they hired the biologist to work for them. The portion of funding allotted for technical support is what they agreed to give a biologist in exchange for his expertise. They expected to get what they paid for. Because I was not present for the early stages of this project, the following description of key events in the project's history is told in the way that cooperative members recounted the story to me.

When Ulysses, the project biologist, arrived for his first workshop, he talked about the importance of learning to work cooperatively and getting to know one another. The women explained that they had had years of experience working together in their fishery and could therefore begin the ecology classes immediately. However, Ulysses began with a challenge. "Bring me an almond, a spider, a leaf..." he said, and several of the women were already moving towards the door in excitement. He finished his list saying, "The first group to collect all the items will win!" In the scrambling that followed, one member of the cooperative was even knocked to the floor. Carmen Castillo Mendoza, however, did not move. She remembers thinking, "This is serious work and Ulysses is talking about something suspiciously like a silly game. I came here to learn. Talk to me about plants." When the members of the cooperative regrouped, there was quite a pile in front of Ulysses, 4 or 5 spiders, bunches of leaves, almonds: everything he had mentioned was delivered in a matter of minutes. He looked at the members sternly and declared that they all had failed the challenge. According to his instructions, the first group to return would win and yet they had forgotten that they were all supposed to be members of one group. There should have only been one spider; they should have learned how to cooperate. Over a year later, nearly all the members remember this activity. Some, like the Isabel Rivera Castillo, acknowledge that Ulysses was right to blame them for not cooperating. Others resent the ways in which the expert chose to use their time and money.

Ulysses' automatic position of authority was challenged as the project continued. During one fiasco, the group was attempting to transport thousands of large mangrove plants from a different location to San Felipe to replant. These plants were loaded into a tractor-trailer without proper transportation permits. While Ulysses spent four to five hours making arrangements with authorities, the driver became nervous about possible fines and unloaded all the plants. Reloading the plants lasted past midnight. Carmen watched as Ulysses chopped at the mangrove roots with a machete attempting to make them all fit inside the truck. In response to her protest, he explained that it was his job to load a certain number of plants into the truck and deliver them, and that his pay depended upon doing so. Carmen and the others felt that the plants would not survive; they were uncomfortable with the fact that the expert they had paid to teach them about mangroves was treating the plants with so little care. Cooperative members began to reevaluate Ulysses' role as an expert. In this cooperative, respect must be continuously re-earned and leaders are expected to prove that they deserve positions of power.

Once the plants were unloaded in San Felipe, they sat in the sun for days awaiting planting permits. As is often the case with the *Mujeres Trabajadoras del Mar*, they did not remain silent. They challenged Ulysses and reacted defiantly to his instructions. In the dynamic power struggle that has marked this project from the beginning, members of

the cooperative defined their own roles and demanded that their input be considered, even while recognizing that they were not experts in reforestation.

In the arguments that followed, the cooperative nearly lost all project funding. However, because of their connections with professors and graduate students in the state capital, a series of "beautifully typed" letters recommended that the project continue, without Ulysses. When Isabel Rivera Castillo described this part of the project's history, she emphasized the power of these letters. She used a slang word, first invented for this situation with Ulysses, which refers to the power associated with well-educated and influential allies. "Tac tac tac," she said. When Isabel realized that I knew no translation for the word, she mimed the act of fingers on a keyboard and made the sound of a letter being typed. She clarified, "They wrote letters to explain who was to blame. Tac tac tac. We did not lose our project. But we did lose Ulysses." In effect, the cooperative members fired their first biologist.

### **The Project- Phase One**

When Jorge Montes, the replacement project biologist, arrived to work with the *Mujeres Trabajadoras del Mar*, he was surprised to find how little they knew about the mangroves, despite their previous participation in a series of environmental education workshops. He began the new Phase One of the mangrove reforestation project with classes, reading materials, and quizzes. Carmen found the material fascinating and studied constantly; she even kept the books in her bathroom and would repeat sentences over and over again throughout the day. To Jorge's delight, Carmen and Manuela Ventura Salazar both scored 100% on their ecology exams. Members did not object to Jorge's decision to publish their grades in the final Phase One report. After completing his course on mangrove ecology, members of the cooperative gave a presentation to school children in San Felipe, describing different species of local mangroves and their specific attributes.

### **The Project- Phase Two**

Phase Two began with (1) instructions for mangrove reforestation involving the preparation and planting of 15,000 seedlings, called propagules, and (2) strict guidelines for preparing the restoration zone. In their previous project with Ulysses, cooperative members had already removed the dead branches and tree trunks damaged by the hurricane from a 6,555 square meter area, primarily by hand and with machetes (PNUD Informe Parcial, 2004). Jorge explained that this new phase of the project would entail clearing ten 100 meter transects beginning from the coast and moving deeper into the mangroves towards the *manantial*, a pool of fresh water. This part of the project involved measuring transects and, once again, clearing dead trees by hand. Members of the cooperative offered their labor as volunteers and therefore were compensated for only half of the work as a means to increase their income during the low fishing season. Unfortunately, because of delays in attaining both seed harvest and re-planting permits, the project was also delayed, beginning instead at the height of the octopus fishing

season. Members of the cooperative had no choice but to work all night in the maxquil bait fishery and dedicate themselves to the reforestation project during the day.

### 3.3 The Shifting Calibration of Power

#### Making it Work

To understand how members of the *Mujeres Trabajadoras del Mar* were able to maintain a project that reflected their own aspirations, we must examine the complexities involved in building partnerships, both within the cooperative and with an outside scientist. Recent literature stresses the need to shift from studying research subjects to developing partners in conservation (Chuenpagdee *et al.*, 2005). What does this partnership actually entail? As power shifted throughout this project, rules were bent and scientific advice was translated. Reconciling scientific and local opinions and testing the boundaries of one's own expertise played important roles in how decisions were made, how goals were established, and how rule-breaking was rationalized. Irwin argues for more open and effective relationships between scientists and citizens (Irwin, 1995). Examining the role of power in the co-production of knowledge offers insight into how more flexible relationships between outside scientists and local people can be achieved and understood.

The members of the cooperative approached this project in much the same way as they do the maxquil fishery. Because they are accustomed to teaching themselves, scientific expertise is often taken as taken as a suggestion, not a rule. Individuals felt responsible for creating the best methods, which were developed according to their own interpretations of the goals and limitations involved. The cooperative members struggled daily to understand and improve the process. Much of the success achieved in this project, characterized by conflict and power struggles, came about because individuals chose not to abandon the project during moments of great tension; instead, they changed the rules.

Throughout the project and even afterwards, members of the cooperative repeatedly echoed the biologist's words, "The point is not to do this project in order to get it done. The point is to do it well. To make it work." Ironically, as later examples illustrate, the biologist's mantra was adopted to rationalize and inspire innovative reforestation techniques of which the biologist himself would never approve. The biologist grappled with maintaining a scientific methodology while stressing that this must be "their project" from beginning to end. "*Ustedes mandan*" Jorge said, "You all give the orders." Neither Jorge himself nor the members of the cooperative knew to what extent he was in charge.

The following sections illustrate how shifting balances of power influenced the project methodology and shaped the production of knowledge regarding mangrove reforestation. The dynamic balance of power continually changed as cooperative members allocated responsibility, balanced competition with cooperation, redefined their roles, established rules and punishments, and tested the boundaries of the expert's authority.

## Counting and Accountability

The discussion of power in this chapter opens with the preliminary division of responsibility because, in this cooperative, power is inextricably linked to responsibility. During this project, each member considered herself authorized to make decisions in the best interest of her own seedlings. Therefore, negotiations surrounding the initial allocation of responsibility cannot be overlooked.

The first step in this new phase of reforestation involved picking red and black mangrove propagules directly from the trees in San Felipe. The project objective was to plant 7500 red mangrove, *Rhizophora mangle*, and 7500 black mangrove, *Avicennia germinans*, seedlings in an area called Cambuná, which was heavily impacted by Hurricane Isidoro. On day-one of this new stage of the project, the division within the cooperative was evident. Conflicts arising during the maxquil fishery carried over into this project and split loyalties divided the cooperative into two groups. Because group leaders Carmen Castillo Mendoza and Sofia Flores Medina each own a motorboat, (necessary for travel to Cambuná), cooperative members quickly agreed to divide the work in half. A suggestion was made that one group harvest and care for all 7500 red mangrove propagules and the other group be responsible for all 7500 black mangrove propagules, which required a different process to facilitate growth. This idea was quickly dismissed. According to one member, "Imagine! Something could happen in the process and all the red mangrove seedlings could die. Then who would get blamed? One group would not even get paid and everyone would blame them. No, thank you." Even before the project began, cooperative members were already considering possible liabilities. According to this member, risk must be considered in the equitable distribution of responsibility.

Immediately, members began recalculating how many seedlings each group would be responsible for collecting. Because one group consisted of 7 members and the other 6, calculations continued until it was agreed to assign responsibility for 4038 red mangrove and 4038 black mangrove propagules to the larger group and 3462 red mangrove and 3462 black mangrove propagules to the smaller group. Variations on this idea were proposed and every member with a calculator checked and rechecked the figures. Just as the reader's eyes might skim quickly over these numbers, I did not immediately recognize the importance of this negotiation process. These were not inconsequential project details. For these fisherwomen, the allocation and quantification of responsibility are not matters that can be taken lightly.

Discussion continued as cooperative members calculated and recalculated the most equitable distribution of work, down to the last seed. Finally, Jorge's patience reached its limit. He jumped to his feet, whipped out his calculator, and yelled over the bickering voices to confirm that the seed distribution was indeed fairly divided.

Although Jorge's calculation was accepted and his poster of step-by-step instructions remained on the wall of Isabel Rivera Castillo's living room for months, his methodology was questioned throughout the process. After the first day of collecting black mangrove propagules, Eva examined the steps. "Jorge said we had to leave the propagules in salt

water for two days so they would shed their outer shell. Well, maybe he has done an experiment in his laboratory... but they are shedding their shells right here on the floor. We can skip the first step!" she announced. Carmen overruled her daughter's logic in favor of Jorge's advice. Similarly, she criticized others' harvesting technique saying, "Did you not hear what Jorge told us? These are *babies*!" cringing as the seeds were dropped into a bucket. At this stage in the project, Carmen considered that Jorge knew best and it was her responsibility to listen to him.

Table 1. Step-by-step instructions for seedling maintenance posted by Jorge Montes, August 27, 2004.

Black Mangrove- 7500 propagules	Red Mangrove- 7500 propagules
1. Soak 2 days in salt water to remove outer shell	1. Soak 2 weeks in fresh water
2. Soak 1 week in salt water to develop small stem	2. Soak 1 week in salt water
3. Soak 2 weeks in water that is more salty than the ocean to develop little roots	3. Soak 2 weeks in water that is more salty than the ocean

According to the methodology, once the seedlings were collected, the next step was to allow them to soak, changing the water at appropriate intervals. Members in Carmen's group arrived at her house daily to check the seedlings. They repeatedly counted the seedlings and became alarmed when they realized that some were dying in the scorching heat. A layer of foam formed on the water's surface and a rotting smell permeated the yard. Carmen's daughters were the first to intervene. Eva said to her sister, "Do you want to count while I rescue?" and so began a new step in the process. Every few days, count-and-rescue missions took place behind Carmen's house. Eva and Isabel made it clear that the other members should not skirt their portion of this duty.

I observed the process, at times trying to convince the women that they did not need to recount the seedlings every single time; they had already collected more than were required. As the women squatted to count the little seeds, one by one, their clothing stained from the stinking mangrove water and sweating in the afternoon sun, I could not understand why they insisted on the incessant counting and recounting. As the weeks went by, I began to realize that the counting was an imperative part of the process for them; they were making certain that they could provide the portion of product that they were personally responsible for delivering. They had an order to fill, just as they do each night in the maxquil fishery, and the quantity was non-negotiable. In their fishery, a night's work is not over until the appropriate number of crabs is harvested, even if it takes all night. This sense of responsibility helps to explain the meticulous calculations required to divide the number of seedlings fairly on the first day. Each individual seed, like each crab, represents part of a contract that has been signed. Members realize that others' livelihoods depend upon keeping individual promises. Therefore, as more seedlings died, more trips were made to the mangroves to re-harvest. For the women

concerned about meeting their individual quotas, "step one" continued throughout the project. Jorge, on the other hand, had accounted for a certain amount of natural mortality in the soaking process, although he never mentioned this to the cooperative members.

To make matters worse, when Hurricane Iván blew along an unpredictable path between Cuba and the Yucatán peninsula, the entire port of San Felipe was evacuated for a full week. The seedlings were left to soak in the rain and wind, as well as the sweltering heat that followed. In Carmen's mind, there was no choice. After a final count-and-rescue mission, another trip was made to re-collect propagules.

### **Uncooperative Collaboration**

For countless reasons (e.g. heat, fatigue, stress, unclear instructions, undefined responsibilities), the physically exhausting work in the mangroves exacerbated already existing tensions. Fighting was commonplace and meetings rarely ended without a major conflict. Arguments arose either between Jorge and the cooperative members, or between members themselves, and often both. What is special about this uncooperative cooperative, however, is their ability to fight relentlessly and then immediately return to work to accomplish what needs to be done. The following sections explore daily power shifts within the cooperative. Understanding how authority is negotiated among members helps us to understand the shifting calibration of power between cooperative members and their biologist discussed later in the chapter.

On one of the first trips to Cambuná, members fought the entire way. Upon arrival, they decided to measure the ten transects, each meant to be 100 meters long. However, only one person brought rope, and it was only 23 meters long. Isabel shook her head, "We should have all brought rope. We are all responsible, not just one of us." More fighting ensued. As members stood glaring at each other, it seemed that the day's work was over and that the group would be lucky to make it back to port without a physical fight. Without a word, Carmen pulled her socks up to her knees and jumped off the walkway into the mud, machete in hand. One-by-one, members picked up their machetes and went to work. Three transects were measured and cleared, and not a negative word was spoken. Comments could be heard from all sides: "This looks good" and "It's not so bad" and "It's easy!" To this Eva responded, "No. It's not easy. We're just *great* at doing it!" Isabel began to laugh: "If Jorge doesn't like this, let him call his grandmother and have her do it." The group exploded into laughter and, just like that, the fighting was over. This encounter illustrates a common occurrence during moments of great tension. Different people chose to take on positions of informal leadership for different reasons each day. Often, instead of calling for a vote or discussing a situation calmly, tempers would flare until one individual quietly made a decision and acted upon it. On this occasion, the other members chose to follow Carmen.

Discussions frequently escalated into arguments because, aside from the formal methodology, all project rules and the punishments for breaking them were determined within the cooperative. Set fines were charged for missing a meeting or arriving late. No one was excused from work in the mangroves without a doctor's note: absent members'



pay was to be divided amongst remaining members. For a short time, the cooperative allowed members to send replacements (their husbands) to work for them if they were unable to participate on a designated day. However, some husbands did not accept the idea of women working amongst men and, after one member received her own punishment at home, cooperative members decided that this project must be done by women alone. Strict enforcement of the rules caused members to come to work in Cambuná even when they were ill; they worked with migraines, heat stroke, nausea, vomiting and even terrible diarrhea. The penalties angered Natalia Campos Franco, who missed a day of work but arrived the following day to do her part. When she learned that the decision had already been made to divide her pay amongst the group, she explained her frustration, "Since I was eight years old I've worked in the fields with my grandparents. This kind of work doesn't scare me. I like to work and sweat and earn what's mine-- not take what someone else has earned." Because an exception to the rules was not made for Natalia, what some called "unforgivable words" were exchanged and loyalties were divided along group lines once again.

The daily reality of this project included a lot of drama, countless hurt feelings, and even several trips to the doctor for at least four cooperative members suffering from stress related conditions (e.g. migraines, a jumpy eyeball, high blood pressure, and an full-body skin rash). Carmen's feelings best describe the competitive tone, "I don't extend a hand to help anyone anymore because, as I lean over to help, I can already feel the stabs in my back."

While it was upsetting and strange to see members of the cooperative (who have been friends and relatives long before this project) sit down and watch, refusing to help others finish clearing transects when their own work was done, my own reaction to the uncooperative behavior is telling. This was not what I expected from such a successful cooperative. However, I often held my tongue, thinking that I might have some special influence on the group dynamics. Carmen herself once confided, "We consider *gringos* to be very important people. You are a very important person here." On one occasion, I begged everyone to work together and offered to return the next day to help anyone who had not yet finished her work. Everyone agreed: that was not going to happen. The dynamic balance of cooperation and competition among members suggests that working together is often not the ultimate goal. In fact, examining the fluid distribution of power within the cooperative reveals that the subtle benefits of this fighting are incredibly important. Instead of paralyzing the group as I initially suspected, fighting actually motivates action and empowers individual members.

### **Voices and Votes**

The fighting amongst cooperative members in San Felipe made me uncomfortable; it surprised me that they did not alter this behavior in front of me, or Jorge, or any other visitors. However, what is not immediately apparent to an outside observer is that the yelling serves an important purpose during group negotiations: often, who is yelling is more important than the point she or he is trying to make.

What Dietz calls "serious talk" or deliberation is considered fundamental for human decision-making. Talking builds trust and helps individuals anticipate the strategies of others as well as the possible punishments for non-cooperation (Ostrom, 2000). Talking is necessary to gather information and make deals, but it also shapes how individuals define a situation, how they determine how they are supposed to behave, and how they decide which norms and rules must be followed. In this sense, deliberation changes values and "may be the engine by which social change occurs" (Dietz, 2005). This, according to Habermas' core argument, depends on an "ideal speech situation" characterized by fair, sincere, and competent communication (Dietz, 2005). However, observations from arguments among the *Mujeres Trabajadoras del Mar* suggest that calm and competent communication is not the only speech situation that leads to social change.

Emotions, which, according to Dietz, may heighten the commitments individuals make when they are talking, play a powerful role in determining whose voice is heard and whose vote is counted in a particular situation. When an individual chooses to raise his or her voice in this group, the way they see themselves can change. During the reforestation project, the cooperative meetings served as an arena in which different behavior was tested, behavior that would not be considered socially acceptable for respectable married women in other spaces. Yelling can be empowering, driving individuals to demand different treatment from others and to expect more of themselves.

Dolores Espada Chapa had always thought of herself as a patient and cooperative member of the group. She rarely spoke out against the majority opinion or raised her voice during meetings. She arrived on time, took careful notes, and often went home frustrated. One day, she couldn't take it any more. She remembers:

I had had it up to here. I screamed at Carmen. No one expected it! Me... always hunched over, hanging my head, apologizing. But not that day. That day, I was a different Dolores. I was Dolores with a voice, Dolores with a vote!

Dolores went home that day and cried, but she soon realized that she felt like a different person. She began to speak up more at home with her family as well as with members of the cooperative. When an opportunity arose to send one cooperative member to a conference in Canada, biologists from the capital remembered Dolores for her careful and responsible note-taking. The other members, however, did not support her desire to represent the group. If the others had been more supportive, Dolores would not have been so determined to make the journey. She explains, "I went to Canada out of pride, to show them that I count. I needed to show them that I have a voice all of my own." To understand the significance of this decision for Dolores, it is important to consider that she had absolutely no idea what she was getting herself into. She was completely terrified and fully expected that she might never be able to return home. She recalls:

I sat in my chair on the airplane with no one on either side of me. I cried and tried to understand the seatbelt. I reached into my pocket and found a

rosary that had been left there by a member of my family. Or by God Himself. I was happy that I remembered to send a message with a student to tell my husband that if, in time, he wants to find another woman if I cannot return home, I won't mind. Then, the plane started to shake and I closed my eyes and prayed and, suddenly, like a curtain closing, my ears stopped working and I could hear nothing at all. I chewed on my gum (my lifelong vice) as hard as I could in panic and, when I opened one eye, I saw exactly what was happening. In complete silence, I was surrounded by white clouds. I was going to God. I was entering heaven. I closed my eyes and then, my ears suddenly opened and I heard a voice. Was it God? The voice said, "We are beginning our descent to Mexico City."

Dolores feels that this trip to Canada changed her forever. However, this "different Dolores" began to take shape the day she raised her voice at the meeting; from then on, her vote has always been counted. In 2005, she was elected as secretary of the cooperative.

During the mangrove reforestation project, Isabel Rivera Castillo was also invited to speak at an international conference, this time in Mérida, Yucatán. She was more nervous about criticism from the other seven cooperative members who were attending the conference than the presence of one hundred international scientists expected in the audience. The cooperative had been fighting viciously and many negative comments had been directed at Isabel. At the conference, Isabel explained her final decision to participate:

I should be here. Even if the other members say, "You are going to let Isabel talk? She stutters!" I am the president and I should be here. I am going to talk. I'll either speak well, or I'll speak terribly, but I came and I'm going to talk. And next time this happens, I'm going to know that I can do it.

In Spanish, speaking your mind is translated literally as "defending yourself;" after weeks of fighting, Isabel became determined to speak at the conference to prove to herself that she could do it. She wanted to do this, although it terrified her, because no one believed that she could.

Like Dolores, when Isabel could no longer contain her frustration within the group, by yelling she also found her voice in other situations. Dolores's home life and her relationship with her husband have changed; Isabel is no longer intimidated by "important people." As more members assert themselves, the fights within the cooperative become louder and Jorge's job becomes exponentially more difficult. However, the sense of empowerment translates into confidence in many other aspects of life and work for these thirteen women.

## Expert Opinions

As cooperative members learn to trust the authority of their own opinions, this can present challenges for scientists who ask for local “partners” but actually expect more passive “participants.” As members’ tendency to compete rather than cooperate suggests, in this cooperative, participation does not mean doing what you are told; it means doing the very best work that you can. For example when Rosario Solis Carvahal, a member of Carmen’s group, surveyed the seedling mortalities in her individual bucket, she remarked, “This has happened to us for being lazy. This has happened to us for not being careful.” But Eva disagreed. She responded, “No. This has happened to us for obeying too much.”

Fisheries researchers have stressed that more effort is required to change the role of stakeholders from passive informants to active partners and leaders, making a shift towards collaborative research and co-management (Chuenpagdee *et al.*, 2005). However, this literature often highlights the benefits without preparing researchers for the complexities involved in building and maintaining new relationships. Due to the way this project was designed, partially inspired by past experiences, Jorge received his paychecks from the cooperative’s treasurer. This created a unique dynamic: while the scientist evaluated work done by cooperative members in the final report and graded their quizzes throughout the project, the members themselves constantly evaluated Jorge’s work as well. Unimpressive science could result, for example, in a reduction in the *per diem* funding allotted for his meals when he traveled from his office in the state capital to San Felipe. Jorge himself struggled to define the working relationship:

I’ve never worked on a project like this, where *they* pay *me*. It’s different and it’s a challenge. I think, “Whoah, if I make a mistake or I don’t complete my responsibilities, I won’t get paid.” I mean, it’s not a lot of money, but the fact is that they are supervising me.

Despite the challenges, Jorge believed that this new way of working on a project was the right thing to do.

Jorge’s determination to share power throughout the project was impressive. Often scientists become convinced of the importance of working collaboratively when they read success stories in the co-management literature. The daily realities can come as a shock. As one biologist warned:

You must be very careful when trying to work with local people as equals. I wanted to work collaboratively but I’m a biologist and so I never had training in this area. In the end, the leader of the cooperative saw me as competition. She was competing with *me*. Sometimes people are so good and you want to give them everything, but you just can’t. It can go to their heads. (pers. comm., COASTFISH conference, 2004)

This scientist's personal involvement and her initial excitement about collaborative work contributed to her disappointment and hurt feelings when the cooperative leader's behavior did not meet her expectations. She expected that being equal partners meant working cooperatively, not competing with each other. The scientist saw the group leader's uncooperative and competitive behavior as a personal breach of trust.

This biologist's disappointment is not uncommon. Co-management literature extols the benefits of collaboration, partnerships, and consensus building. However, as the case of the *Mujeres Trabajadoras del Mar* illustrates, competition can be as important as cooperation in successful and lasting collaboration. For instance, members of Carmen's group were extremely competitive about the health of their soaking propagules. Early in the project, members removed their individual allotments of seedlings from the two large communal coolers. Members relocated their propagules to individual buckets at their own homes for more personal care. Carmen's group often compared themselves to Sofia's group, which had decided to fill two small boats with all their combined seedlings. Eva's husband praised this group for their cooperative approach, "They work together. Their propagules soak together. Why do they always do everything better?" Eva, however, challenged him to evaluate the final product. For her, it was not a group competition but an individual one: she planned to produce the healthiest propagules Jorge had ever seen.

Jorge describes his perspective on the cooperative's success:

They are competitive. I won't lie to you: it makes everything worthwhile. This group fights and yells and insults me and offends me, but they work. Look how hard they work. I love it. They compete in everything and they do extraordinary work. I love that they all want to be the best--the straightest transects, the prettiest propagules.... And when someone's work is not as good as the other, she feels ashamed.

Just as Jorge began to say something else, he noticed a few cooperative members coming out of the mangroves. Before they could spot him sitting down, he leapt to his feet and immediately began working. His guilt about resting while the others worked, and his fear of their constant surveillance, reveal that he was very aware, even as he evaluated the group, that he was also being evaluated.

### **Balancing Power**

In an anonymous survey, all cooperative members revealed that they respected Jorge and cared about his opinions. However, his rules often stood in the way of more innovative methodologies devised by cooperative members. Their determination to make this project successful inspired members to find creative ways in which to rebalance power relations throughout the project. As they struggled for authority, individual members chose to alternately tease and appease the expert; they avoided and defied his advice. The following examples illustrate how power was negotiated between a scientist and cooperative members on a daily basis.

During the project, Jorge endured a lot of teasing. This joking was one way to constantly rebalance the partnership because, without directly challenging his authority, the women relentlessly reminded him that they were in charge; too. In a mimicry of their roles, the women often did this by acting helpless. As Carmen's boat approached Cambuná on one afternoon at low tide, it was clear that the shallow water would not allow them to reach the shore. "Well," said Susana, "All the men will have to get out and push." Jorge laughed along with the boatful of women. Others joined the game, "We need a man to help us! Who votes that Jorge get out and push?" The vote was unanimous. As he struggled to pull his jeans off to avoid getting them wet, several women began whistling and humming a strip tease tune. Redfaced and smiling, Jorge asked, "Who else would spoil you like this?" Isabel smiled and, as if daring him to refuse, she answered, "Only Ulysses!" The women laughed as Jorge pulled them to shore; they offered him their hands with mock-feminine gestures as he assisted them onto the dock.

Daily negotiations between Jorge and the cooperative members reveal boundaries of authority. They also serve to ease the power struggle for short periods of time after one person concedes to another. For example, following Jorge's precise instructions appeased him when he was angry. On planting day, Jorge told the members of the cooperative to plant seedlings 30 centimeters apart. Numerous suggestions were made to determine a more practical description of this length. Members agreed that the space could be estimated with your feet, one in front of another with toe and heel touching. But Jorge insisted, "Not your feet. 30 centimeters." Slowly, the comments heard from within the mangroves took on a different vocabulary. Early in the day, Carmen began by saying, "That propagule is too close to its neighbor, Eva, you are not leaving enough space." She later made comments like, "Eva! 30 centimeters. 30. Here we go, 30 by 30, planting our row." This decision to appease Jorge was not necessarily strategic. Carmen made a decision to accept Jorge's system and acted upon it; it may not have been as important to her as it was to him. The chorus of thirteen voices calling out for strict 30 cm spacing made Jorge proud. "This project could have been done by peasants, you know," he remarked. "Peasants from the little towns can swing a machete. But they would never have done this project with the care with which these women have accomplished it." This seemingly small indication that the cooperative respected his scientific process allowed Jorge to temporarily put aside his frustration.

Jorge was deemed the expert when it came to measurements, but his authorization was not sought for larger project matters. When his expertise was not considered relevant, members purposefully avoided asking for his opinion. In this way, members avoided the risk that Jorge might choose to assert his authority in areas that were outside his jurisdiction. For instance, when the week-long workshop was offered to teach several representatives of the cooperative how to create fish skin crafts as a potential alternative livelihood, cooperative members debated how to acquire necessary funds. It was necessary for these members to travel back to San Felipe every night in order to fish, and then rejoin the workshop every morning. It was finally decided that this money should come from the mangrove reforestation project funding. Because both the reforestation and the crafts workshop had the same ultimate goals, the transfer of funds was deemed

legitimate. In Eva's words, "It is for us. It is to help us all." The treasurer made a mental note to inform Jorge of their decision when they next discussed the budget. Asking for his opinion or his permission was never considered.

By alternately teasing Jorge, reassuring him, and avoiding his advice, cooperative members negotiated space and power to make their own choices. However, in extreme cases, members actively defied Jorge's instructions. Throughout the project, members continued to recollect seedlings to replace those dying in the soaking process. Because time was passing, newly harvested propagules would not be at the same stage of development as those that had been soaking for several weeks. During one meeting, Eva asked Jorge about the possibility of collecting propagules that had already fallen to the ground, those that were already beginning to open. Her idea was dismissed immediately. "Eva," Jorge said, "The point is to start with Step One. Step One states that propagules of the designated size will be harvested from the trees." She answered, "Jorge, the point of this project is not just to do it to get it done. The point is to make it work." However, Jorge could not be convinced.

Eva and the majority of cooperative members decided to break the rules. Even the members who did not relish the idea of disobeying Jorge knew that their original propagules could never compete with the freshly harvested seedlings. Several members felt that the only way to please Jorge in the end was to defy his instructions. According to Funtowicz and Ravetz, "persons directly affected by an environmental problem will have a keener awareness of its symptoms, and a more pressing concern with the quality of official reassurances" (Funtowicz and Ravetz, 1993). When Jorge's advice ceased to address cooperative members' concerns, they rejected his official reassurances and altered the project design.

The shifting balance of power illustrates how cooperative members determined whose expertise should be trusted in different situations (Ulysses, Jorge, or their own opinions). As Barnes reminds us, "the power to determine *which* expert is believed is the most important form of power... not the power of experts themselves" (Barnes, 1985, emphasis in original). When local people have the power to choose which experts to believe, new knowledge emerges which incorporates both local and scientific values.

### **3.4 Clashing Environmental Values**

San Felipe's mangrove reforestation project was funded by an international agency, implemented by local women, and led by a male Mexican scientist. Understandably, clashing values and perspectives were the norm. Because decisions were made without Jorge's input and because members often found ways to rebalance power without causing conflict, cooperative members were not prepared for Jorge's violent reaction when he realized how his methodology had been altered. Similarly, Jorge could not comprehend how this supposedly 'environmentally conscious' group could have made such terrible decisions. Examining the environmental values informing decisions on both sides reveals how both cooperative members and scientist felt completely justified in their actions. The

following sections demonstrate that cooperative members' broadening understanding of the mangrove ecosystem "is not simply the product of a blind process of knowledge accumulation. Nor is it tied to sets of abstract, cultural values disarticulated from material practices or everyday processes" (Menzies, In Press).

### **Process versus Product**

On the whole, Jorge and the cooperative members approached this project so differently because Jorge focused on the process while the women focused on the product. These overlapping perspectives clashed in moments when innovative ideas would mean changing part of the plan. Jorge believed in following the carefully planned methodology from start to finish. His training in biology had taught him that favorable results relied on precise replication of a previously tested process. On the other hand, the women tried constantly to improve the project and to ensure its success. They evaluated every detail and reevaluated the plan whenever problems arose. When Eva voiced her idea of collecting propagules from the ground that were already beginning to develop, Jorge's response illustrates their differing perspectives: "That would be impossible. First, because the idea is to start from Step One." He continued, "How could you take seeds from where they might grow just to put them somewhere else? The point is reforestation, not deforestation!" Her idea was offensive to him for two reasons. First, she was completely ignoring the order of the steps, which was critical to success. Second, she suggested tampering with a seedling just as it began to open. According to his environmental values, risking a potential life just to put it somewhere else was morally wrong. However, Jorge's own ecology class taught Eva that when seedlings fall in great numbers, only a few will survive. According to her logic, moving seedlings from an area of greater concentration to an area of lesser concentration would only increase their chances of survival. Jorge could not even consider this idea, however, because to him, the fallen seedlings were untouchable.

The "hands off" philosophy rooted North American conservation values can be observed in many international conservation projects (e.g. the increasing push for no-take marine protected areas). Areas of great ecological importance are often seen as fragile and somewhat sacred, especially by people who do not live in them. Members of this cooperative are aware of how mangroves are revered and afforded special status. One member answered the question "What are mangroves?" on Jorge's ecology quiz with "Mangroves are species that receive special protection." This answer was marked incorrect, however, because mangroves are so much more than that.

Jorge told Eva that she could not take mangrove seedlings from the ground because they are so delicate that they would immediately die. Jorge described the seedlings as fragile "babies." This idea, I later realized, fueled my own nervousness as the women repeatedly handled the propagules in their counting and rescue sessions.



I could not have explained why, but I could not shake the feeling that touching the seedlings was very risky<sup>3</sup>.

"You cannot touch the fallen seedlings. They will die," Jorge explained again. Even coming from a scientist, cooperative members knew that this hypothesis had not been tested. This kind of advice, which Dietz refers to as "confusion of competences," is legitimated by scientific authority but not necessarily based on scientific knowledge. When offering guidance, experts often "muddle factual expertise with value expertise" (Dietz, 2005). Again, Eva challenged Jorge, "But how many are dying right here?" Jorge's voice became louder when he said, slowly, "What is lacking here is maintenance." When Eva responded that she had changed her water thousands of times and still it smelled rotten, Jorge finally lost his temper. He fell back on the only thing that was certain: the process. "I don't believe you!" he yelled, "And do you know why? I have my experiments!"

Eva was no longer satisfied with Jorge's advice about seedling maintenance or Carmen's suggestion to continue re-collecting as the seedlings continued to die. "This methodology is not working for my propagules," she said one day. Because mangroves surround Eva's house, she decided to take her red mangrove propagules out of the water and bring them home to her yard where she could stick them into the mud vertically, as seedlings of this species fall naturally. There, she said, the tide's ebb and flow would keep them moist with nature's own prescription of salt and fresh water. She designed a monitoring system for the "protected area" by calling a meeting of young boys in the neighborhood and appointing them "guards of the propagules." When it was time, she would gently remove them and carry them to Cambuná. Eva asked for my advice and, although I had made an effort not to intervene, I could only imagine Jorge's reaction to this breach in methodology. I advised her to reconsider, but she said only, "It is my responsibility. I have to do the best I can. If I fail, I am responsible for my failure."

### **Ethics and Outcomes**

When planting day finally arrived, Eva's red mangrove seedlings were clearly thriving. In her soaking system, propagules neither dehydrated nor rotted. However, her success was overshadowed when Jorge made a terrible discovery: nearly half of the cooperative members had secretly uprooted young seedlings from other areas to supplement their original harvests. The propagules presented were not uniform in their development, and the roots of many were suspiciously long. None, however, were quite as obvious as the red mangrove seedlings in Isabel's bucket. Isabel arrived with seedlings sporting roots nearly 10 centimeters long, still caked with dirt from where they had been uprooted earlier that morning. Jorge was shocked to see so many members, including the cooperative's president, show such blatant disregard for everything he had taught them.

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<sup>3</sup> In the United States, the first thing children are taught about baby birds in the wild is that if you find one, you cannot touch it (or its mother will reject it as contaminated and it will die). Children are taught that if you touch goldfish with your hands, they will die of infection. Many adults today do not question this misinformation because the ideas make sense according to our values, if not from our rational scientific perspectives.

According to the members who had broken the rules, they had a responsibility to deliver a certain number of plants and they truly wanted their efforts to make a difference. Jorge was furious. He explained that the entire rationale behind this project was to help the mangroves and accelerate their growth, not to uproot plants that were trying to survive. He said to me, "This is just the kind of I-need-it-so-I'll-take-it mentality that I cannot tolerate." The yelling that was heard in the streets that morning only grew louder when one cooperative member led Jorge to the spot of illegal re-harvesting.

Jorge could not condone the actions of the cooperative because, to him, their decisions were morally wrong as well as disrespectful to the process they had made a commitment to follow. But according to many of the women, it would have been more disrespectful to continue to follow the steps and let living things die, as if one could do nothing to change their fate. While Jorge had been counting on an estimated level of natural mortality (but never mentioned it), they did what they could to deliver the exact number of seeds they originally agreed to bring to Cambuná.

In a final blow to integrity of the process, Eva questioned the original number of seedlings set by Jorge. The 15,000 total was initially divided into equal portions of red and black mangroves. However, cooperative members knew the law, which stipulates that mangroves of a certain species may be replanted only where mangroves of that species originally grew. As they worked in the mangroves, the women had identified the species that would later fill the transects they were clearing. The areas for red mangrove and black mangroves were not equal; why had Jorge told them to raise so many black mangrove seedlings if there was not space for them? According to Eva, just as it is wrong to let living things die, it is wrong to waste the lives of the extra seedlings. What use is careful planning if you end up wasting propagules in the end? Jorge did not address this example of clashing values and instead redirected the cooperative members' attention to the task at hand.

In the interactions that followed, Jorge seemed to make peace with individuals who had broken his trust. After the cooperative adopted Jorge's strict 30 centimeter spacing rule (mentioned earlier in the chapter), Jorge responded not with more scientific advice but instead with an uncharacteristic comment. Jorge called out to the group in a tentative voice, "You all might not think that what I'm about to say is true, but some farmers insist that crops planted with love will not fail. I suggest, if you all agree, that we should keep this philosophy in mind today." This non-scientific addendum to the methodology warmed Eva's heart. She said aloud, "My propagules, Jorge... you'll see. You watch how big and beautiful my propagules will grow. Planted and dedicated from Eva to her family, with love."

Remarkably, despite all his attention to detail, Jorge had not checked the tide chart when he scheduled planting day; he feared that the seedlings would drown in their first hours at Cambuná. In his panic, the biologist turned to cooperative members for their local expertise. Jorge looked to members for reassurance, asking them repeatedly how many centimeters they expected the water to rise. Recognizing his distress and noting that, at

this point, there was little anyone could do to intervene, members reassured him that the seedlings would not drown. They described tidal rise not with gestures of “this much,” but instead with precise descriptions of projected incremental rise in centimeters per hour.

Eva stayed longer than the others planting the extra black mangrove seedlings in a different area. Always cautious of the dangers of overcrowding, she cast the last few handfuls into the shallow water nearby, convinced that a small chance of survival was better than no chance at all. The interactions during planting day suggest that, despite countless problems, neither cooperative members nor biologist had given up on the project or each other. The explosive argument rooted in clashing values did not paralyze this group. In fact, after Jorge’s display of emotion, members were more inclined to listen to him than to blame him for his subsequent mistakes. The revised reforestation methodology, shaped by science, local experience, and personal environmental values, reflects a dialogue of clashing and overlapping agendas from beginning to end.

### **Green and Beautiful**

In San Felipe, as in many places, “the environment” is conceptualized in diverse ways and how to best “protect it” cannot be a simple question. In Cuba, for example, when members of a community living at the edge of an ecologically important mangrove zone were asked about “the environment,” researchers were shocked to hear them talk about Amazonia and the Great Barrier Reef. For local people, famous faraway places were known as “the environment” while their mangroves were known as “mangroves” or simply “outside” (Doyon, 2005). The following section describes how reforestation became meaningful to participants in different ways, depending on their personal histories, recent experiences, and future aspirations.

Before this project, Carmen considered the mangroves of Cambuná to be a special place in San Felipe not because of their ecological importance but because of her personal history. Her memories reveal how ecological knowledge and values are deeply embedded in cultural contexts. For most of her life, Carmen’s respect for the mangroves was linked to the practical importance of the long, sturdy pieces of wood that can be found there. Carmen’s father, who first named the place called Cambuná, taught Carmen how to find sturdy poles there when she was a child. Wooden poles may seem to be an unimpressive use for mangroves, but, in this context, few things are as important as a reliable push pole. As Menzies and Butler suggest:

It is difficult to interpret and use traditional ecological knowledge without understanding its cultural context. Practical knowledge of where to find and how to process resources cannot be separated from the traditional structures of territory and resource ownership, cultural rules regarding resource use and waste, and even issues such as the gendered division of labour within a community. (Menzies and Butler, In Press)

As described in chapter two, Carmen worked most of her life in a motorless boat, using only a pole to maneuver. Brittle poles can snap in strong currents or windy storms, leaving one stranded and unable to control the boat. When Carmen's eldest daughter was an infant, she would travel to fishing spots and back to port every three hours, all night long, in order to breastfeed. While Carmen would share, lend, rent, or sell most gear that she owns, her push poles are the exception.

Carmen's personal attachment to Cambuná and cooperative members' dreams of an eco-tourism project both contribute to a special value associated with mangroves in this *particular* place. In contrast, to Jorge, all mangroves are intrinsically valuable. For cooperative members, the decision to remove seedlings from another area along the road was justifiable because they intended to replant them in Cambuná, where reforestation was their main priority. As the project progressed, however, members concern for mangroves also extended to trees growing in other areas.

On one occasion, when Jorge picked up a video camera and asked Carmen and Manuela (the other high scorer on the mangrove quiz) to take a walk with him to answer a few questions, Carmen immediately began to rack her brain for the sentences she had memorized earlier in the project. She assumed that Jorge had prepared a video quiz. However, Jorge beamed at her and asked, "Carmen, why is this project important to you and what do you hope to gain?" Later that day, when she told the story to her daughters, Isabel began to laugh and said, "A mountain of lies you told him, right Mama? 'I believe this project will help the mangroves to last and that my grandchildren will benefit from their existence and—'" Her teasing was stopped mid-sentence by a look so harsh from Carmen that the entire room became silent. Carmen, who is usually the first to crack a joke or make an irreverent comment, said instead:

No. No, Isabel. I told him my opinion. And do you know what? This project taught me about the real benefits of the mangroves. For years I've known that you can go to the edge of the mangroves and fish, but I never knew that it is there where fish reproduce and little lobsters take refuge. I knew mangroves were beneficial for firewood and timber for building boats and finding push poles. And, of course, trees give us oxygen, but that is all I knew. Until now. I would do the project all over again if I were offered the chance. It is a benefit to all of us, and for all of our futures.

This project added a completely new dimension to how Carmen values mangroves.

Eva's perspective about mangroves has also changed due to the project. Her new recognition of the importance of mangroves is blended with her enduring belief that new houses being constructed will look much more "beautiful" than the existing mangroves surrounding her home. This is not a perspective shared by most visitors to San Felipe, especially those informed by North American conservation values placing a premium on "wilderness." Eva's small wooden house at the end of stone path is the picture-perfect snapshot of what life should be like in a quaint fishing village. The breeze rustles through

the mangrove leaves and rocks the hammock where her toddler naps. Her family sees tidal changes from the doorstep. She explains:

Here, these mangroves will be cut down because of the new houses they are building. You'll see, the next time you are here all this [mangroves] will be gone and there will be beautiful houses and neighbors instead. We won't be so far away or so lonely (August, 2004).

Eva does not seem to view conservation and development as conflicting goals:

Before this project, children would play with the seedlings-- propagules-- in the street. Remember? Kids would count them and throw them and rip them open to see inside. We didn't know what they were. Now, my son collects the ones that fall from the trees outside the house. We look for seeds from the trees that will be gone when the new houses come. We throw them into the water so that maybe the current will take them somewhere where they can live (November, 2004).

It is important to note Eva's idea to collect seedlings and re-introduce them to the water. No biologist ever suggested this method, but according to Eva, maybe the few extra handfuls her son carries will "help nature do her difficult job."

The idea of "helping nature to do her job" is a key aspect of what makes this project meaningful for cooperative members. Reforestation is not about preserving nature but instead accelerating recovery and re-growth. However, when one Norwegian scientist (who had never seen a mangrove before) visited Cambuná, he had a very different view. According to him, the hurricane damage was natural and therefore the landscape should be left untouched. The dead and decaying forest was beautiful to him; he described it as "awesome" and "eerie," a "natural beauty."

The Norwegian biologist asked for help translating and turned to the cooperative members to explain, "We, from Norway, have a different philosophy about nature and natural occurrences. We used to think that forest fires should be stopped but, now, we have learned to think differently." From his perspective, because the damage was 'natural,' this meant that the area remained 'pristine' and therefore, it should be left unaltered. However, for cooperative members, 'natural' mangroves are healthy and productive ones. Dead and decaying trees, even as a result of a natural disaster, indicate a need for humans to "help nature" with a difficult job. Like Carmen's horseshoe crabs and Diego's female octopus described in chapter two, resources in San Felipe are actively used and actively protected. Allowing seedlings in Cambuná to fall naturally into uncleared areas where they cannot sprout is considered a waste of both life and future resources. In this sense, for cooperative members, the "awesome" and "eerie" quality of damaged mangroves is interesting but irrelevant.

Sofia Flores Medina immediately spoke up, explaining that it was important to accelerate the recovery of these particular mangroves because of the cooperative's interest in

developing an eco-tourism project. The scientist explained that he found the *process* of recovery fascinating and thought that the contrast between the damaged trees and the new growth was very compelling visually. Sofia listened politely but she made her intentions very clear: they had a goal and a finished *product* to deliver to their community. They were going to make the mangroves green and beautiful again.

### 3.4 Discussion

The new landscape of Cambuná has come to represent far more to these women than the mangroves have ever meant to them before. Areas have been marked with memories and given not only ownership but also a time of birth. Now, places where patchy mangroves grow amidst dead trees have different names. Depending on who is telling the story, some are called "my red mangroves" or "Dolores' transect" or "the place where Eva vomited when she tried to give up Coca-Cola and dehydrated herself." Others are simply referred to as being "from the era of Ulysses." On the final day of Phase Two, Jorge seemed to recognize that the lasting product of this project was very separate from the scientific process:

Sometimes, I think, "What's the point?" and I wonder if this is worth all the problems. You have to remember why we are doing this. This gives work to the women and gives them the chance to learn everything about the mangroves. When these plants grow, you'll see. These women will bring their families and point out which spots are theirs. They'll say, "The best and most beautiful patch of red mangrove was planted by your Grandmother...."

As Jorge predicted, this began to happen even before the first mangrove seedlings sprouted; it continues even though the majority of the seedlings did not survive. Eight women presented their work in an international conference in the state capital and later spoke to a group of thirty scientists who visited San Felipe. The conference poster still hangs on Carmen's living room wall and nearly every day, her grandson, a toddler, points to one picture and asks the same question, "Who is that little boy in the mangroves?" He always answers before anyone else has a chance to retell the story, "It's me! It's me!" he shouts. Throughout the project, cooperative members redefined their roles and made their participation meaningful. In this sense, the reforestation process, designed to replant local seeds in a familiar area, also created a completely new place.

The mangrove reforestation project also left a lasting impression on individual cooperative members. For members who stepped outside their comfort zones while redefining their roles in this project, emotion translated into emerging voices of authority. Dolores's transformation from shy participant to confident international spokesperson serves as reminder to the group. During her term as president, Isabel also learned an important lesson. After speaking on a panel in a packed auditorium with her baby on her hip, she said:

I'll tell you the truth. I used think, "There are just some things that I cannot do." I'd think, "I have a baby and so I cannot travel or speak to an audience." I would use my baby as an excuse because I was afraid to talk to important people. But I learned something. We are important people, too. When you realize something like this, you cannot go back to the excuses you had before.

The project also challenged Carmen in ways she had not expected. Early in the project, Carmen suffered a panic attack related to public speaking while teaching school children about the mangroves. However, by the final stages of reforestation, she accepted Jorge's invitation to speak on a live national radio broadcast in the state capital.

In addition to changing Cambuná's landscape and shaping individual identities, this project also created partnerships through which new forms of knowledge emerged. The mangrove reforestation project illustrates a case in which conventional relationships between scientists and citizens are changing. The emerging set of relations "implies the recognition of new social and knowledge relations which are willing to engage with non-scientifically generated understandings and expertises" (Irwin, 1995). As was the case during this project, incorporating a plurality of knowledges often involves difficult negotiations regarding the project design (Irwin, 1995).

Evidence presented in this chapter challenges the science-centered assumption that "any problematic relationship between science and citizens must be the consequence of either public ignorance or public irrationality" (Irwin, 1995). In this case, 'better' scientific information or greater environmental awareness may not have changed project outcomes. For example, Jorge's strong reaction to cooperative members' decision to uproot seedlings reveals his sense that the issue was black and white, both in terms of scientific understanding (a question of correct and incorrect) and morality (a question of right and wrong). From his science-centered perspective, members' "I-need-it-so-I'll-take-it mentality" suggested an irrational understanding of ecological processes and a selfish approach to conservation ethics. However, examining different interpretations of scientific and local knowledge as well as underlying values reveals that cooperative members' actions were consistent with their concerns. Therefore, instead of attempting to teach and enforce an 'environmental ethic,' scientists must be "prepared to engage with 'problem' situations which give rise to citizen concerns rather than merely attempting to filter out science from non-science" (Irwin, 1995). When Eva initially voiced her concerns and suggested alternatives to address them, Jorge's response was to filter the science from her non-science and redirect her to the predetermined methodology.

However, when the formal methodology did not address cooperative members' concerns, they challenged Jorge's advice and created their own innovative solutions. At times when the project's progress did not meet members' standards, they performed "a function analogous to that of professional colleagues in a peer review or refereeing process in traditional science, which might not occur in these new contexts" (Funtowicz and Ravetz, 1993). Because his authority was conditional instead of automatic, Jorge recognized the challenge to produce high quality, locally accepted results. By Jorge's own admission,

even while he supervised cooperative members, they were also supervising him. Therefore, "the model for scientific argument is not a formalized deduction but an interactive dialogue" (Funtowicz and Ravetz, 1993). The adapted methodology in San Felipe's reforestation project reflects this interactive dialogue between scientists, cooperative members, and their families.

Time will tell if members of the *Mujeres Trabajadoras del Mar* will have the opportunity to extend their reforestation expertise to others attempting similar projects, as stipulated by the original grant proposal. If so, evidence from this chapter suggests that the methodology will be continuously redesigned, both openly and secretly, to allow power to be shared and diverse forms of knowledge to be acknowledged and interpreted. Both the process and the product of such an endeavor would be extremely valuable.



## Chapter Four: Identity and Resource Management in a Homogeneous Community

### 4.1 Introduction

When examining success in local management of common-pool resources, the homogeneity of a community is consistently cited as positive attribute (Agrawal, 2001). Researchers evaluating communities as promising cases for co-management often cite homogeneity as an important key to success. According to one FAO document, co-management approaches “generally have the highest potential for success in culturally homogeneous fishing communities, where there are high degrees of internal social cohesion and correspondingly low degrees of internal discord” (McGoodwin, 2001). However, when homogeneous communities are described as models of success, this can promote the illusion of “isolated, independent, pristine groups” whose success occurs in a vacuum, untouched by outside forces<sup>4</sup> (Kottak, 1999). While groups whose members share similar backgrounds and interests often struggle less than heterogeneous groups in acting upon common goals, many examples in the literature make the mistake of treating a “homogeneous community” as a static entity, an attribute that can be checked off on a list. The case of San Felipe illustrates that this key to success deserves more consideration. This homogeneity must be examined in relation to dynamic and unwritten social rules and in reference to changing patterns of treatment regarding ‘exogenous’ and ‘endogenous’ members of the community (Satterfield, pers. comm., 2005).

This chapter examines what it means to live in homogeneous community, the social pressures that keep this homogeneity intact, and how positive environmental consequences can come at the expense of more complicated social ones. San Felipe provides a textbook example of a fishing community that appears homogeneous on all fronts: gear type, socio-economic status, religion and ethnicity. Seven of the 13 members of the women’s cooperative, the *Mujeres Trabajadoras del Mar*, even have the same last name, implying close kinship ties. Unsurprisingly, local people see a clear division between insiders and outsiders within the community. Maintaining a homogeneous community during a critical period of the Yucatán’s socio-political history was indeed critical to local people’s ability to protect their resources. However, as situations change, individuals reassess their values and ideologies and both long-standing institutions like San Felipe’s powerful men’s cooperative, and social norms, also change. Moreover, individuals who have been taught to be wary of outsiders since childhood nonetheless define their own exceptions to the rule and deal accordingly with the consequences. Such ‘deviations’ from tradition may suggest that conservative social norms served a purpose in times of scarcity but show flexibility in times of opportunity (Satterfield, pers. comm., 2005).

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<sup>4</sup> For example, FAO also stresses that “low degrees of connection with lucrative or rapidly growing external seafood markets may also help to ensure the success of co-management regimes” (McGoodwin, 2001).

The first part of this chapter explores how the 'local' situation in San Felipe, as in any small community, cannot be the product of purely local factors (Kottak, 1999). As Putnam (1993) stresses, "*social context and history profoundly condition the effectiveness of institutions*" (emphasis in original). The second part of this chapter focuses on the unwritten rules that shape local decisions. Even in a community that appears homogeneous, the rules of social exclusion are dynamically linked to race and gender. Many researchers (of anthropology, sociology, political geography, etc.) stress the importance of race when examining exclusion and access to coastal resources. However, social and natural scientists involved with fisheries and resource management often avoid the issue. An examination of 952 abstracts describing all poster and oral papers presented the 2004 Fourth World Fisheries Congress revealed that race was not mentioned a single time. As this chapter illustrates, examining the reproduction of racial knowledge is very relevant to understanding local management of fisheries resources in San Felipe. The roles women played in the social policing of outsiders during a certain time period suggest that women may have contributed to the social and ecological resilience of local fisheries before they ever began to fish.

Finally, the third part of the chapter explores how local people respond to increasing numbers of newcomers in San Felipe. In recent years, identity and trust have played important roles in local people's ability to identify threats and build alliances. Lessons from these three parts lead to my conclusion that much of San Felipe's success stems not from homogeneity per se, but instead from their dynamic ability to respond to changing social, political, and economic situations, both within the community and on a larger scale.

The narrative style used in some sections of this chapter is a necessary discursive medium so as to better capture how subtle, informal constraints and social pressure contribute to maintaining a homogeneous community. Emotion, sarcasm, gossip, and interruptions are often considered white noise that must be filtered out of a final report (Menzies, pers. comm., 2003). However, these details reveal the diversity of lived experience in San Felipe, which allows us to see local people as real people, not romanticized characters in a textbook homogeneous community.

## **4.2 Making the Local**

### **The Good Community**

When compared to neighboring ports, San Felipe is almost always described as "the other side of the coin." In the words of one Mexican researcher, "You can barely compare San Felipe to Rio Lagartos [a nearby port]. They are so close and so far away. Rio Lagartos is dirty. People are drunk. They are without aspirations and without spirit." To many researchers, San Felipe represents what an authentic traditional fishing community should look like. According to a biologist who studied phytoplankton in San Felipe:

It is clean... authentic. They want to better themselves. You feel the difference the minute you arrive there. There is an energy there. The houses are painted; the streets are clean. You have to ask yourself, who casts a shadow and who illuminates things? In Mexico, we are all sort of lost, looking for someone to look up to, someone to lead and to give us hope.

Rarely, if ever, did I receive less glowing descriptions of this port. Foreign visitors also felt that San Felipe embodied something that they had been searching for, or something they had been missing. One tourist described it as "like what towns in the United States used to be like, fifty years ago. Kids play in the streets, playgrounds are safe, people wave hello and know each other." Another foreign visitor noted the pride that surfaces each time someone from San Felipe greets a visitor, "Each time, before anything else, they would say, 'Welcome! What do you love best about our little port?'" The sense of hope that San Felipe inspires in visitors contributes to its reputation.

On one occasion, not even a week after moving into my local home, I arrived to find a uniformed representative of the Ford Motor Company waiting for me. He had been sent by his supervisors to learn about the research being conducted in San Felipe and possibly to contribute funding. They had no idea what research might be taking place, just that it was occurring in San Felipe, and that was enough to interest them. The representative explained, "San Felipe is a different place. It is just so clean. Rio Lagartos is 20 minutes away and home to an internationally recognized Biosphere Reserve; they are bigger with more resources and yet they don't improve themselves." The dichotomy is clear; any neighboring port compared to San Felipe falls short in the eyes of most outsiders.

In comparative studies of the two ports bordering the Dzilam de Bravo state reserve (San Felipe and Dzilam de Bravo), the temptation to present a dichotomy is often apparent. In one such study, researchers informally referred to San Felipe as "the good community" (Chuenpagdee, pers. comm., 2003). People from Dzilam de Bravo even told researchers that they *knew* they were less cooperative than people in San Felipe (Salas *et al.*, 2003).

Researchers cite San Felipe's homogeneous community as a major advantage over the more heterogeneous Dzilam de Bravo. For instance, "there are less problems with immigrating people in San Felipe [and] a high level of organization among different groups that operate there." In Dzilam de Bravo, "at least 25% of the population comes from elsewhere including other states or different cities in the peninsula, and clashes are evident between some groups" (Salas *et al.*, 2003). Unlike San Felipe, Dzilam de Bravo experiences more problems with crime and poverty. Social cohesion in San Felipe has allowed community members to remain well organized and to manage their own coastal resources. By 2003, two groups of women had organized their own cooperatives in San Felipe, but no women were fishing at all in Dzilam de Bravo. Putnam (1993) might describe San Felipe as a civic community, characterized by "a dense network of local associations, by active engagement in community affairs, by egalitarian patterns of politics, by trust and law abidingness." In contrast, Dzilam de Bravo might be described as a less civic community, where "mutual suspicion and corruption were regarded as

normal, involvement in civic associations was scanty [and] lawless was expected" (Putnam, 1993). When people in San Felipe are asked to explain what differentiates them from their neighbors, they consistently call attention to the fact that people from many places have come to live in neighboring ports.

Researchers in San Felipe commonly cite local people's commitment to tradition, their environmental awareness, and their participatory nature as key components of their success (Chuenpagdee *et al.*, 2002; Salas *et al.*, 2003). According to Salas *et al.* (2003), "We find that San Felipe community members are knowledgeable about the resources, aware of the impacts of various activities on coastal areas, and willing to participate in co-management of protected areas." San Felipe created their own community marine reserve within the Dzilam de Bravo state reserve "despite the lack of initial attention the government showed to this area, and defined their own rules to manage it" (Salas *et al.*, 2003). In civic communities like San Felipe, citizens "expect better government and (in part through their own efforts) they get it... they are prepared to act collectively to achieve their shared goals" (Putnam, 1993). In contrast, in Dzilam de Bravo, the protected area has received more attention from the government than from members of the community (Salas *et al.*, 2003). "People in Dzilam Bravo, while understanding the importance of coastal resources, have limited knowledge about the State Reserve and its roles, and more importantly, they feel isolated from the management process of the reserve" (Salas *et al.*, 2003). Like people in Dzilam de Bravo, citizens in less civic communities often feel powerless, alienated and exploited (Putnam, 1993).

As Sundberg (2004) emphasizes, it is critical to examine the political dimensions of conservation and citizenship in Latin America. Focusing on a homogeneous community's traditional environmental ethics can divert attention from politics as a shaper of ecologies, allowing us to imagine San Felipe's success as if it were occurring in a vacuum. Researchers don't tend to ask about key events that led San Felipe in such a different direction compared to neighboring ports because this special port seems to represent the purity of *what didn't happen*, as opposed to what did. However, examining the linkages between local resource management decisions in San Felipe and major political events occurring in the region indicates that socio-political factors have played, and continue to play, a major role.

### **The Events of the 1990s**

In the early 1990s, the men's cooperative created their community marine reserve in San Felipe without any mandate from higher levels of government, possibly the first of its kind in the region. A group of fishers initiated this effort in 1988 and held an official meeting with Municipality leaders in 1995 (Chuenpagdee *et al.*, 2002; Salas *et al.*, 2003). Increasing fishing pressure, from both inside and outside the community, played a role in the fishermen's decision to protect an area known as an important nursery ground for lobsters (*Panulirus argus*), red grouper (*Epinephelus morio*), and octopus (*Octopus maya* and *O. vulgaris*).

In the 1990s, fishers in San Felipe were able to focus on protecting their resources for the future. However, during this same time period, fishers in other small ports were struggling to cope with their current situation: agricultural collapse meant that thousands of displaced workers and their families were headed for the coasts. The mass migration from Yucatán's towns to its ports in the 1990s had major ecological consequences. An environmental NGO described the situation at the time:

Every August about 4,000 octopus fishermen and their families descend on the village of Celestun.... The fishers stay for five months, nearly doubling the population of Celestun, and straining already overloaded community services. This is not some time-honored tradition, but yet another sign of the desperate scramble for resources in this paradise of sunstruck beaches.... Like much of the Yucatán, Celestun is suffering the aftershocks of the collapse of the peninsula's main industry, *henequen*, an agave fiber used for ropes and twine. (Rainforest Alliance, 1996)

This description illustrates the temptation to equate tradition with sustainable resource use and blame newcomers for spoiling a pristine paradise. However, it is important to realize that *henequen* production itself represents a time-honored tradition that ended in economic crisis for many indigenous people in the state of Yucatán.

Since pre-colonial times, people in the Yucatán peninsula have used the *henequen* plant to make natural fibers. By 1915, Yucatán was the wealthiest state in all of Mexico. This prosperity didn't last, however, partly due to the increasing availability of synthetic fibers. By the 1980s, many *henequen* workers found themselves living in extreme poverty, trapped in cycle of debt (Hansen, 1998). Around 1992, huge cases of government corruption were exposed and at least 40,000 workers were paid an indemnity to abandon *henequen* production altogether (Hansen, 1998). Severino Salazar, an ex-leader of the peasant movement, expresses the beliefs of many *henequen* workers:

The fact is that the policy of financing the *henequen* activities has been a complete failure. It was a complete failure because the governmental officials have always ignored the peasant, looked down on his ancestral experience and... inflated the problems of the peasants to enrich themselves. (Hansen, 1998)

Salazar illustrates a complex socio-political history in which resource-based communities have been ignored and mistreated, and in which the experience of generations of people has been repeatedly overlooked. Because of the economic collapse in agriculture in the Yucatán, the government promoted peasant migration to the coasts where they were told they would find better living conditions (Herrera-Silveira, 1998). Unfortunately, this led to increased use of coastal ecosystems without any basic knowledge of their processes (Herrera-Silveira, 1998).

San Felipe was not as seriously affected as other ports. Most likely, this was due to the distance between San Felipe and inland *henequen* producing regions to the west, in

addition to the port's small size. These factors made San Felipe a less attractive destination compared to closer ports with larger fisheries. However, the solidarity and organization of San Felipe's men's cooperative at the time also allowed them to react immediately to situations they determined to be threatening. For example, cooperative members have the power to vote to temporarily close the co-operative to new members at their own discretion. According to Enrique Gonzalez, this occurred at least once around this time period, when community members agreed that an increase in newcomers correlated with the increase in drinking and fighting in San Felipe.

Although the collapse of agriculture and the mass migration of so many poor, mostly Mayan families was a major event in the region's history, it is not mentioned in studies describing the context in which San Felipe's marine reserve was developed. In part, this is due to the fact that researchers tended to ask questions about the ecological concerns, not the social ones, leading the men's cooperative to begin policing juvenile nursery grounds at night. As Kottak (1999) emphasizes, debates among intellectuals about the value of traditional ecological knowledge and the efficacy of local resource management "often forget that the 'local' is never purely local but is created in part by extralocal influences and practices over time."

In addition, many individuals in San Felipe do not remember the collapse of the *henequen* industry as a major event or perceive the migration from towns to ports as a regional phenomenon. Instead, many cite specific local observations such as the increase in outsiders, or the problems associated with people of Mayan descent who are trained to farm but decide to fish instead. As Kottak (1999) suggests, "Today, no set of informants can supply all the information we seek. Local people may not be helpless victims of the world system, but they cannot fully understand all the relationships and processes affecting them." Understanding the key events of the 1990s provides insight into local people's views about outsiders in San Felipe. However, instead of determining people's views, these events may have confirmed the suspicions and stereotypes that local people acquired in the preceding decades.

#### **4.3 The Intersection of Race and Gender**

In addition to the ability of the men's cooperative to act in response to perceived threats, traditional social rules also contribute to the maintenance of homogeneous community. According to Putnam (1993), informal constraints matter. "We need to know much more about culturally derived norms of behavior and how they interact with formal rules." The following sections explore how social exclusion is intertwined with local ideas about race and gender.

##### **Marks of the *Pueblo***

According to many people in San Felipe, life in a port is different from life anywhere else. "*We are different*," explains Carmen Castillo Mendoza. Her youngest grandson is seven months old and, like most babies he cannot speak or stand on his own, but he can

swat his own mosquitoes. At age two, his cousin can swim underwater and is learning to steer the motorboat. Besides the strong sense of identity in San Felipe and the pride associated with knowledge of coastal resources, there is also an underlying belief that people from ports are inherently different than people from towns, or *pueblos*.

On one occasion, Carmen took me aside because she wanted to ask me a personal question. She was feeling very unsettled because, although she had put her trust in me from the beginning, something was making her uneasy. Repeatedly, I had mentioned that I had grown up in a small town on the coast. Carmen could not understand the motive behind this deception: for her, there are no towns on the coast; such places do not exist. There are only towns (inland) and ports (coastal). I quickly explained that the confusion stemmed from my translation of the words. Visibly relieved, she said, "I knew there was no way you could have come from a small *pueblo*. It just couldn't be. I keep looking at you and wondering... but it just couldn't be." I learned that being raised in *pueblo* instead of a port is considered a major disadvantage in San Felipe.

Several people in San Felipe explained that ports are typically associated with progress while *pueblos* represent the past. Even Carmen, who often finds herself redefining social norms, is somewhat embarrassed about her boyfriend. Don Chuc comes from a *pueblo*. Carmen explains:

People from *pueblos* are different. They have a terrible accent when they speak because they are used to speaking Mayan and they get all the words mixed up. Don Chuc will say 'el mesa' instead of 'la mesa' and I correct him because he can learn to speak correctly because anything you want to do you can accomplish it.

Although Don Chuc moved from a *pueblo* to a port two decades ago, he is still unmistakably marked by his accent. Diane Nelson (1999) describes common "cultural markers" used by non-indigenous people to identify Indians<sup>5</sup> in Guatemala: clothing, language, relations to technology, and occupation. Carmen confirms that language is an unmistakable sign of difference. According to Carmen, in the Yucatán, Spanish is the language of everyday life, of the present. English is the language of the opportunity and progress: the language of the future. In contrast, she considers Mayan to be a language of the past.

Carmen adds a dance-inspired marker used to classify people from *pueblos*:

And I taught Don Chuc how to dance. People from *pueblos* don't know how to dance because they work in their town and they barely leave. Not like in a port where you travel and people come from far away and there are events like dance competitions on the beach. When I took Don Chuc out dancing, he wore sandals! Can you imagine? And the people laughed

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<sup>5</sup> Nelson uses the term Indian (or *Indio*), a derogatory but common term in Latin America, to refer to stereotypes of generalized indigenosity. She uses Maya to refer to actual indigenous people.

at him when he lost the rhythm after only two drinks. People laughed at him.

When people describe Don Chuc as being "from a *pueblo*," this actually carries a deeper meaning besides conveying basic information about his place of birth. "From a *pueblo*" is a more gentle way of saying that Don Chuc is of Mayan background, and therefore likely to be unsophisticated and uneducated. In San Felipe, Mayan heritage is often looked down upon and associated with ignorance, a humble existence, and a failure to embrace modernity. For example, the normalcy of these locally accepted stereotypes is revealed by the biologist's remarks during the mangrove reforestation project (chapter three). Jorge said, "This project could have been done by peasants, you know. Peasants from the little towns [*pueblos*] can swing a machete. But they would never have done this project with the care with which these women have accomplished it." His comment suggests that agricultural workers from *pueblos* are capable of physical labor, but neither precise nor sophisticated execution.

The association of modern places (*pueblos*) with the past illustrates how "racialized expression has served to fix social subjects in place and time, no matter their spatial location" (Goldberg, 1993). Because race freezes Don Chuc as a character from another time, Carmen is especially sensitive about his ability to blend in and be accepted in a social situation like the discotheque, which is associated with modernity. By speaking, dancing, and wearing sandals, Don Chuc was immediately identifiable as an "Indio."

Cultural markers become critical in drawing the line between Self and Others. For example, ladinos<sup>6</sup> in Guatemala often avoid manual labor, especially working on the land, to lessen the risk of being mis-recognized as Indians (Nelson, 1999). However, like physical traits, cultural cues are not straightforward, especially for men. The collapse of *henequen* production in the 1990s forced tens of thousands of Mayan men to find different jobs, making occupation an unreliable marker. In addition, in Yucatán, Mayan men do not wear distinctive traditional attire as do many women. However, for men, there is one mark of origin that can never be erased by a change of clothes, an occupational shift, or marriage. For this reason, a man's surname in San Felipe is a powerful mark of status.

### **'Bad Last Names'**

When Carmen was a young woman, her father prohibited her from dating anyone from a family that did not meet his approval. "The boys would come and introduce themselves and immediately he would not like them," she recalls, "I never knew why. Then I realized that he would not stand for me to fall in love with someone with a bad last name. He prohibited it." When I asked Carmen to explain how her father judged surnames, she turned immediately to Don Chuc, the man she has been dating, and explained:

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<sup>6</sup> Nelson uses the term Ladino to describe a social category of people in Guatemala who consider themselves non-Indian or white.



For example, a name like Don Chuc... it's a bad name. It's not a name like Rivera Castillo. It sounds bad. Children with names like that get laughed at in school. Like [a girl's last name], for example, I've heard that she hangs her head in embarrassment when her teacher asks for her last name at the beginning of every school year. And if you marry a man with a bad last name, that's the first last name your children will have.

The social rules designed to maintain racial status have been ingrained in Carmen's mind since she was a teenager. As Carmen and Don Chuc smiled at each other, I tried to understand the roots of the prejudice that they discussed so openly. Carmen saw me struggling to be polite and explained sincerely, "People with bad last names are inferior. They are below us. Indians." When I did not respond immediately, Don Chuc clarified, "It's racism," he explained. "Yes, racism," said Carmen, and the couple nodded in unison. Carmen chose her words carefully saying, "I think that my way of thinking is a bad way of thinking. It's bad. But that's how I think. That's how I was taught. I try not to think that way... but then I think: Shit! That's a bad last name."

Examining Carmen's family history reveals a cycle of defiance and acceptance in response to the social pressure to maintain a homogeneous community. Carmen's father had wanted to marry a woman from a nearby port, but because she was of Mayan background, it was forbidden. He went on to teach his children that bad last names are a stigma that never fades. When Carmen was seventeen years old, her father wanted her to marry a man older than himself instead of the young man she was interested in dating. Judging by the cruel physical punishments and beatings Carmen endured for routine teenage rebellion, it would seem that breaking a rule that her father believed in so strongly would have had brutal consequences. Carmen chose to respect her father's wishes and married the man with a good last name. She became his widow by age twenty-three.

Carmen's experiences reveal how race and class inequities are constituted by social regulation of gender and sexuality (Nelson, 1999). In many parts of Latin America, there is a sense that mixing blood can taint a lineage and gender plays an important role in how these social constraints are enforced. Nelson explains:

Whether a sexual liason whitens a race or stains a lineage depends on the gender of the bodies so engaged. When white people "with no Indian blood" thank their ancestors' "ardor" for purity, they are referring to the violent policing of white women's sexuality. (Nelson, 1999)

Carmen's father was not forbidden to have a relationship with a Mayan woman, but it was impossible to marry her. Similarly, white families in Guatemala would allow their sons to have sex with Indian women, but only in extramarital relationships. Daughters, however, would never be permitted to engage in this behavior (Nelson, 1999).

At one point, Carmen smiled at Don Chuc and said, "I'm going out with you, yes, but you'll have to excuse me, I'm not having any babies with you!" Carmen draws a line

with this statement: while Don Chuc is a suitable companion, he would not even be considered as a candidate to father her children. In Guatemala, perceived 'purity' of blood has also traditionally been, and continues to be, a major concern for elite families. Nelson cites one family interviewed in 1992 whose members insisted that they "do not have even a drop of Indian blood. This is proved by our certificate of blood purity [*limpieza*] and the fact that all of us have a blood type O-negative" (Nelson, 1999). *Limpieza*, translated from Spanish, means "cleanliness." A woman's respectability depends on her ability to maintain this purity.

When Carmen's eldest daughter began to date an indigenous man with a last name pronounced "Ick," Carmen felt she had no choice but to enforce the rules for her daughter's own good:

How in the world was I going to allow my daughter to give birth to my grandchild with the last name Ick? I prohibited her from seeing him and she said "Okay, Mama, I won't" and then, one day in Tizimin [a nearby city], I saw them. She was sitting across from him on a bench with her legs apart, not closed like a decent woman. And I went right up to her and slapped her. "Did I raise you to act like an Indian?" I said, "You know better. It would seem that you only know how to act like an Indian."

Carmen paused her story to look at me, making sure everything was clear and that I understood why she had to react the way she did. She continued in a sad and quiet voice, "I couldn't accept it. Not with such a bad last name. How could I?"

The social pressures restricting women's choices also apply to Mayan women who fall in love with white men. According to Nelson (1999), there is a special place in the Mayan hell reserved for indigenous women who choose to sleep with ladinos. She explains, "The Mayan hell and the painful shunning practices that greet indigenous women who choose ladino partners suggest that Mayan communities also closely police 'respectability'" (Nelson, 1999).

In San Felipe, traditional rules, which require the policing of women's choice of partners and spouses, have contributed to the maintenance of a homogeneous community. When social regulation controls which men become fathers to the next generation of children, the number of outsiders in the community can be limited far beyond the scope of what would be possible by periodically closing the men's cooperative to new members.

Now in her forties, Carmen continues to grapple with the responsibility she feels to simultaneously reject and reinforce the strict social rules she was taught. Even today, Carmen's father will not accept her relationship with Don Chuc and refuses to speak to him at all. Carmen's only son avoids him as well. Because Don Chuc comes "from outside," he cannot be trusted. Don Chuc explained that he reacts to prejudice with respect: people have the right to believe what they choose. "I don't get offended," he said, smiling. However, he later reconsidered his stand on the issue. "I think, truthfully, that it is wrong," he said, "Some people cannot stand to be around black people and that

is racism. It is a bad way of thinking.” From the other room, Carmen responded, although no one had been talking to her. Her boisterous attitude had changed completely. In a sad voice she said, “I know that it is wrong. I know that we are all God’s children and we are all equal and we should accept and love all people. I know that. But it’s in here [pointing to her head]. It’s been put in here like a computer and I can’t get it out.” Carmen is torn between the information she was taught and what she believes to be true based on personal experiences. She was taught that Indians are “lazy, traditional, conformist, and submissive” and that these are inherent genetic traits (Nelson, 1999). However, she believes that in these changing times, anyone can be the person he or she chooses to be. As she says to Don Chuc each time she corrects his grammar, “Anything you want to do, you can accomplish it.”

### **Becoming Indigenous**

Traditionally, unwritten social rules have informed women’s choice of spouses in San Felipe. However, recent international attention focused on San Felipe’s success has forced members of the *Mujeres Trabajadoras del Mar* to reconsider their own identities. International researchers and NGOs often hear about this traditional fishing community and assume that they are Mayan. They expect members of the cooperative to be fully prepared to teach others about their cultural heritage.

Recently, more and more opportunities depend on the ability to embrace the Mayan side of one’s ethnicity. For example, when an invitation arrived for one cooperative member to attend a conference in Canada, conference organizers sent a list of attributes describing the woman they hoped to invite. They had heard of a particular woman in San Felipe and they wanted to hear her story. The list described Carmen almost perfectly. They were looking for a woman who had been fishing her whole life and who knew how to dive for octopus without an air tank. However, a final attribute on the list surprised her. Carmen recalls, “And then the message said that this woman must be able to speak Mayan and that was a requirement. I don’t know how to speak Mayan, not at all.” Carmen felt that this final prerequisite made her ineligible. She convinced the group to support another member, Dolores Espada Chapa, in her desire to travel. Dolores was not originally from San Felipe and she couldn’t dive without an air compressor: Dolores had never even learned to swim. However, Dolores wanted to represent the group and she possessed one thing that Carmen lacked: Dolores had relatives in a nearby city that knew how to speak Mayan. She immediately left San Felipe and spent two weeks frantically learning key phrases in Mayan that she could use at the international conference.

Around the same time, Sofia Flores Medina, the first president of the cooperative, was also invited to a workshop for indigenous women. After attending the initial meeting for indigenous women in Mexico City, Sofia gained a special status in official circles. This status came with opportunities never afforded to the average fisherwoman from a tiny port: she was invited to meet the First Lady of Mexico and to speak with her one-on-one about her ideas. These recent opportunities demonstrate the fundamental contradiction between international imaginings of authentic communities (Slater, 2002) and local constructions of ethnic legitimacy.

Nevertheless, the appropriation of an indigenous identity by some cooperative members should not be naively assumed to be conscious or intentionally strategic. As Escobar suggests, these are not cases of "essentialized identity construction" but instead are "flexible, modest, mobile, relying on tactile articulations arising out of the conditions and practices of daily life" (Escobar, 1995: 216 as cited in Kottak, 1999). When asked if she considers herself indigenous, Sofia paused and said, "Indigenous... well, yes, we are all indigenous." In contrast, Carmen does not identify herself as indigenous but instead "Yucatecan." According to Dietz, individuals are constantly looking for clues as to what role they should assume (Dietz, 2005). What is interesting here is the flexibility of perspective with which individuals explore their own identities.

Although Mayan heritage is associated with farming in rural towns and is often seen as the antithesis of fishing-for-a-living-in-a-port, individuals like Dolores and Sofia received no criticism for exploring this side of their heritage. This lack of animosity is revealing. Carmen did not question the above-cited list of what she called "mandatory attributes"; she was not frustrated by the fact that Canadian conference organizers were searching for imagined Mayan fisherwomen who in fact do not exist in the state of Yucatán. She said, "If they need a fisherwoman who speaks Mayan, Dolores will study as hard as she can to give them what they need." To understand how some members of the women's cooperative were able to simultaneously reinforce racist ideas and embrace indigenous identities, it is once again important to examine "the centrality of gender in the production of race, class, and national identification" (Nelson, 1999). In San Felipe, Mayan women are not criticized in the same ways as Mayan men. Mayan women are not commonly described as untrustworthy or bad. Only men from other places, not women, are seen as having the potential to usurp power and profit from members of San Felipe men's cooperative. Only men are seen as having the power to give a respectable woman's children a bad last name. In this case, it is men of Mayan descent, not women, who are perceived to threaten the traditional balance of power and prestige in this homogeneous community. This intersection between racial prejudice and gender illustrates how stereotypes are reinforced when they serve practical purposes in daily life and yet are creatively altered in other cases.

#### **4.4 Identity and Trust**

The following sections in this chapter examine local responses to the recent influx of newcomers in San Felipe. The changes occurring within the men's cooperative illustrate how, as situations change, longstanding institutions also change in response. Trust and identity play important roles in how threats are identified, understood, and managed, as well as how loyalties are reinforced.

##### **The People from Neither Here Nor There**

The majority of people in San Felipe come from families who have lived in the port for generations; they are called the people "of the port." Then there are those who came later,

called the people "from outside." Carmen's daughters have learned to trust the people of the port and expect less from the people who have come from outside. However, there is another category of people whose origins are less clear. According to Eva Rivera Castillo:

There are people from many places, some are from San Felipe and others came from Tizimin [the nearest city inland]. But there are others. These are the people from neither here nor there. I saw some men pass by my window yesterday and I didn't recognize a single one of them. I felt goose bumps rising all over my body. These people are from neither here nor there.

Eva's fear of people from this liminal place is related to the uncertainty of not knowing, and not being able to tell, a person's origin. The people from "neither here nor there" are from an unknown geographic location. They may also be difficult to categorize in terms of race, which forces Eva to imagine them living somewhere in between known places and times. In Mexico, as in Guatemala, the ambiguity associated with *mestizaje* contributes to an underlying fear that physical features alone are not reliable indicators of a person's race (and therefore his or her character, following the logic of racialized codes). In San Felipe, skin color is a particularly unreliable marker because men and women both work outside in the sun and darkly tanned bodies are the norm. On several occasions, Carmen peeled back the spandex shorts she wears while fishing to show me her pale thighs. She said, "I am actually very white. This dark skin is not my 'real' color." Carmen's desire to check her thighs in order to reassure herself, or me, reveals a core contradiction in local racial knowledge. According to Nelson, "Contradicting the many ladinos who say that they can 'always tell' an Indian by their phenotypic characteristics, everyday ladino practice suggests the terror of not being able to tell" (Nelson, 1999). Nelson (1999) recalls the example of one light-skinned boy who was instructed never to choose a seat next to an indigenous woman on the bus, lest he be mistaken as her son, and therefore, an Indian.

Many people "of the port" also claim they cannot trust outsiders because they are simply "too unpredictable." Eva's brother constantly reminds her to be wary of their mother's boyfriend, Don Chuc, because no one knows where he comes from and therefore they can never predict how he might react. To them, the unpronounceable name of his *pueblo* serves as a constant reminder that he comes from another place with other customs. Because he does not have an education, it is assumed that at any moment he is capable of doing something unexpected. As Putnam (1993) reminds us, "The trust required to sustain cooperation is not blind...trust entails a prediction about the behavior of an independent actor," which requires knowledge about a person's disposition, available options and consequences, as well as his or her abilities. Bernard Williams describes the sense of predictability and familiarity in small and close-knit communities as 'thick trust' (Putnam, 1993). However, in more complex, larger settings, or, in this case, when newcomers enter a small, close-knit community, "a more impersonal or indirect form of trust is required" (Putnam, 1993). When a person is unknown, cultural markers offer the only available clues about his or her disposition, options and consequences, and abilities.

Eva stresses her belief that the people "of the port" must always remain in control of their resources. She offers the example of another small port in which many more outsiders have joined the community and gained power. "In that port, there are people of all different kinds of races.... Who is in charge? Not the people of the port." Eva sees the same thing happening in San Felipe on a smaller scale. For example, Don Chuc is not originally from San Felipe but now his sons have become powerful within the men's cooperative, more powerful than some individuals from families with fishing legacies.

According to Goldberg (1993), "race extends a tremulous identity in a social context marked by uncertainty" and offers "a semblance of order, an empowerment, or at minimum an affectation of power." Dividing people into categories like Indians/non-Indians and Insiders/Outsiders may establish a form of "thin trust" that offers a basic sense of safety and predictability during this current period of social change in San Felipe. Therefore, when newcomers arrive who are difficult to categorize, such as the "people from neither here nor there," Eva perceives their presence as a threat. Although she is not certain why these unknown men fill her with dread, the uncertainty surrounding their origins causes a physical reaction stemming from the fear Eva has been taught.

### **The People of the Port**

While there is an underlying distrust of outsiders in San Felipe, it would be inaccurate to assume that xenophobia applies to all new arrivals in a uniform manner. Community members carefully distinguish threatening outsiders from newcomers who they regard as meaning no harm. For example, according to Eva, "If a poor man comes to San Felipe and he wants to fish to provide for his family, who are we to send him away?" In fact, a completely separate cooperative exists for independent fishers who come to San Felipe without enough money or gear to make a living on their own. These fishers can seek out Don Miguel who provides the necessary boats and gear. However, the people of San Felipe will not tolerate outsiders who come to San Felipe only to take what they need without contributing to the greater good of the community.

According to Eva, "The people come from outside and they come to fish. What does this mean? They come to take our fish, our product." Recently, a businessman from Mérida arrived in San Felipe with dozens of boats, and as many as fifty fishermen who planned to use them. They brought all their own gear, their food, and even the gasoline for their vessels. When people from San Felipe voiced their concerns that the new fishermen came to take product from San Felipe's waters without contributing to the local economy, the outsiders responded that goods were much cheaper in the state capital. The cooperative members offered them an ultimatum: they were welcome to stay as long as they agreed to buy gasoline from San Felipe's gas station and food from the markets. When the outsiders refused, over 200 members of San Felipe's men's cooperative and their families gathered at the dock and began to lift the new boats out of the water. Every boat, every motor, and every net was carried into town and placed outside the office of the Municipal president. Even with no legal authority to force the outsiders to comply, the resolve

behind their actions was very clear. The "outsider" businessman concluded that he had no choice but to take his business elsewhere.

During this conflict, the solidarity of the men's cooperative and their family members was upheld, if not reinforced. Consequently, the distinction between those who were "of the port" versus those "from outside" changed. In this case, local people who considered the good of the port to be their personal responsibility joined together to mount a protest so thorough that newcomers, even those armed with wealth and power, were forced to respect the control exerted by locals within their own port.

### **The Henequen Connection**

While members of Carmen's family keep a meticulous mental tally of insiders and outsiders within the community, they did not know anything about the mass migration of the 1990s. When asked how thousands of displaced agricultural workers ended up in many of Yucatán's fishing ports, Eva admitted that she had never heard of this regional phenomenon. She did not know the meaning of the word *henequen*. Similarly, neither Carmen nor Eva had ever heard about government programs encouraging families from small *pueblos* to move to the coasts and learn to fish. Without a trace of malice, Eva said, "This has not happened in San Felipe. Thank God for that." However, one informant recalls that the government sent 40 agricultural workers to San Felipe to fish and prohibited the men's cooperative from sending them away. When Don Chuc spoke up to say that he might know something about the people who came from the *henequen* fields to start new lives as fishermen, Carmen snapped at him, saying, "Oh, and what would *you* know about such things?" To everyone's surprise, Don Chuc stood up slowly, placed his hands on the table and said, "I would know because I was one of them."

The fact that Carmen knew so little about Don Chuc's life before he came to San Felipe illustrates how she attempts to nullify attributes that might either stigmatize him further or 'tarnish' her own status by affiliation (Satterfield, pers. comm., 2005). Earlier examples in this chapter suggest how racial knowledge serves a purpose in maintaining traditional power relations. However, racist exclusions are sustained "not only by the power of socio-economic interest but also by the 'microexpressions and strategies that cement social identities'" (Goldberg, 1993). Carmen defines herself by the many ways that she is not-Indian and thus must constantly negotiate her conflicting feelings about Don Chuc.

Nelson's informants in Guatemala were elite landowners who discussed interactions with Mayan laborers or domestic servants. In San Felipe, however, the inferiority attributed to people from *pueblos* is less distinctly related to class. Roediger describes how, in the United States, whiteness worked as a compensatory 'wage,' which allowed some nineteenth century workers to feel superior to others, despite their parallel economic situations. Whiteness, and the social privileges associated with it, prevented white wage laborers from identifying with black workers who were also being exploited by their employers (Roediger, 1991). The payoffs associated with whiteness, both real and imagined, fostered pride instead of protest, "thereby pitting race against class

identifications in ways that have haunted working-class struggles for two centuries” (Wiegman, 1999). Because Carmen was taught that Indians are inferior, this allowed her to see her life working on the water as the opposite of laboring in the fields. She was taught that, no matter how difficult her life has been, she was born into a category of people whose members would always be ‘better off than the Indians.’

Don Chuc began to work in the fields at age eight, exactly the same age as Carmen when she began to fish. However, Carmen saw their situations as completely different. “Why do they make children work in the fields? How could you?” she asked repeatedly as Don Chuc told his story. In her opinion, Mayan children were sent to work so that their lazy fathers could finish the work faster and spend the afternoon drunk in a cantina. Only Indians would condone such terrible customs, she said. According to Carmen, Indians make selfish choices that rob their children of better futures. In her accusations, she made several efforts to clarify that she was nothing like these people. She said, “How can you punish innocent children by taking away their education? My children worked, like me, but they studied. They went to school.” The racist ideas so embodied in Carmen allow her to dismiss the hardships faced by Mayan communities with less empathy than she would in like situations (e.g. car accidents on the news, international natural disasters). In part, Carmen identifies less with Mayan people because she regards the problems they face to be of their own making.

During an interview, Carmen couldn’t help interrupting Don Chuc’s version of the story when she did not believe he was sharing key facts. He began:

Me and all the kids put the rope here [on our heads] and carried the *henequen* bundles, we cut 3000 leaves a day. Every day, every day, every day. It was hard work. We left at 4 in the morning, rode the truck, and walked 8 kilometers to the fields. At 8 years old, I started to work. Others started younger than that... It’s hard, and the rain. Oh, the rain! The bundles are so heavy when they are soaked with water. We were still young. There are snakes and thorns. You cut yourself every little while.... The first time I came to work, my father told me how to do the rope. He said put it here--

At this point Carmen interjected, “And you did it wrong and he beat you? Didn’t he? How can you punish children like that? How could you take them to work?” Interestingly, Carmen repeatedly says “you” when she is referring Don Chuc’s father. Don Chuc was the child being sent to work, not the parent making the decisions. Her accusation, “How could you?” refers to the customs she attributes to Mayan communities; she blames Don Chuc for being part of this cycle and, indirectly, for being one of these people.

The above outburst was one of many. When Don Chuc spoke of his experiences, Carmen initially only heard the aspects of his story that validated her understanding of a stereotypical Mayan community: he was taken out of school to work in the fields, his father liked to drink and often beat him, and he later fathered 10 children of his own.



From the distance she had been taught to maintain, these families were racialized caricatures of Indians. However, when Don Chuc described how corruption contributed to the downfall of the *henequen* era, Carmen stopped interrupting and began to listen.

Don Chuc explained how the stereotype of the “lazy Mayan” was reinforced by purposeful behavior during the days of agricultural collapse:

*Henequen* went bankrupt. The government took control and they thought that they could do a better job. They were robbing us and we began to work badly. They used to pay us on Friday, and then even that stopped. I worked badly just like everyone else, equally bad. If you don't cut the plants, they won't grow. If you put your heart into it, you can get the job done in three hours, but... with the corruption.... They stopped paying us and we couldn't recuperate. We were the kings of *henequen* but then the government decided to liquidate us all.

Carmen continued to listen as he explained his transition from working in the fields to working on the water.

At age 30, Don Chuc moved to a nearby port and tried to learn how to fish with no experience on the water. He recalls:

Imagine a fisherman who is seasick. That's how we all were. I threw up for the first fifteen days and it was three months before I could eat anything on the boat.... The government offered fishing classes, but that is not something that you can learn in a class. You need to acclimatize yourself. You need to love it. And some people don't. Eighteen years ago, I came here. There are more fish and life is more tranquil. So, I stayed. Of course I did! I did it for my sons. If it had just been me, I wouldn't have done it. But with children.... When I think of the change from *henequen* to fishing, I say, Thank God. With *henequen*, there is no hope, no chance to prosper.

As he spoke, Carmen ceased her interruptions and, instead of attempting to guide his story in the proper direction, she listened and nodded her head.

When Carmen finally spoke, she tried to make Don Chuc admit that he was traumatized by his childhood experience with *henequen*. He said, “No, I'm not traumatized. [But] it tires your mind, and that can traumatize you a little.” Carmen then admitted that she herself was traumatized after so many years of fishing. “I used to dream about it when I was a little girl,” she said. “Even now, sometimes I wake up because I am banging my fingers on the frame of the bed, trying and trying to untangle the fish from the net. I'm traumatized, too. Like you. Maybe... in this way... the work is a little bit similar.” This was the first time that Carmen allowed herself to see the similarities between work in the fields and work on the water. Before, she was blinded by her strong feelings about child labor and education, by the stereotypical differences between *pueblos* and ports, and, in many ways, by the “wages of whiteness” that made her feel different.

## The Politics of Identity

Carmen perceives that now approximately half of the people living in San Felipe are "from outside." The majority of the outsiders now living in San Felipe support the political party known as PAN<sup>7</sup>, which has recently gained power. Members of Carmen's family are strong supporters of the rival political party called PRI<sup>8</sup>. Flor, her youngest daughter, is a faithful member of this party at age twelve. When asked what this party stands for and why she believes in it so completely, Flor answered simply, "It's family." Flor's personal attachment to the PRI stems from strong political connections within Carmen's family that were established decades before Flor's birth. In fact, an examination of San Felipe's municipal presidents since 1941 reveals clear kinship ties. Twelve out of twenty-three presidents carry the same surname as either Carmen's father or her mother (INFDM, 2002).

On one occasion, Carmen discovered Flor ripping posters for the rival party off of light posts and bicycles. Carmen was both surprised and familiar with the anger on Flor's face as she tore the signs to shreds. Carmen said, "It reminds me of myself at her age." Just down the street from Carmen's house, a leaky boat beached for repair has become a popular play spot for neighborhood kids. On the underside, a child has scribbled, "The PRI will win," in white chalk.

According to Carmen, politics are to blame for the growing divide in the powerful men's cooperative. The men's cooperative, which has dominated the lobster, octopus, and grouper fisheries since the 1970s, recently splintered into two groups. One group supported bringing in outsiders and the other opposed it. As Diego Menendez Aguilar explained the situation, "The fighting was becoming too much. We decided to make two groups and then each group could do what they wanted. Now, the fighting has stopped." For Diego, dividing the cooperative was a fair price to pay for the social harmony that resulted. However, according to Salas, the inability to cooperate led to the fragmentation of what was perhaps the most successful and powerful cooperative in the region (pers. comm., 2004).

For Carmen, one's political affiliation is a permanent part of one's identity. She explained:

The men's cooperative is split because of politics and the people who change parties, I just can't understand them. For me to convert, it would be like saying that I don't know who I am. It would be like saying tomorrow morning that I'm not Catholic. Or that I'm not a woman. I'd sooner become a man than change political parties. You have to know who you are.

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<sup>7</sup> Partido Accion Nacional (PAN), the "National Action Party," is a conservative political party in Mexico.

<sup>8</sup> Partido Revolucionario Institucional (PRI), the "Institutional Revolution Party," is a socialist political party in Mexico.

Despite her inability to comprehend changing political parties, Carmen understands why so many people who come to San Felipe support the PAN. When they arrive, the PAN offers some newcomers brand new yellow tricycles, which are ideal for carrying fishing gear to and from the dock. In addition, local gossip suggests that the party provides land and construction permits to build homes. These gifts, offered in exchange for votes, are described as constant reminders that people from outside are gaining power within the community. According to Eva, "Almost all the people from outside are PAN supporters. [The party] brings them from other places and they buy them with land and tricycles. San Felipe is divided. They have the majority and what can we do?" The bright yellow tricycles clearly mark those who have benefited from the party's generosity; these individuals are also marked as outsiders.

Eva's husband, Diego, offers a crucial reminder regarding recent divisions in San Felipe, both in politics and within the cooperative: even when divided, community members are still connected through social bonds of family and friendship, which cross all institutional boundaries. In a port this size, trust is constantly rebuilt between individuals through informal channels. Diego was born and raised in San Felipe but, due to his family's political affiliation, he aligned himself with the side of the cooperative now dominated by people from "outside." Diego's family politics are offensive to Carmen, but she accepts and embraces her daughter's husband with the understanding that he is forbidden to wear PAN t-shirts in her home.

### **'The Legitimate Fishermen'**

Previous sections in this chapter suggest the connections between identity and the informal social policing of insiders and outsiders within the community. Similarly, identity also plays a role in the formal decisions made by the men's cooperative. Aside from the powerful role of politics, Marcos Castillo Mendoza, Carmen's brother, blames himself for the cooperative's division. Marcos traces the problems back to a series of events during his term as president of the cooperative in 1998. Marcos recalls his father's disappointment in the decisions he made while in power:

My father was one of the founding members of this cooperative. He said to me, "What are you doing allowing people from outside to join the cooperative? They are bad. They are problems." But I said, "No. Papa, you are the bad one." I can see now that he was right.

The following description by Marcos suggests that a key event revealed the underlying insider/outsider fault lines within cooperative, exposing the importance of identities therein (Satterfield, pers. comm., 2005). The subsequent clash between insiders and outsiders led to the break-up of the cooperative and created both economic and ecological consequences for the port. Marcos' anecdote reveals the importance of identity in decisions affecting resource management. How people define themselves determines how they balance their responsibilities and entitlements, as well as what they expect from people in positions of power.

During Marcos' presidency, he was called to testify in a court case in Miami, Florida. A seafood importer originally from Yucatán was charged with possession of 6 tons of undersized lobsters. This man, who had made millions of dollars in the lobster industry, now placed his fate in the hands of a lifelong fisherman from San Felipe. Marcos found himself at a mansion, being introduced to a lawyer who defended the infamous boxer, Mike Tyson. Marcos was asked to testify that the undersized lobsters (many measuring 13.5 centimeters) would be impossible to distinguish from legal lobsters (14cm) when diving underwater with a mask. The millionaire was so grateful for Marcos' help that he rewarded him with a check for \$20,000 in United States currency. Marcos returned home with a new camera, a bathing suit for his wife, and a collection of stories that his neighbors could barely believe. He bought a ranch just outside San Felipe and invested the remaining money in San Felipe's gas station and other struggling businesses in the port.

Unfortunately, many people within the cooperative became suspicious. Marcos laughs, recalling, "They wanted to see me come into the presidency poor and leave the presidency poor. That's how it's supposed to work!" Members believed that Marcos was embezzling the cooperative's funds, particularly those allotted for a United Nations project to protect their community reserve. Building materials had already been purchased to construct a dock and radar system for monitoring the reserve. Although Marcos kept meticulous records of the receipts in a special file, discontent was growing and loyalties were being tested. Rumours spread and, piece by piece, the materials for the monitoring project began to disappear. According to Marcos, members stole and sold project materials to retaliate for what they believed was inappropriate behavior by the cooperative's president. These actions call to mind Carmen's group members' ability to punish Carmen, their leader, when her behavior too closely resembled 'ambition.' Men's cooperative members who decided to sabotage the project by stealing materials were sending a message to Marcos that his behavior was socially unacceptable.

Like the decision made by members of the women's cooperative to cut their aquaculture pen to make individual nets (described in chapter two), the men's cooperative dismantled and abandoned their monitoring project because, at the time, social concerns far outweighed potential ecological or economic benefits. When the United Nations representative arrived to review the progress of their monitoring project, Marcos had no choice but to tell them that the project was cancelled.

During this conflict, many took sides against Marcos, but the fishermen from families with long histories in San Felipe stood by him. Rivalries had been escalating in the years before this incident and perhaps Marcos' stay at the mansion indicates a tipping point in the precarious social balance between insiders and outsiders in San Felipe during the 1990s. His story reveals that unrelated actors and influences often play important roles in local conflict. It is important to examine how Marcos' brief interaction with a millionaire was enough to allow others to perceive him as an outsider. Despite his family name, his status, and his reputation, he was seen as someone who stole from the port for personal gain. This window of ambiguity, according to Marcos, allowed each person to choose a side. The cooperative divided into two groups, primarily along the lines of insiders versus

outsiders. Whether or not Marcos' trip to Miami directly led to the cooperative's division, it is important to note that Marcos adamantly believes that the cooperative split because of him. He supported the admission of outsiders to the cooperative despite his father's warnings and he allowed others to gain power within the group. His international fame (and fortune) led to a series of events causing cooperative members to expose underlying tensions and to openly define themselves as belonging to one social group or the other. Identity played an important role in cooperative members' decisions, as well as Marcos' perception of his allies during the conflict.

In 2005, the two groups decided to make the division official, legally splitting into two separate cooperatives. According to Marcos, one group is comprised of approximately 100 fishermen "of the port" and 8 fishermen "from outside"; the other group is comprised of approximately 100 fishermen "from outside" and around 8 who are "of the port." Because the group with a majority of fishermen who have lived their whole lives in San Felipe decided to officially separate from the original cooperative, they were forced to take the risk that the government might not issue them a separate permit to harvest lobster. They were also forced to rename their new cooperative, as the other group kept the original name. Acknowledging existing tensions, members of the new cooperative gave it a powerful new name: "The Legitimate Fishermen of San Felipe."

Marcos revealed that losing the trust of cooperative members resulted in not only social and economic consequences, but ecological ones as well. He explained, "Since then, no one has been protecting the reserve. There is no real reserve now." He recalls:

You should have seen it when we first made it. You couldn't walk in the shallow water without stepping on a lobster. And then they multiplied and spilled out into the areas all around the reserve. It works. I can tell you that much. When you take care of a reserve, it absolutely works. We will protect it once again. That is one of the things our new cooperative is dedicated to doing. The Legitimate Fishermen of San Felipe, that's what we plan to do.

Social concerns, in addition to ecological ones, will force the fishermen to reevaluate their goals and to redesign a system for protecting their reserve.

The situation seems to reflect negative ecological consequences stemming from social conflict and an influx of outsiders, which supports FAO's prediction that the highest potential for success will be found "in culturally homogeneous fishing communities, where there are high degrees of internal social cohesion and correspondingly low degrees of internal discord," as cited early in this chapter. However, the situation is actually more complex. Ecologically as well as socially, the 'local' is never a product of purely local factors. According to Salas, the 2002 Hurricane Isidoro affected the coastal ecosystem in San Felipe so drastically that the original limits of the marine reserve are most likely not protecting the most important habitat for juvenile lobsters (Salas, pers. comm., 2005). Isidoro, and the series of hurricanes affecting San Felipe in recent years, will have ongoing effects on the ecosystem. While continued protection of the original reserve

would be noted favorably in international researchers' reports, which are often preoccupied with stability as an indicator of success, it may have little impact on lobster abundance. In this sense, constantly re-evaluating the best way to protect the reserve is critical to its success.

Currently, a divided cooperative and an unprotected reserve reflect a time in which social concerns took precedence over either economic or ecological ones. However, San Felipe's ability to strategically address social conflicts with minimal violence or "internal discord" leads to a rapid recovery of social cohesion. In Isabel Rivera Castillo's words, this allows attention to shift quickly to ecological concerns "once peace is restored." Marcos takes pride in his identity as one of San Felipe's "legitimate fishermen" and this contributes to his motivation to prove his devotion to the port. Regarding the reserve, Marcos' commitment to "protect it once again" will most likely not be unique to his group. Conflict and shifting power can make conservation difficult, but the ability to respond to problems with adaptive and dynamic solutions allows fishers in San Felipe to continue their tradition of local resource management in new ways that will be effective within their changing community.

Like Marcos, Diego is not pessimistic about the fragmentation of San Felipe's men's cooperative. After the cooperative divided, Diego said, "I hope that the other cooperative doesn't receive a lobster permit! That would be better for us." His wife immediately scolded him. Eva said, "No, Diego. If you do not want to think about my family, then at least think about the good of the port." Surprisingly, he agreed without protest. Because furthering oneself and making progress towards a better future is so integral in daily decision-making, it seems difficult to believe that one's duty to "the good of the port" would carry so much weight. Yet the pride local people feel for their port makes it impossible for *both* of the men's cooperatives, as well as the women's cooperative, to see anything but the brightest of futures. Identity, and a sense of self that comes from being from this port, contribute a form of empowerment that allows cooperative members, both new and old, to adapt rapidly to change and to embrace opportunities.

#### 4.5 Discussion

When examining the success San Felipe has achieved with regard to sustainable fisheries and conservation, it is important to frame conservation initiatives "as a site of encounter and action, informed by unequal power relations stemming from the differing social, institutional, and geographical locations of the individuals and collectives involved" (Sundberg, 2003). This chapter illustrates that a "homogeneous community" actually represents a complicated and dynamic social system with unwritten rules informing social exclusion and access. As Sundberg suggests, "Framing conservation in this way implies abandoning men/women, white/non-white, modern/traditional, and North/South as *a priori* and stable categories and instead, asking how these identities are *brought into being* and *enacted* in time and place" (Sundberg, 2004, emphasis in original).

This chapter contributes to existing research on San Felipe by illustrating that history and socio-political context of the region cannot be overlooked when examining how decisions are made locally. Exploring San Felipe's decision to create a community reserve within the context of regional events occurring simultaneously reveals the importance of examining social aspects of conservation initiatives. Indeed, San Felipe's local management of the reserve suggests that 'local' situations are rarely the product of purely local factors. Looking at the big picture and the changes occurring within the men's cooperative allows us to see that "we cannot understand today's choices... without tracing the incremental evolution of institutions" (Putnam, 1993).

Examining the small picture, including daily decisions made by individuals, is also necessary. This perspective allows us to see that the rules of social exclusion are dynamically linked to race and gender in San Felipe. The stigma attached to indigenous identities, marking individuals from *pueblos* as stereotypically uneducated, traditional, or conformist, is reinforced by social constraints that are not applied uniformly across gender lines. Evidence from this chapter suggests that traditional rules requiring the policing of women's sexuality have contributed to the maintenance of a homogeneous community. For the *Mujeres Trabajadoras del Mar*, recent opportunities reveal the core contradiction between these local constitutions of ethnic legitimacy and international imaginings of authentic communities. However, these new opportunities also instigate discussion about difficult and complicated issues. If deliberation is in fact an engine through which social change occurs (Dietz, 2005), in the long run, these international opportunities (complete with controversial invitation criteria) may contribute to changes on a much larger scale.

Because San Felipe is in the process of social change, some local people's focus on dividing community members into neat categories such as Insiders/Outsiders or Indians/non-Indians may serve to create a semblance of control and predictability, and therefore security, in uncertain times. Similarly, an individual's association with one of the two parties is closely linked with identity and a sense of Self versus Other. Therefore, the unpredictability associated with those who switch parties is particularly threatening to individuals like Carmen who have internalized political affiliations as extended family ties. Even as Carmen participates in the social policing of these categories, her actions suggest her belief that there are exceptions to every rule.

Carmen and Marcos' choices illustrate that social change can begin with individuals. Both siblings were taught strict social rules by their father, but both interpreted the rules according to their own beliefs and experiences. Carmen's choice of partners blatantly defies the social rules she was taught. She struggles daily to deprogram what she calls the "racist computer" in her mind. Marcos concedes that ignoring his father's warnings led to many difficulties involving the newcomers in San Felipe. However, he accepts the blame and responsibility without admitting that he was wrong. At the time, he believed it was important to support those people who wanted to come and work hard for their part. His openness contributed to a wave of social change that came with a price: extending opportunities to others also meant that his own power within the community diminished.

Like his sister Carmen, Marcos is a leader who believes that rules must be broken in order to make change and see progress.

During many conversations, Don Chuc became the connection between the big picture (socio-political history of the region) and the small picture (subtle social constraints). As researchers, we don't always have the luck of meeting someone who can provide such a link. This chapter would not have been possible without Carmen and Don Chuc's open and honest approaches to difficult topics.

In conclusion, informal rules maintaining a homogeneous community may have played a vital role in sustaining healthy ecosystems and a high quality of life in San Felipe during a critical period of the Yucatán's regional history. However, in both past and present, San Felipe's success, in large part, stems from local people's dynamic reactions to changing social, economic, and political situations both within their community and on a larger scale. The ability of different individuals in San Felipe to re-interpret social rules suggests that dynamism has been, and will continue to be, a more important key to success than simply maintaining a homogeneous community.



## Chapter Five: Conclusion

This study, based on three visits totaling approximately three months in San Felipe, offers more of an introduction than a conclusion to the question of how the women's cooperative has achieved such dramatic success while contributing to the ecological and social resilience of San Felipe's fisheries. This chapter first presents a discussion of several initial expectations and subsequent surprises related to the study. The second section explores some temptations associated with analyzing a traditional small-scale fishing community like San Felipe. Finally, the chapter closes with conclusions and broader implications of the *Mujeres Trabajadoras del Mar's* success, specifically the ways in which the maxquil fishery has become a catalyst for major social change in San Felipe.

### 5.1 Expectations

When I arrived in San Felipe, I expected to find trouble in paradise. Knowing international researchers' propensity to romanticize small-scale fishing communities, I feared that San Felipe would be placed on a pedestal of unattainable expectations. I anticipated observing the vulnerabilities associated with the transition from experiencing local success to being represented as an international model of sustainability.

However, contrary to what I expected to find, the opportunities associated with international attention to San Felipe have far outweighed the problems thus far. As evidence presented in this thesis suggests, members remained in control of their work despite outside pressures and expectations. By anticipating possible problems and voicing concerns, cooperative members negotiated arrangements that were acceptable to everyone involved. Just as Jorge, the mangrove biologist, never expected that his paychecks would depend on his performance meeting the cooperative's expectations, I was surprised that cooperative members designated which research topics were off-limits for this study. In this sense, the members of the *Mujeres Trabajadoras del Mar* have much to contribute to the co-management literature. 'Participation,' 'transparency,' and 'local ownership of the process' are more than suggestions for successful collaboration; in this group, these standards are enforced.

Interestingly, while I was prepared to see San Felipe face judgments from the international conservation community, cooperative members note the extra *work* associated with their port's popularity. Before I arrived in San Felipe, cooperative members teased a Mexican anthropologist with warnings that they were going to start charging a fee for each additional student she sent to visit them. Isabel Rivera Castillo admitted that she offered me a Coca-Cola on my first visit and the submitted receipts to the cooperative's treasurer for reimbursement. While living in San Felipe, I observed the series of students and scientists who arrived in the port unannounced and expected to be attended to. In addition to working all night as well as all day, cooperative members also opened their homes and businesses to curious visitors. When discussing the added burden of international visitors, Isabel made a surprising comment:

You're right. It is difficult. But the fact is that we've been going about everything all wrong. We've been assuming that these people come here to hear about our work and to learn about us. They listen when we talk and then we send them on their way. What a mistake! What a missed opportunity! I realized something. We have a chance to listen, not just speak, to people who come from all over the world. If we learn from them, just a little from each one, imagine the advantages we will have.

In this case, like so many others, Isabel describes how limitations can be transformed into opportunities. When the COASTFISH participants arrived in San Felipe for their post-conference trip, cooperative members took the opportunity to analyze others' reactions to their work and to debate Norwegian conservation ethics. During the conference, cooperative members spoke directly to keynote speakers and sought advice from leading international biologists regarding their concerns about maxquill's official listing as a non-commercial species.

When examining the vulnerabilities that cooperative members face in the limelight, it is humbling to be reminded that their success was well underway before they were noticed; it will continue well after all reports have been printed. Members are accustomed to reconciling different opinions and agendas and they are not overly intimidated by anyone, including scientists, regardless of their status in the academic community. In the words of an anthropologist with nearly 20 years experience in the region, "Whatever the people of San Felipe choose to do, they will accomplish it... with us or without us" (Fraga, pers. comm., 2004). After spending three months in San Felipe, struggling to keep up with women's cooperative members as they fished all night, reforested mangroves all day, attended workshops to create purses out of fish skin, participated in international conferences, planned an eco-tourism project, and competed in championship softball games each weekend, it would be hard to disagree.

However, the added stress and responsibility associated with international opportunities and the mangrove reforestation project notably exacerbated existing tensions and rivalries within the cooperative. Some members affirmed on a daily basis that their cooperative would never last through the week. When I returned to San Felipe in 2005, recalling the "unforgivable words" exchanged and nearly a year of bitter fighting, I feared that the cooperative might be in danger of collapse. Instead, when I asked if the number of members in each group had changed, Isabel corrected me. She explained, "The two groups no longer exist. We are one cooperative and we decided that we were going nowhere in the direction we were headed. We made peace. We're all in this together, we decided, me and the rest of the piranhas!" In my assumption that the cooperative might not withstand the fighting or the newfound fame, I had forgotten what the members repeatedly told me: too much focus on the past or the present distracts you from the real goal, which is to work for better futures.

## 5.2 Temptations

Because their emerging fishery is non-traditional, the 13 members of the *Mujeres Trabajadoras del Mar* are constantly redefining their roles, observing changing global markets, and learning about local ecosystems by combining new forms of knowledge, both experiential and scientific, in ways that make sense to them. In many ways, members of this cooperative are already thinking more internationally and interdisciplinarily than the teams of researchers formed to study them. These features make them well equipped to develop a fishery with the potential for both social and ecological resilience.

While the concept of sustainability has become wildly popular among researchers of resource management, local people in San Felipe, particularly members of the *Mujeres Trabajadoras del Mar*, do not think or dream in these terms. They want progress, to improve their lives, and to create new opportunities for their families. Even so, there is a temptation to see San Felipe as a community that has achieved 'sustainability' and to cite their traditions, their homogeneity, and their isolated location as the secrets to their success. While these factors certainly play important roles in the success they have achieved, this approach does not take into account that a salient feature of this community is dynamism. As Menzies asserts, "While ethnographers like Boas scrambled to collect all manner of cultural artifacts in order to freeze the region's indigenous cultures in ethnographic amber, Boas' field site was becoming fully integrated into a world capitalist system in such a way that had profound impacts...." (Menzies, In Press). Assumptions that sustainability is about stability, not change, cause us to worry that rapid changes in San Felipe will upset the fragile balance that the community has achieved. This can mean painting a picture of successful fishing communities as if they have been isolated from the forces of modernity and, therefore, the perils of globalization are mistakenly interpreted as a new threat.

Partly for this reason, San Felipe's overwhelming interest in tourism, local people's drive to learn English, the international attention received by the women's cooperative, the influx of students, and, ultimately, the government decision to bring cruise ships to nearby-Cancun all sound warning bells for students in resource management. In Canada, several students voiced their concerns with cooperative members' request that I teach English classes in exchange for their help with my Masters thesis. Students repeatedly shared their disappointment that I would consider bringing English to a place that had managed to remain "pristine" for so long. They urged me to remember that "we have so few places like that left in the world." The thought of inviting tourism to a place still "unspoiled by modernity" is threatening to both the idea of pristine paradise and to our "remarkable, and ultimately disabling, nostalgia for a pure subject of resistance" (Braun, 2002). In actuality, what stands to be spoiled is an imagined community, which could exist only in an isolated and timeless tropical paradise.

When conservationists "seek to impose global ecological morality without due attention to cultural variation and autonomy" (Kottak, 1999) or, as is often the case with San

Felipe, when a clean port is equated with moral behavior, people are judged when they do not meet this standard. For example, on one occasion, a biologist who has conducted research in San Felipe reviewed photographs taken by the members of the *Mujeres Trabajadoras del Mar*. She paused for a very long time, perplexed, examining a picture taken of mangrove seedlings soaking in an empty tire. Dolores Espada Chapa had developed her own soaking method and took photos to document her personal success. "What is here, in the center of the tire?" the biologist asked. I explained that it was just some trash on the ground. She remained confused as I attempted to explain the methodology of the mangrove reforestation project and some of the innovations that appeared in the photo. She stopped me. "Honestly, I'm just having trouble getting past the trash," she said, and replaced the photos in their envelope.

The temptation to see what we expect to see is a reoccurring theme even for those of us who should 'know better.' Like the biologist, I was more sensitive to conflicting values and unmet expectations of authenticity than members of the cooperative themselves. Just as one young mother teased me for my over-reaction to litter in the streets, cooperative members constantly helped me to see how bizarre some unconscious expectations can be. On one occasion, while eating a traditional meal of stingray and octopus in its own ink with Carmen's family, I removed a two-litre bottle of Coca-Cola from the table so that it would not appear in my 'authentic' photo. By the time I realized what I had done, Carmen was looking for a drink and I had to explain why I had hidden the full bottle underneath their table.

On a similarly embarrassing occasion, I asked Don Chuc to pose for a photo outside in front of some trees. I envisioned a 'natural background' for my portrait of this indigenous man who began his life in the *henequen* fields and now spends his days at sea. Instead, Carmen stepped in front of my camera and took Don Chuc kindly by the arm. She led him back into the house and positioned him in front of her new entertainment center for the picture. This "more appropriate" background was not what I had in mind. What I did not realize at the time was that Carmen, who refused to be photographed with Don Chuc, intervened for a good reason. I had told a man who was constantly teased for being traditional, humble, and unfamiliar with technology, (the same man who was ridiculed for appearing out of place at the discotheque) to leave the living room and go stand by some trees. In this case, Carmen posed him in front of the giant television as a reminder to him, and to me, that he deserved to be photographed with respect and dignity in front of a background symbolizing progress and success.

As Slater (2001) suggests, "if we can identify the true source of our own desire for an unspoiled natural paradise, we may find ourselves more able to see the rich variety not just of life forms but of human experience." In addition, when we recognize the temptation to romanticize certain communities as ecologically noble stewards of their coasts, we see that our ability to perceive and respond to local needs can be diminished when driven by our own ideals.

This perspective supports Chakrabarty's assertion that our concern for traditional communities, and the desire to shield them from modernity, is often rooted in arrogance.

We assume that “whatever futures these others may be building for themselves will be swamped and overwhelmed by the future the author divines on the basis of his evidence” (Chakrabarty, 2000). This study, however, illustrates that the complicated balance between socio-economic and ecological considerations in San Felipe is not fragile, but instead resilient. It is unlikely that the women’s cooperative will be “swamped” by future changes. Firstly, these members are accustomed to rapid change. For instance, in San Felipe, although there is no post office, three Internet cafés called “cyber centers” now exist within the port. Similarly, when Carmen was her youngest daughter’s age, there was no electricity in San Felipe. Last year, Carmen was able to purchase a flat screen television and DVD player for her daughter.

Secondly, for members, change exposes opportunity more often than underlying vulnerability. Many members explain that the best way to take advantage of a new opportunity is to plan for it and to see it coming from far away. Sofia Flores Medina has already invested last season’s fishing profits in the construction of a small guesthouse, designed with a traditional palm thatched roof and hammocks, for future tourists in San Felipe. Cooperative members’ ability to personally interpret local rules allows them to prepare for opportunity, blending tradition with change-tolerant resilience. For example, instead of viewing the mangrove project, the nocturnal fishery and the fish skin crafts workshop as incompatible activities that must be reconciled, members recognized the potential benefits of all three. Therefore, the group voted to send several representatives to the workshop on the condition that they return to port to fish each night. This was made possible by financing the travel with funds from their mangrove reforestation project. While this decision was likely ‘against the rules,’ this allowed members to maximize benefits in the present and the future, without sacrificing their responsibility to the port.

### 5.3 Conclusions

Much of the *Mujeres Trabajadoras del Mar*’s success story is told from the perspective of Carmen Castillo Mendoza. It could be argued that this angle skews the study because she is in no way a ‘typical’ fisherwoman. However, since there is no such thing as a typical fisherwoman, especially in the Yucatán, Carmen’s experiences offer insight into the daily realities of the fishery and help us to understand how cooperative members define appropriate behavior. Carmen’s disregard for social norms alternately inspires and offends her co-workers. As the tough and vulnerable protagonist of this particular story, Carmen slices calluses off her palms with a Gillette razor while admitting her fears of public speaking and dark nights; she reminds us that members of the *Mujeres Trabajadoras del Mar* are not only ‘social actors’ in the ‘drama of the commons’ (Dietz, 2005), but also real people. Although recent years have been marked by opportunities, it is imperative to remember that their work is never easy. Members’ willingness to share their experiences in an emerging fishery, even when their stories expose mistakes and selfish decisions, makes this study of success worthwhile.

This thesis suggests that the people of San Felipe will continue to manage their resources locally, to consider the greater good of the port, and to pursue individual aspirations. In part, this is made possible by individuals' ability to break and continuously remake local rules according to their changing needs. As Watts (2000) notes, "it is surprising that so much of the work that rightly sings the praises of local knowledge or community/customary control has been seemingly uninterested in the forms of social power, the forms of bargaining, and the mechanisms of political representation that they contain." This study reveals the importance of considering informal rules in resource management.

Fisherwomen's contributions to the ecological resilience of San Felipe's fisheries are largely linked to cooperative members' abilities to influence decisions affecting resource management through informal enforcement and social pressures. First, in the maxquil fishery, the stigma attached to harvesting juvenile crabs plays a role in the population's ability to recover from heavy harvesting during four months out of the year. In addition, because of the seasonal nature of the maxquil fishery, pressure is removed from this resource during most of the year while fisherwomen like Carmen target other species. Her knowledge, now being transferred to new fisherwomen, includes a myriad of creative uses for coastal resources. For example, Carmen and her daughters have learned to bait the sandy beaches with dead fish in order to attract thousands of tiny snails, each less than a centimeter in length. Once harvested, these shells can be sold in bulk to local jewelry makers.

The *Mujeres Trabajadoras del Mar*'s reforestation project offers another example of women's contribution to ecologically resilient fisheries in the port. In addition to taking the initiative to reforest local mangroves, fisherwomen rejected scientific assumptions when their practical applications did not address local concerns. This allowed members to informally adapt the process, producing improved ecological outcomes. Thirdly, fisherwomen's interest in developing alternative and supplementary livelihoods also contributes to ecological resilience of local fisheries by reducing pressure on coastal resources. Adger *et al.* (2005) suggests that "governance and management frameworks can spread risk by diversifying patterns of resource use and by encouraging alternate activities and lifestyles," thereby contributing to ecologically (and socially) resilient systems. In the case of San Felipe, the women's cooperative actively seeks new ways to diversify their livelihoods, such as participation in the fish skin crafts workshop and plans for future eco-tourism.

Finally, women's social policing of outsiders during recent decades may have also contributed to San Felipe's ability to remain in control of their coastal resources during a complicated time in the region's history. The ability to reinterpret traditional rules has allowed fisherwomen to continue to make individual decisions for the good of the port according to the community's changing needs. Each of these four examples suggests that fisherwomen play a major role in the ecological resilience of local fisheries through their informal participation in resource management. As Adger *et al.*, (2005) notes, "resilient social-ecological systems incorporate diverse mechanisms for coping with change and crisis." This thesis suggests that, beyond the capacity to cope, resilience also includes the potential to identify and embrace new opportunities.

The case of the *Mujeres Trabajadoras del Mar* provides insight into how women in San Felipe have become central to decisions affecting resource management in areas as diverse as the octopus fishery, mangrove conservation, and social policing of outsiders in the community. In some cases, the very nature of fisherwomen's unobtrusive rule-breaking and subtle enforcement allows them to push boundaries in ways that would not otherwise be tolerated. This ability to balance individual livelihood concerns with the greater good of the port contributes to the social resilience of San Felipe's fisheries.

However, as Pinkerton (2004) reminds us, "the success of community-based institutions in particular situations has led some to imagine that such arrangements are simple and easily replicable everywhere." This case suggests that similar arrangements would be neither simple nor easily replicable. Precisely because local rules, as the product of informal daily negotiations, are so specific to a certain time and place, San Felipe's dynamic model of success should not be mistakenly understood as a blueprint for women's participation in resource management.

Cooperative members' ability to personally interpret and enforce local rules, to challenge conventional scientific assumptions, to balance competition with cooperation, and to personalize new knowledge in ways that make sense in their daily lives, all contribute to their capacity to consider social and ecological factors of resilience. However, as Watts (2000) suggests, "conservation and resource extraction become areas in which some very big fish are fried: rights, participation, nationality, and citizenship." This thesis illustrates that much of the cooperative's success is related to members' ability to transgress traditional boundaries of gender, race, and class, thereby gaining access to new forms of resources, power, and knowledge. The following examples suggest how fisherwomen's ability to blur the boundaries of gender, race, and class has allowed them to play a critical role in the social resilience of San Felipe's fisheries. Examining women's recent participation in fishing and resource management from this perspective suggests that the maxquil bait fishery has become a catalyst for major social change in San Felipe.

By negotiating flexible gender roles through their participation in the maxquil fishery, women have not only gained access to coastal resources in a traditionally male occupation, they have also permeated spaces and times that were previously off-limits for females. For example, men's objection to female fishers is often rooted in the belief that the water is no place for women. Moreover, it is considered bad luck to bring a woman on a boat in many parts of Latin America (Gavaldón and Berdugo, 2004). The fact that these women gained access to a nocturnal fishery in San Felipe further pushes the limits of acceptable behavior because 'respectable' married women in other ports would not ordinarily leave their homes at these late hours. Instead, both port and sea have become women's territory during the night. For these hours of the day, women's decisions take precedence in both questions of resource use (e.g. members fishing within the reserve or Carmen's pre-season harvest) and business transactions (e.g. selling maxquil outside the community or negotiating the price of a species not previously sold). In addition, women police socially unacceptable behavior in their newly claimed workplace.

On one occasion, Carmen was fishing with her daughters, including Flor, the youngest. Nearby, they heard several men in a boat swearing and making crude jokes. Carmen motored over to them in the darkness and asked if they had mothers. One replied, "Oh, Carmen. Our apologies, we did not realize that you were out here." Carmen responded, "I am here and there are women here and you need to respect women." The other man replied, "We're sorry. We did not realize that women were out here." Carmen dismissed his apology, "Because you did not know it does not mean that we are not here. We are here fishing every night. It is *you* who happened to be here by pure coincidence. Respect us. Or the president of the Municipality will hear about it." This incident and many others suggest that, in addition to negotiating flexible gender roles within their households, members of this cooperative have earned power and prestige within the community. Carmen's reference to the president of the Municipality reminds us that, in addition to subtle, informal networks of influence discussed in this study, these women also have access to formal channels through which to voice their concerns.

On another occasion, one evening after nine o'clock, Isabel decided that she needed to inform the president of the Municipality of our upcoming conference in Mérida. She walked into the building called the Municipal Palace without an appointment, baby on her hip. She explained to me that although their family has no ties to this particular president's political party, he was "a good man" who has supported women's softball team in the past. After waiting less than an hour, Isabel knocked on the president's closed office door, interrupting a meeting. She said to me, "He should support us. We do good work for the port and he knows that we need help to travel to the conference. He has to support us." We left the office with the president's congratulations and funding to pay for eight members' transportation to Mérida in a private van.

While cooperative members' ability to redefine gender roles is clear, their ability to traverse traditional boundaries and limitations related to race is more subtle. International and national opportunities with a focus on conservation and indigenous women have created possibilities for creative play with individual ethnicities and the identities therein. The discussion and debate surrounding these international invitations may contribute, in the long run, to social change (Dietz, 2005). In addition, some fisherwomen's increasing freedom to choose their own partners is related to their new financial independence due to fishing, as well as changing social norms. Resulting non-traditional partnerships (e.g. Don Chuc and Carmen, who represent the unlikely union of Indian/non-Indian and Eva and Diego, who represent the controversial marriage of PRI and PAN) stimulate discussions of diversity and difference extending beyond the realm of race. For example, during the few months I was in San Felipe, rumors spread of one cooperative member's attraction to women. In a society known for its *machismo* and the social policing of gender and sexuality, it was surprising to hear vocabulary and opinions transform over such a short period of time. Members of the women's cooperative initially described the conundrum with bewilderment and suspicion. However, the tone soon shifted to one of respect. As Carmen's daughters reminded her, "As you say, we are who we are and no one can judge us. Each person deserves to be happy." While the gossip continued, this woman's new relationship, originally referred to as "that foolishness," was later referred to as "a love affair" like any other.



Finally, the maxquil fishery has allowed cooperative members' to transcend class boundaries in terms of both socio-economic 'progress' and status. Almost all cooperative members relate their participation in the fishery to progress and opportunity for economic improvement. For this reason, the pace of individual 'progress' is often policed by social rules related to both 'conformist' and 'ambitious' behavior within the group. The fishery has allowed these fisherwomen to dramatically increase their incomes, in addition to gaining financial independence in their households. When I first visited San Felipe, Eva explained that she and her husband were "just starting out" and therefore their home did not yet "have four solid walls." As Eva and her husband both brought home profits during the 2004 peak season, they purchased construction materials: one week cement, another week lumber. By 2005, they had a nearly complete house with a cement floor and a working shower. Next season, they plan to begin where they left off. Not only Eva, but also Carmen, Isabel, Sofia and others were able to make home improvements and build additions to their homes during the fishing season.

In San Felipe, individual families have different incomes, but class divisions do not visibly stratify the community. As one common saying suggests, "We are all poor. But with fishing, we always have food and we always have outings." Locals report that, following a hurricane evacuation, government assistance in the form of staple food items is delivered not only to the most needy but to every family in the port: "to all of us poor folks." There is no obvious stigma attached to poverty (in terms of lack of money) only to poverty in terms of status (as defined by 'conformist' behavior). Therefore, the women's cooperative's ability to redefine boundaries related to class status is most obvious not between locals but instead in their interactions with outside scientists and foreign visitors, referred to as 'important people.'

As fisherwomen, members gained access to opportunities not normally afforded to either fishermen or non-fishing women. These changes were apparent not only at special events such as Sofia's meeting with the President of Mexico's wife, but also in daily interactions. While members supervised and challenged their reforestation project biologist and debated international conservation methods with visiting scientists, conventional hierarchies of status shifted. Members choose which experts to trust, instead of deferring automatically to scientists because of their predetermined status related to class, education, and nationality. The women's cooperative's recent interactions with *gringos*, another common category of 'important people,' have served to demystify North Americans from Canada and the United States. Face-to-face interactions have reduced the height of the pedestal on which *gringos* are often placed. In fact, Diego described the opportunity to work in Canada or the United States as "the golden dream;" however, even though a state program secured him a seasonal agricultural job in Canada and gave him a passport, Diego reviewed the details carefully and ultimately opted to stay in the port.

For the *Mujeres Trabajadoras del Mar* as a group, the blurring of class boundaries was perhaps most evident at the conference in Mérida. As eight women from a small port leaned over the Governor's Palace balcony in the state capital (to keep themselves from "fainting with happiness" as a conference sponsor with a microphone toasted their

success), it was impossible to tell that these women spent the previous evening culling bait. As Gloria Perez Espinosa recalls, "At first I was nervous about drinking the champagne and eating those cucumber rolls. For us, that is the food of important people. But, I looked around and realized: *these* people think that *we* are important people, too." At the conference, women who have never used a computer gracefully collected keynote speakers' personal email addresses. These interactions illustrate that the intimidation associated with 'important people' is, like other boundaries, negotiable.

The *Mujeres Trabajadoras del Mar*'s ability to cross traditional boundaries of gender, race, and class illustrates that categories such as men/women, Indian/non-Indian, modern/traditional, poor/privileged, and expert/local-participant are not stable or unshakable. Members' ability to blur the lines defining traditional roles through the non-traditional maxquil fishery has allowed these fisherwomen to gain access to opportunities from which they were previously excluded. In addition, they have negotiated new partnerships within the cooperative and with fishermen, scientists, and NGOs which have contributed to their ability to make decisions about fishing and conservation within the port. Because cooperative members are "working towards better futures every day," as Isabel suggests, limitations must be continuously transformed into opportunities. Subtle, daily ways of enforcing and altering the rules of resource use allow fisherwomen to respond to emerging pressures and prospects in their own lives. As these members insist, there are exceptions to every rule. Therefore, social justice is better understood not as a product of sustainable fisheries but instead as a dynamic factor in ecological and social resilience. If chapter four allows us to speculate that conservative social norms are enforced in times of need but become flexible in times of opportunity, it follows that the *Mujeres Trabajadoras del Mar*'s increasing access to opportunities will continue to contribute to social change within their port.

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### **Personal Communications**

Chuenpagdee, Ratana. Professor, International Ocean Institute. Dalhousie University, Halifax, Canada. Personal communication. July 8, 2003 and May 5, 2005.

Fraga, Julia. Professor, Department of Human Ecology, Centro de Investigacion Estudios Avanzados (CINVESTAV). Merida, Yucatan, Mexico. Personal communication. February 18, 2004.

Gavaldón, Ana Cristina. Student, Centro de Investigacion Estudios Avanzados (CINVESTAV). Merida, Yucatan, Mexico. Personal communication. May 5, 2005.

Menzies, Charles. Professor, Department of Anthropology, University of British Columbia, Vancouver, B.C., Canada. Personal communication. November 20, 2003.

Salas, Silvia. Professor, Department of Ocean Resources, Professor, Centro de Investigacion Estudios Avanzados (CINVESTAV). Merida, Yucatan, Mexico. Personal communication. August 28, 2004.

Satterfield, Theresa. Professor, Department of Resource Management and Environmental Studies, University of British Columbia. Vancouver, B.C., Canada. Personal communication. October 29 and November 9, 2005.

Sundberg, Juanita. Professor, Department of Geography, University of British Columbia, Vancouver, B.C., Canada. Personal communication. February 4, 2004.