

Bridging multi-level resilience and wellbeing: a study of small-scale fisher  
responses to change in Southeast Brazil

by

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## **ABSTRACT**

The primary purpose of this research was to investigate small-scale fisher responses to changes related to economic development and tourism, by exploring the relations between resilience at individual, household and community levels, and the interplay of resilience with wellbeing. Using a mixed methods approach, a case study was developed during one year of fieldwork (2014-2015) in a coastal community in Ubatuba, São Paulo State, Brazil. The findings indicate that the shocks and stresses related to social-ecological changes were multiple, ranging from fish scarcity, loss of land (and hunting, agriculture and fishing rights), to increased crime rates. At the same time, tourism, as a key driver of change, created new opportunities for livelihood diversification and wellbeing improvements. Nevertheless, opportunities were not available in the same way to all, crystallizing social stratification and unravelling community cohesion. Resilience to change varied within individual, household and community levels. Further, the relation among resilience at these different levels proved unpredictable. Adaptation and transformation were found to be simultaneously occurring processes, not conflicting processes, as fishers and their families built resilience. These findings highlight the complexities and challenges of dealing with a social-ecological system's resilience broadly, and emphasize the need to connect social-ecological system resilience with social science-driven concepts and theories. Particular to this study, the Social Wellbeing approach proved to be a powerful tool for expanding and deepening the analysis of wellbeing priorities influences on fishers and their families' behaviours and resilience strategies in times of change. Essential elements of wellbeing included health, faith, family, freedom and ties with friends and neighbours. These elements were considered central to what fishers described as "Vida Simples" ("simple life"). The embodiment of this lifestyle captures a major piece of the Caiçara fisher cultural identity,

influencing in significant ways fisher behaviours, and more specifically, their lack of engagement with fisheries governance and non-cooperation with fisheries policies. The thesis concludes that combining resilience and wellbeing approaches produces new insights, and that a comprehensive view of fishing people's wellbeing priorities is fundamental for the success of policies aiming for social-ecological resilience.

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In memory of David Alexandrino



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## **CHAPTER 1. INTRODUCTION**

### **1.1. Background and rationale**

Small-scale fishers are facing hard times worldwide as overfishing becomes the new global reality (Pauly, 2002; 2005). Compounding the issue, coastal ecosystems are prone to many drivers of change that represent potential impacts on fishers' livelihoods. Examples include economic development and tourism, real estate speculation, out-migration and immigration, oil and gas extraction, competition with large-scale fisheries, climate change, degradation of terrestrial and marine ecosystems, and conservation initiatives (Badjeck et al., 2000; Hanazaki et al., 2013).

In spite of all these challenges, small-scale fishers remain in fisheries (Allison and Ellis, 2001; Coulthard, 2008; Hanazaki et al., 2013; Marschke and Berkes, 2006). And yet, the impacts of adaptation processes on wellbeing are rarely, if ever, considered in conventional fisheries management (Cochrane and Garcia, 2009). To the contrary, there tends to be an unfortunate trade-off, where ensuring the future sustainability of the fisheries sectors translates into imposed costs on the wellbeing of fishers today (Britton and Coulthard, 2013). Restrictive fishing policies such as marine protected areas, non-catch areas, quota systems, and closed seasons represent some of the technical "fixes" adopted by managers (Dengbol et al., 2005), which frequently amass further struggles for fishers who already face unpredictable catches and naturally dynamic ecosystems.

In the Southeast Brazilian coast, the construction of municipal and interstate highways, particularly during the 1970s, translated into a fast process of economic development and tourism intensification (Begossi and Lopes, 2014). Population growth, overfishing and the implementation of several restrictive fishing policies, among other factors, imposed significant changes on the previous subsistence oriented livelihoods of local communities. In this context, the main objective of this thesis is to investigate small-scale

fishers' responses to social-ecological changes in a fishing community in Sao Paulo State's coast, and further explore the interplays of resilience processes at multiple levels (individual, household and fishing community) and wellbeing (in material, subjective and relational terms).

## **1.2. Objectives**

The specific objectives of the thesis are:

- 1) To identify small-scale fisher responses to social-ecological changes, including shocks, stresses and new opportunities that arose with economic development.
- 2) To investigate resilience processes at the individual, household and community levels, and how resilience at these different levels relate to one another.
- 3) To evaluate fishers and their wives' aspirations, priorities, and satisfaction levels in terms of material, subjective and relational wellbeing.
- 4) To understand how cultural identity and values shape perceptions of wellbeing.
- 5) To explore the interplay of resilience and wellbeing, with a focus on policy implications.

## **1.3. Theoretical framework**

Theories, definitions and concepts from diverse fields, such as social-ecological systems resilience, livelihoods literature, individual resilience, community resilience and social wellbeing contributed to the conceptual framework of my research (Figure 1.1). The thesis literature review (Chapter 2) will explore these concepts, and their relation to my research objectives.



Figure 1.1. The various strands of literature which provided the components of the theoretical/conceptual framework for the study of fishers' resilience processes and its interplay with wellbeing in this research. Greater details in Chapter 2 (Literature Review).

#### 1.4. Significance of the research

Resilience literature emphasizes the importance of recognizing processes at different levels in social-ecological systems (Gunderson and Holling, 2002, Berkes and Ross 2016), but often comes short in the deeper exploration of the nested levels and their interactions with one-another. This research contributes to this gap by approaching resilience at different social levels in a fishing community, placing emphasis on their interactions. . Further, the need to better understand the relationships of resilience and wellbeing have been stressed by many in a fisheries context (Armitage et al., 2012; Coulthard, 2012). Indeed, the interplay of resilience processes and wellbeing is a growing field of research, where case studies are still scarce (Coulthard, 2015).

The theoretical contribution of my PhD research includes combining different and interdisciplinary strands of literature to better understand small-scale fisher responses to social-ecological change in a costal community in Brazil and the links between resilience and

wellbeing for fishers, their households and more generally, the community.

In a practical sense, resilience thinking provides a lens for dealing with uncertainty and change, as it considers the dynamics of both ecological and social systems. The recognition that uncertainty and unpredictability are basic characteristics of social-ecological systems, and that nature cannot be controlled, leads management goals to be framed in terms of “resilience” and flexibility, instead of the conventional approach to management that considers nature as foreseeable and stable (Walker et al., 2002).

In Brazil, despite recent changes in the discourse by fisheries management agencies around stakeholders’ participation and adaptive management (Bockstael et al., 2016, Trimble, 2014), much has yet to be translated into action. Moreover, the social component of fisheries, including the needs and rights of small-scale fishers and their families, remains overlooked by fisheries management. A more robust understanding of the strengths needed for fishing-dependent people to deal with changes provides decision makers with a better background to evaluate and explore policy options that respect fishers’ rights, cultures and ultimately wellbeing. In this sense, management goals have a better chance of success when institutions and communities learn from experiences and move to more inclusive strategies. Jentoft (2000) argues that healthy communities are fundamental for healthy fish stocks, and that women play a central role in a community’s cohesive nature. Consequently, attention to the gender dimension, often neglected in fisheries management, also improves management’s chances of success.

Finally, as posed by Weeratunge et al. (2013:4) “[f]isheries are multiobjective and multiscale in nature [...] all three dimensions of wellbeing – the material, relational and subjective – need to be taken into account, both in seeking a better understanding of small-scale fisheries and in developing appropriate policy”. The Social Wellbeing Approach embraces a holistic and multidimensional framework for analyzing the complexities involved

on resilience strategies and wellbeing trade-offs, and provides an insightful approach to improving small-scale fisheries policy (Coulthard et al., 2011).

### **1.5. Overview of methods**

In this research, I employed multiple methods to allow for triangulation and as a way to fill data gaps. Prior to initiating fieldwork, I compiled available secondary data regarding the history of fishing in the study area. In the field, participant observation (Bernard, 2006; Creswell, 2009; Hay, 2008) was the first method applied, as a way of building familiarity with the community and their members. Subsequently, household surveys, following the questionnaire employed by Hanazaki et al. (2013) were conducted to identify fishing households' profiles. Next, open-ended interviews (Bernard, 2006; Creswell, 2009), conducted with women and men separately, aimed to categorize the different shocks, stresses, and new opportunities faced over time; and their main responses to these changes.

Based on data gleaned from the previous methods, semi-structured interviews (Creswell, 2009; Denzin and Lincoln, 2000; Hay, 2008) were then developed to explore resilience processes at individual, household and community levels, as well as participant's understandings of wellbeing. As part of the semi-structured interviews, the Global' Person Generated Index of Quality of Life (GPGI) identified participants' wellbeing aspirations, priorities and satisfactions levels, according to their own criteria (Martin et al., 2009; Coulthard et al., 2015). Also as part of the semi-structured interviews, the Relational Landscape method, adapted from Coulthard et al. (2015), illustrated participants' most important relationships, at household, extended family, community and institutional levels. The interviews were conducted with fishers (both fishermen and fisherwomen) and their wives (or mothers, when living in the same household) separately.

Lastly, focus groups with men, women and youth provided data centered on community resilience, with an emphasis on community-level relations (including cohesion and conflicts), and fishers participation (or lack thereof) in fisheries governance. While youth did not participate in the interview phases, a significant amount of time was spent employing participant observation techniques among a group of sons and daughters of fishers through various avenues including a yearlong English tutoring class. During this time, strong relationships were built between the youth group and myself. The classes were frequently more of a social encounter, where many of the issues discussed in this research were approached. Lastly, a verification trip ensured that the main results were presented and verified with 20 selected participants. The participants were intentionally selected to represent different genders, ages, fishing gears, education levels, and wealth status, so as to cover the diversity of fishers in the study area.

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## **1.6. Scope**

This research focuses on multi-level resilience and wellbeing in the context of a small-scale fishing community in Ubatuba, Southeast Brazil. However, the study identified several aspects that do not speak directly to fishing activities, revealing a broader overview of how development, tourism, conservation, and fisheries management initiatives had affected the community, including fishing activities and other aspects essential for fishers' lives and livelihoods.

My PhD study was part of a larger project entitled "Community-based resource management and food security in coastal Brazil", sponsored by the International Development Research Center of Canada (IDRC), and centered in Paraty, Rio de Janeiro state. My fieldwork took place in a coastal community in Ubatuba (north coast of São Paulo State) composed by two neighbourhoods, Lázaro and Saco da Ribeira, where fisheries are an

important part of local people's livelihoods. Ubatuba and Paraty are neighbouring municipalities. Ubatuba was selected because of my previous experience in the area, where I spent many years (8 years by the end of the PhD) cultivating relationships with coastal fishing communities (Gasalla and Leite, 2009; Leite, 2011; Leite and Gasalla, 2013). I believe that a long-term relationship with community members is beneficial for both researchers and local people, as it allows for the researcher to build a strong foundation of trust with participants, in addition to gaining a broader knowledge of local realities.

A maximum twelve-month period allowed for fieldwork (2014-2015) was a pre-condition imposed by the CNPq (*“Conselho Nacional de Desenvolvimento Científico e Tecnológico”*, translated as National Council of Scientific and Technological Development), the Brazilian government agency sponsoring my research. This time frame can be considered a limitation, as it restricted the time in the field to no longer than one year. However, as I lived in the study sites, worked from a previously-built reputation among the community inhabitants, and did not suffer from language or strong cultural barriers, the time available in the field was used efficiently and effectively to maximize robust data collection.

## **1.7. Thesis organization**

The thesis is organized in eight chapters. This first introductory chapter presented the thesis' objectives and theoretical framework, an overview of the methods employed during the research, the significance of the research, (including expected theoretical and practical contributions), and the scope in which the thesis was developed (sections above).

Chapter 2 explores the interdisciplinary strands of literature presented in the theoretical framework (Figure 1.1), and how they are combined to address the research questions. Moving forward, Chapter 3 presents the Study Area, including an overview of its peoples' and the local fisheries history, and details the methods presented in section 1.5.

Next, Chapter 4 introduces the community where the study took place, its households and fishers. Chapter 4 is not related to any specific thesis objective, but rather aims to give the reader contextual and background information.

The next two thesis chapters present the results of the research, each with a closing discussion section. Chapter 5 brings the results and discussion for objectives: 1) To identify small-scale fisher responses to social-ecological changes, including shocks, stresses and new opportunities that arose with economic development and 2) To investigate resilience processes at the individual, household and community levels, and how resilience at these different levels relate to one another. Chapter 6 addresses objectives: 3) To evaluate participants' aspirations, priorities, and satisfaction levels in terms of material, subjective and relational wellbeing; and 4) To understand how cultural identity and values shape perceptions of wellbeing.

Finally, Chapter 7, the thesis discussion, addresses objective 5) To explore the interplay of multi-level resilience and social wellbeing, with a focus on policy implications. New data were not collected specifically for this objective, but rather the chapter introduces new interpretations for linking the main findings regarding resilience and wellbeing among small-scale fishers in the study area. The conclusion of the thesis is presented in Chapter 8. The chapter summarizes the main findings of my PhD thesis, including theoretical, methodological and practical contributions, and presents recommendations for future research.

## **CHAPTER 2. LITERATURE REVIEW**

### **2.1. Social-ecological Systems (SES) and Resilience Theory**

Social and ecological systems have been historically studied in separate disciplines. Conventionally, mainstream ecology had excluded the study of people, and reciprocally many social-science disciplines limited their scope to the human dimensions. In recent decades, however, there has been a rising acknowledgement of the importance of studying “humans-in-nature” (Berkes and Folke, 1998). Indeed, the study of the interactions of people and the natural environment is a fast-growing interdisciplinary field. Political ecology, environmental ethics, ecological economics, common property and resilience theory, as well as traditional and indigenous ecological knowledge are some of the interdisciplinary fields that attempt to link different disciplines into a new body of knowledge that perceive systems of people and nature as integrated (Berkes et al., 2003).

Following this reasoning, the concept of Social-Ecological Systems (SES) (Berkes and Folke, 1998; Chapin et al., 2009) puts its emphasis neither purely on ecosystems nor societies; but rather, the coupled social-ecological system is the unit of study (Berkes and Folke, 1998). Approaching the intricacies of SES requires acknowledging that these systems are complex, unpredictable, nonlinear, and dynamic in nature.

Resilience theory has been broadly recognized as a lens to the study of change in complex systems (Gunderson and Holling, 2002; Nelson et al., 2007). From a systems perspective, resilience has its origins in the field of ecology; it highlights that the assumption that ecological systems are maintained within a single equilibrium state does not in fact reflect how these systems operate (Holling, 1973). To the contrary, the understanding that variation and change are intrinsic to ecological systems, has led to the acknowledgement of the existence of multiple equilibrium states (Holling, 1973; Gunderson and Holling, 2002).

Since the 1990s, resilience thinking has expanded its scope to include social systems, and became a trend in a variety of interdisciplinary studies aiming to explore the interactions between change and systems of people and nature (Carpenter et al., 2001, Gunderson and Holling, 2002, Nelson et al., 2007). In this context, social-ecological resilience can be defined as the capacity of a social-ecological system to withstand shocks and stresses and to rebuild and renew itself in order to maintain the same basic identity, structures, functioning and feedbacks (Folke, 2006; Gunderson and Holling, 2002; Westley et al. 2002). Here, stresses are considered long-term and constant strains or pressures, while shocks are abrupt and often unexpected impacts on the system (Berkes et al., 2003, Marschke and Berkes, 2006).

Despite efforts to incorporate social systems into resilience thinking (Armitage et al., 2012; Berkes and Ross, 2013; Miller et al., 2010; Nelson et al., 2007; Turner, 2010), criticism remains as to the degree to which resilience theory can address the complexity of social responses to change (Brown, 2016). In this sense, it is imperative to recognize that resilience is an “in vogue” concept (some even suggesting that it is replacing the term “sustainability”), and that there is a risk of treating it as a panacea, thus misusing the term (Béné, 2012, Brown, 2016; Nadasdy, 2006).

Indeed, resilience thinking describes properties of systems. It is, therefore, a neutral concept that does not necessarily endow a desirable or positive state (Béné, 2012). In fact, some stability domains can be considered “bad” resilient states, particularly for vulnerable groups. An example is poverty traps, such as the coastal *favelas* in Brazil, where political, social and economic disadvantages maintain the poorest in a long-term vulnerable condition. In this sense, it is essential to question “who defines the ‘desired state’: whose needs count?” (Brown, 2016:12).

Moreover, it is essential to better comprehend the relationship between resilience and vulnerability (see Gallopín, 2006 for an account of the relationship of the two concepts relate). Resilience theory has its origins in ecology, while vulnerability, understood here as susceptibility to harm (Adger, 2010), emerged in social theory. The two areas of knowledge approach change and adaptation quite differently. Vulnerability normally focuses on the poor, their lack of opportunities, and conditions of risk. Resilience, by contrast, focus on adaptive capacity and ability to overcome challenges. Therefore, for the study of adaptation, the integration of the two concepts and a deeper understanding of their relation is beneficial to researchers committed to exploring the impacts of social-ecological changes in resource-dependent societies (Gallopín, 2006).

In this thesis, I argue that exploring adaptation processes at different social levels within a fishing community, and their relationships, helps identify opportunities and constraints, and illuminates the most resilient and the most vulnerable actors in the context of change and uncertainty. To illustrate this idea, I use the Panarchy concept.

### **2.1.1. Panarchy**

Panarchy is a key concept in resilience thinking. It describes social-ecological systems as composed by nested levels and cross-scale (e.g. time and space) interactions (Gunderson and Holling, 2002). The multiple panarchy levels are interconnected and influenced by processes occurring at other levels, as well as inside each level (Gunderson and Holling, 2002). In fisheries systems, many levels are playing important roles, from the individual to the global (e.g. shrimp markets), with the potential that all levels are interacting and responding differently depending on the shocks, stresses or opportunities (Berkes and Ross, 2016).

At this point it is important to be clear that for the purpose of this thesis, I am not interested in exploring the panarchy adaptive cycles (Gunderson and Holling, 2002), but instead I borrow the idea of nested levels to address the relationships between and within different social levels (individual, household and community) in a small-scale fishing community context. Therefore, the adaptive cycles' phases (exploitation, conservation, release and reorganization) are not within the scope and purpose of my PhD.

Indeed, important concepts related to resilience theory such as stability domains or equilibrium states, thresholds, and adaptive cycles, are best developed, and perhaps only applicable, when it comes to the ecological component of SES. Much of these terminologies are strongly influenced by a positivist epistemology (Wisner et al., 2003). Accordingly, Adger (2000) and Armitage et al. (2012) argue that resilience theory cannot be uncritically transferred and applied to social systems. In order to incorporate resilience concepts into social systems, one has to first consider the differences in behaviour and structure of both social and natural systems (Adger, 2000; Wilson, 2010).

Moreover, it is essential to pose the question of “resilience of what to what” (Carpenter et al. 2001), referring to the distinction between specified resilience (the resilience of some specific aspect of the system, such as livelihoods) and general resilience (resilience of the system as a whole, such as the coastal ecosystem where the fishery takes place) to specific shocks or stresses (Folke et al., 2010). From the social systems perspective, the question can also be framed as “resilience of what, for whom?” (Leach, 2008:3).

In my research, the panarchy model provided a framework for the study of responses at multiple levels, and within levels, to identified shocks, stresses, and new opportunities (Figure 2.1). Contributions from diverse and interdisciplinary strands of literature assisted in addressing processes taking place within and across these different levels. In the next section, I explore the literature on individual resilience, from Developmental and Mental health fields.

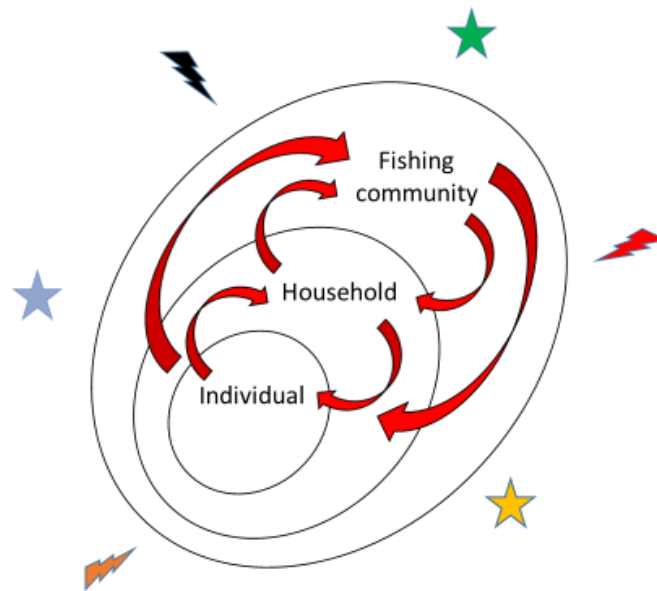


Figure 2.1. The nested levels approached in this study. The arrows represent the connections between different levels, the lightning bolts equate to shocks and stresses, and stars symbolize new opportunities that arose with economic development.

## 2.2. Individual resilience and positive adaptation in the face of trauma

The concept of resilience, in the fields of Psychology of Development and Mental Health, was introduced in the 1960s and 1970s (Masten and Obradovic, 2008). Studies revealed that some children presented positive adaptation patterns despite being exposed to difficult conditions (e.g. being children of schizophrenic parents) and the high risk of developing psychopathologies and maladaptation. These findings directed the focus of many researchers to investigate the factors that allowed these positive adaptations.

In this context, Individual Resilience represents the process of positive adaptation despite adversity (Buikstra et al., 2010). Luthar (2006:742) defines individual resilience as “a phenomenon or process reflecting relatively positive adaptation despite experiences of significant adversity or trauma”. This strand of literature focuses on the strengths necessary for individuals (especially children) to recover from harsh conditions in ways that retain a healthy psychological state (Berkes and Ross, 2013; Buikstra et al. 2010).

Contrary to SES resilience, where a system can be maintained in either a desirable or undesirable resilient state, individual resilience is always considered a positive characteristic, as it implies a healthy psychological state despite hardship experiences. Another important difference is that while much of the research on SES resilience does not address vulnerability (see Gallopín, 2006 or Béné, 2012 for exceptions), in developmental studies vulnerabilities and protective factors are central to understanding individual resilience processes (Luthar, 2006). Here, vulnerabilities relate to factors that magnify conditions of risk (e.g. poverty or political instability), while protective factors are those factors that minimize the effects of risk (e.g. family and social support) (Luthar, 2006, Masten and Obradovic, 2006).

The process of individual resilience encompasses interactions and adjustments of the individual with both social and physical environments, and depends on several attributes, including cognitive and emotional ones, as well as autonomy, personal goals, agency and external environmental conditions (Berkes and Ross, 2013; Brown and Westaway 2011; Buikstra et al. 2011). Creativity, effectiveness, and competence were some of the characteristics identified by a study conducted by Rutter (1979) as characteristics of resilient individuals. Other studies with children exposed to adverse conditions, such as death in the family, recognized additional important strengths including: social charisma, the ability to relate well with others, the ability to experience a range of emotions and to regulate the expression of these emotions, affection ties with the family, informal support systems outside the home, autonomy, belief in oneself, and sociability (Cicchetti and Crutis, 2007; Luthar, 2006, Luthar and Cicchetti, 2000). Brown and Westaway (2011) identify additional psychosocial factors enabling individual resilience. Table 2.1. presents a synthesis of individual resilience attributes. The literature points towards individual, family and societal factors, or attributes, that contributes to positive outcomes despite adversity (Cicchetti and Garmezy, 1993). These attributes help us to think about how they can be applied, not just to

childhood development, but also to adults (see Werner and Smith, 1992 for an example of a long-term study with individuals from infancy to their 40s).

Table 2.1. Attributes of individual resilience. Sources: 2011; Buikstra et al. 2011; Luthar, 2006; Luthar and Cicchetti, 2000; Rutter, 1979.

| <b>Attributes of Resilient Individuals</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Individual differences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| <ul style="list-style-type: none"> <li>• Self-perceptions of competence: e.g. confidence, self-esteem</li> <li>• Effectiveness</li> <li>• Temperament and personality: e.g. adaptability, sociability</li> <li>• Ability to experience a range of emotions, and to regulate the expression of these emotions: e.g. impulse control</li> <li>• Positive outlook on life: hopefulness, belief that life has meaning, faith</li> <li>• Autonomy and independence</li> <li>• Personal goals and agency</li> <li>• Creativity</li> <li>• Formal education</li> </ul> |  |
| Relationships                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <ul style="list-style-type: none"> <li>• Parenting quality: warmth, structure and monitoring</li> <li>• Affectionate ties with family members</li> <li>• Close relationships with competent adults: parents, relatives, mentors</li> <li>• Connections to pro-social and rule-abiding peers</li> </ul>                                                                                                                                                                                                                                                          |  |
| Community resources and opportunities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| <ul style="list-style-type: none"> <li>• Good schools</li> <li>• Social inclusion</li> <li>• Informal support systems outside the home, as connections to pro-social organizations: e.g. religious groups</li> <li>• Neighborhood quality: public safety, collective supervision, libraries, recreation centers, water quality, etc.</li> <li>• Quality of social services and health care</li> </ul>                                                                                                                                                           |  |

Finally, two points are fundamentally important to individual resilience: 1) resilience varies over time: “positive adaptation despite adversity is never permanent; rather there is a developmental progression, with new vulnerabilities and strengths emerging with changing life circumstances” (Luthar, 2006:741), and 2) resilience is normally domain-specific, an individual can be very resilient in one area and still vulnerable to other stressors (Luthar, 2006; Masten and Obradovic, 2006). As highlighted by Berkes and Ross (2013:6) “resilience is seen as a continual personal development process in facing adversity and adaptation, rather than a stable outcome that is reached and maintained” [...]. While people may become more

resilient through coping with successive experiences, even the most resilient individuals may be set back if further hardships cross their personal tolerance threshold.”

Both concepts above can be related to resilience at the system’s level: 1) the variance of individual resilience over time relates to the importance of acknowledging scalar interactions in system’s resilience (e.g. the relevance of time and historical phases), and the domain specific aspect of individual resilience speaks to the matter of distinguishing between specified and general resilience to defined shocks and stresses (resilience “of what to what”?). In fact, more recently, scholars have incorporated concepts from individual resilience, SES resilience, and disasters literatures, among others, to study communities’ responses to change (Berkes and Ross, 2013; Brown and Westaway, 2011; Masten and Obradovic, 2008; Norris et al., 2008). The next section will explore more deeply the idea around community resilience.

### **2.3. Community resilience**

Magis (2010: 401) defines community resilience as the “‘existence, development and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability, and surprise.” An interrelated concept is that of social resilience, which can be defined as “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change” (Adger, 2000: 347). In any case, collective resilience seems to be largely dependent on the action of a group of people working for a common goal.

Community resilience may represent a challenge in small-scale fisheries, as many fishing communities do not entirely show the strengths necessary to fulfill the characteristics of a so-called ‘cohesive’ community (Milich, 1999), or in other words, one that is capable of mobilizing community resources and institutions to improve the overall community ability to

cope with disturbances. Rather, communities are frequently characterized by conflicts of interest, social imbalances/inequalities, and power discrepancies (Agrawal, 1999; Jentoft, 2000). All of these characteristics potentially generate a loss of resilience at the community level and increase vulnerabilities for those households that have less access to resources and opportunities.

The literature on community resilience is influenced by insights from diverse disciplinary fields such as mental health, human development, disasters and SES resilience theory. As stated before, both SES resilience and psychology resilience literatures have independently explored resilience of groups of people or communities. Berkes and Ross (2013) merged the two strands of literature by coalescing strengths, or attributes, characteristic of resilient communities. These are: 1) people-place relationships (including sense of belonging and stewardship), 2) leadership, 3) values and beliefs, 4) social networks (including systems of support), 5) engaged governance (existence of collaborative approaches to decision-making between the public sector, the private sector, and community stakeholders), 6) positive outlook, 7) community infrastructure (services and facilities), 8) diverse and innovative economy, and 9) knowledge, skills and learning (including local knowledge, gendered knowledge, and formal and informal learning systems) (Figure 2.2). According to the authors, these strengths are achieved by the exercise of human agency and self-organization.



Figure 2.2. Important strengths, or characteristics, leading to community resilience (through the exercise of human agency, and self-organization). Source: Berkes and Ross, 2013, used with permission.

Human agency can be defined as “the capacity of individuals to act independently to make their own free choices” (Brown and Westaway, 2011:322), and can also be related to a group of people’s abilities to negotiate and make decisions impacting their lives, including those related to adaptation strategies in response to change (Coulthard, 2012). Self-organization is understood as a process by which some kind of order arises from components within a previously disordered system, and can take place in both human and natural systems (Seixas and Davy, 2008). According to Gunderson and Holling (2002:403), “Self-organization of human institutional patterns establishes the arena for future sustainable opportunities”, we can include, in this context, community resilience.

Many of the features identified by Berkes and Ross (2013) are also posited as noteworthy strengths for resilient *individuals* (e.g. values and beliefs systems, social networks, and community infrastructure). Engaged governance, leadership and diverse and innovative economies are added as features of resilient communities, as described in the SES resilience literature (Berkes and Ross, 2013), leaving the question of whether there can be

resilient individuals or households living in non-resilient communities (without strong local institutions, legitimate leaders, and politically engaged).

Yet, the assortment of strengths identified by Berkes and Ross is not necessarily all-inclusive in a fishing context. Characteristics such as natural resources availability (e.g. fish abundance), as well as rights to access commercially relevant local resources (Davidson, 2014), including fishing grounds (Leite and Gasalla, 2013), are also essential for small-scale fishing community resilience. In this sense, Jentoft (1999) points to fisheries management arrangements' importance for community cohesion. For example, access rights conceded to individuals typically generate individual/household resilience for those that hold the rights, but in this effort risks creating unequal opportunities and reducing overall community resilience by excluding others from the right to access natural resources.

Finally, despite households being a link between the individual and the community levels, there is no literature dedicated specifically to household resilience, as exists at individual and community levels. The household level is primarily approached by the livelihoods literature. In this study, I understand fishing household resilience as the capacity of fishing-dependent family units to successfully respond to change, while maintaining fishing as part of their livelihood portfolios despite external pressures to leave the activity (e.g. fish scarcity, restrictive policies and conservation initiatives).

## **2.4. Livelihood resilience and livelihoods approaches**

Livelihoods can be defined as the ways of individuals or groups to make a living (Chambers and Conway, 1992). Ellis (2000: 10) offers a more detailed definition: “the assets (natural, physical, human and social capital), the activities, and the access to these that together determine the living gained by individual or household”. This definition highlights tangible and intangible assets important for livelihoods. Tangible assets refer to stores and

resources and intangible resources to claims and access (Chambers and Conway, 1991). Chambers and Conway (1992:6) add the idea of sustainability, and describe sustainable livelihood as that which “can cope with and recover from stress and shocks, maintain or enhance its capabilities, assets and entitlements, while not undermining the natural resource base”. Sustainable livelihoods and livelihood resilience can be, in this sense, used in similar ways.

Coping and adapting are both prerequisites to livelihood resilience (Marschke and Berkes, 2006). Coping strategies are short-term responses, or temporary adjustments, which can be related to survival strategies (Scoones, 1998). “Coping strategies may force people to make decisions favoring security and short-term gains, yet limiting potential future options” (Marschke and Berkes, 2006:5). Adaptive strategies, on the other hand, are long-term responses, or shifts in livelihood strategies (Scoones, 1998) that may lead to the enhancement of livelihoods (Marschke and Berkes, 2006).

In fisheries, diversifying sources of income and activities is a common strategy for individuals and households either in times of crisis or in response to new opportunities (Allison and Ellis, 2001; Ellis, 2000; Grant et al., 2007; Hanazaki et al., 2013). Grant et al. (2007) identify two different ways in which fishers might respond to scarcity of a commercial resource, these include: 1) diversifying gears and/or target species, or 2) diversifying livelihood activities. The latter response is often an attempt to reduce vulnerability, and/or enhance financial/economic security, but may occur at the cost of reduced wellbeing. For example, there is a likely tension or trade-off between increasing livelihood portfolios through diversification (and therefore enhancing income sources) and diminished fishers’ job satisfaction and self-esteem (a measure of wellbeing).

Finally, livelihood frameworks acknowledge that households’ sources of revenue are often combined by the activities of different household members. In a small-scale fisheries

context, these activities are subject to seasonality, as well as gender roles. Therefore, women's contributions to the continuity of fishing livelihoods are frequently essential, even as they are normally overlooked.

#### **2.4.1. Gender roles and livelihood resilience**

In fisheries, women are commonly responsible for domestic work and care work (provided for children and elders) (Carpenter, 2011; Harper et al., 2013). However, women also engage in fish capture and other fishing related activities (Bennett, 2004; FAO, 2007; Frangoudes, 2011; Kavarazuka and Béné, 2010, Quist and Frangoudes, 2005). While women typically fish less than men, especially when it comes to high-seas fishing, they play central importance in pre- and post-fishing activities, such as preparing the bait, mending nets, processing and marketing the catch, and managing the household budget (Harper et al., 2013).

In most countries, these contributions are underestimated and unrecognized, leading women to be excluded from decision-making in fisheries management (Harper, et al. 2013). One reason for this is the lack of gender data on women's participation in fishing and fishing related activities (Bennett, 2004; Frangoudes, 2011; Harper, et al., 2013; Quist and Frangoudes, 2005). Another cause may be attributed to the historical focus of research on the harvesting sector (e.g. fishing fleets and gears), which is mostly male dominated (Kooiman et al., 2005). Likewise, it can also be partly explained by the focus of policy agendas in solving the over-exploitation problem (Allison and Ellis, 2001) and the absence of women-members in management agencies (Jentoft, 1999). In short, a legacy of patriarchy features prominently in fisheries and subsequently, fisheries policy and research.

This marginalization has serious consequences for the estimation of the social benefits of women's participation in fisheries (Harper et al., 2013). For example, empowering

women, and including them in decision-making processes, often translates into increasing food security and wellbeing of fishing households (Kawarazuka and Béné, 2010). Therefore, any livelihood study, in the context of small-scale fisheries, should pay special attention to gender roles.

“Gender refers to the socially defined roles and responsibilities of men and women as they relate to one another [...]. These roles are socially constructed and vary across time and place according to changing values, practices and technologies [...]. Moreover, these roles influence men and women’s relation to natural resources and their perceptions of the environment” (Kooiman et al., 2005:160). Gender dynamics will play a central role in resilience strategies employed by fishing-dependent households. An absence of attention to the significance of gender dimensions can lead management to unsustainable decision-making regarding livelihoods resilience (Bennett, 2004).

#### **2.4.2. The Sustainable Livelihoods Approach (SLA)**

In the next two sections, I summarize and present a critique of two livelihood approaches, the Sustainable Livelihood Approach (SLA) and the Resource Profile Framework (RPF). The Sustainable Livelihoods Approach (SLA) was developed by the UK Department for International Development (Carney, 1998) and researchers of the Institute of Development Studies in Sussex (Scoones 1998). It has been applied to investigate the adaptive capacity, and the strategies households apply in the face of change, including stresses and shocks (Marschke and Berkes, 2006).

The term adaptive capacity has been defined in many ways, yet always in reference to ‘the pre-requisites required for adaptation to take place’ (Brown and Westaway, 2011; Carpenter and Brock, 2008). Nelson et al. (2007:397) define it as “the preconditions necessary to enable adaptation, including social and physical elements, and the ability to

mobilize these elements”. Armitage et al. (2011:996) offers a definition that includes the concept of SES: “the ability of an individual or group (i.e., community) to cope with, prepare for, and/or adapt to disturbance and uncertain social-ecological conditions”. Adaptive capacity is related to human motivations, behaviour and responses (Brown and Westaway, 2011), as well as human agency (Berkes and Ross, 2013). Human agency speaks to individuals, or groups of peoples’ abilities to negotiate and make decisions impacting their lives, including those related to adaptation strategies in response to change (Coulthard, 2012). Berkes and Ross (2013) consider “adaptive capacity as a latent property, which can be achieved when people exercise their agency”.

Adaptive capacity to deal with surprises and uncertainty is essential for artisanal fishers to continue undertaking their way of life, as catches and environmental conditions are often unpredictable. Adding to that reality, most coastal communities worldwide are subject to external drivers of change. The literatures on social-ecological systems and sustainable livelihoods both outline adaptive capacity as a source of resilience (Brown and Westaway, 2011). Adaptive capacity depends partly on the access to different assets (e.g. natural and financial resources, skills and knowledge, social networks and political support), as well as the ability to take advantage of these assets, including psychosocial factors, so as to develop flexibility.

The SLA identifies five types of capitals, or assets, important for the long-term maintenance of a way of living, including: 1) Natural capital, or natural resources and ecosystems services, which can include both public goods such as clean air and biodiversity, and assets that people use for production, such as fisheries resources; 2) Human capital, including skills, education, knowledge, self-organization and other factors that enable people to pursue different livelihood strategies and achieve their livelihood objectives; 3) Economic/Financial capital, such as employment, savings, household income, climate for

credit and so forth; 4) Social capital, referring to connections among individuals, social claims, formal and informal networks, and the norms of reciprocity and trust that arise from them; and 5) Physical capital, referring to infrastructure such as roads, railways, markets, clinics, schools and equipment (Carney, 1998; Ellis, 2000; Scoones, 1998).

The approach fits in the livelihood framework category of “having and controlling” (Bebbington et al. 2007), referring to the emphasis upon capitals or assets. If on one hand the SLA has provided development agencies with a “simple framework for identifying and formulating more strategic and sophisticated poverty-focused interventions” (Gough and McGregor, 2007:19), on the other it risks missing important components such as culture and spirituality.

#### **2.4.3. The Resources Profile Framework (RPF)**

The Resources Profile Framework (RPF), developed by a group of scholars from the University of Bath has a more sociological and anthropological orientation, prioritizing social and cultural rather than economic aspects of livelihoods. The framework approaches culture as a separate category (removed from social resources) and accentuates the importance of “status and symbolic values in the social interaction which constitute livelihoods” (White and Ellison, 2007:160). It emphasizes the relationships between means and ends, and recognizes resources as representing both.

Hence, the RPF fits a livelihood category of “thinking and doing” (Bebbington et al., 2007). It contrasts with the “having and controlling” SLA as it emphasizes that “the value of the resources in pursuit of goals and objectives is contingent on the goals and also on the context and circumstances within which the livelihood and broader wellbeing are being negotiated” (Gough and McGregor, 2007:20). The RPF also aims to study diverse strategies different people adopt in the course of their lives to ensure their livelihoods. However,

instead of using the concept of *capitals*, the RPF intentionally adopts the term *resources* as a way of avoiding the fixed and economically driven connotation of the word “capital”. The RPF also distributes the resources into five categories: material, human, social, cultural and natural (or environmental), and places emphasis on the social and cultural dimensions, but reminds us that resources are socially and culturally negotiated (White and Ellison, 2007). The forms in which different resources are accessed and combined, and the trade-offs negotiated, will play a significant role in household’s adaptation processes and ultimately the achievement of sustainable livelihoods (Gough and McGregor, 2007).

#### **2.4.4. Limitations and criticisms of livelihood frameworks**

Despite the recognized value of livelihood approaches in developing studies, there are important limitations to be emphasised (Gough and McGregor, 2007). First, the “having and controlling” capital-based SLA tends to focus on what people have and overlooks people’s goals, the choices they attempt to accomplish, their aspirations and the struggles they face in that process (Islam and Chuenpagdee, 2013; White and Ellison, 2007). Second, livelihood frameworks place the emphasis on individuals’ and households’ abilities to mobilize these resources (Gough and McGregor, 2007, Idrobo, 2014). By doing so, both SLA and RPF risks stressing human agency and underestimating the role of structure and power in constraining peoples’ freedom of choice and space for manoeuvring (Gough and McGregor, 2007). In this sense, livelihood approaches tend to disregard the important balance between agency and social structures in allowing desirable resilience processes to take place, especially for those with less voice.

Third, by describing “social capital” in terms of assets, or resources, the SLA suggests “relationships are ‘owned’ and ever-present” (Gough et al., 2007:23). When, in fact, social relations (and their attributed meanings and understandings) are constantly negotiated and

renegotiated; as relationships are dynamic behaviours in human societies. The fourth and last criticism, directed specifically to the SLA, argues that by including culture within the social capital category the role of customs, morals, values, norms and social meanings in the pursuit of livelihoods is overlooked (Gough, 2007). Resources, in this perspective, only exist when they are identified as a means to meet needs, aspirations, beliefs and purposes, or in other words, a means to meet a desirable end. Thus, livelihood frameworks do not actively acknowledge the search for satisfaction and pursuit of wellbeing (Gough, 2007). In my research, employing the social wellbeing approach aims at filling this gap.

## **2.5. Social wellbeing**

Although there is no singular definition for wellbeing, the term is frequently related to quality of life (Gough and McGregor, 2007). Wellbeing is experiential, and its definition depends on what people value being and doing, and on how they relate to the environment to which they belong (Millennium Ecosystem Assessment 2005; Idrobo, 2014). Essential to the concept is the recognition of plurality in what wellbeing means for different individuals or groups, which may be fundamentally different from the perceptions of others, including our own as researchers (Gough and McGregor, 2007; White, 2008). Many of these features will largely depend on the social, cultural, religious, and political context (Weeratunge et al., 2013).

Wellbeing, in post-war development era, was viewed within a narrow lens, emphasizing the material resources people controlled and could utilize, particularly income (at the individual level), and national per capita income (aggregate levels) (Gough and McGregor, 2007). Since then, the concept of wellbeing has expanded to include other features other than economic ones, offering a broader scope to study the perspectives of

people experiencing and living specific livelihoods (Armitage et al., 2012; Couthard, 2012; Gough et al., 2007; Weerantuge et al., 2012).

Economist Amartya Sen had an important role in expanding the idea of economic development to human development, introducing this new understanding in the global agenda (Bebbington, 1999; Gough et al. 2007). He questioned if “command over commodities or income could provide an adequate space within which to access wellbeing or poverty” (Gough et al., 2007:6), by contrasting the concepts of *capabilities*: what people are supposedly able to be and do (a person’s opportunities and the range of choices he or she has), and *functionings*: what he or she in fact could be and do, or in his words, “an achievement of a person” (Sen 1985:12). His conclusion was that money, or income, are but a means to pursue what matters for people to achieve the life they esteem. Therefore, the focus should be shifted from income to “the extent of people’s freedom to live the kind of lives which they have reason to value” (Gough, 2006:6), or “a life that is worthy of the dignity of the human being” (Nussbaum, 2000:5).

The Social Wellbeing Approach, developed by the Wellbeing in Developing Countries Research Group (WeD), linked to the University of Bath (United Kingdom), provides a holistic and multidimensional approach and a people-centered lens, as it seeks to understand people’s objective circumstances, their subjective perceptions of these circumstances and the relationships at play (Gough and McGregor, 2007). The WeD group defines Social Wellbeing as “a state of being with others and the natural environment that arises where human needs are met, where individuals and groups can act meaningfully to pursue their goals, and where they are satisfied with their way of life” (Coulthard et al., 2014:6). It brings a broader understanding of human wellbeing, by playing special attention to relational/collective processes in addition to the material and subjective dimensions of wellbeing (Armitage et al., 2012; Britton and Coulthard, 2013; Gough and McGregor, 2007;

White, 2008). The three dimensions of wellbeing are represented by a triangle composed of material, subjective and relational aspects (Fig. 2.3). The main components of these dimensions are summarized in Table 2.2.

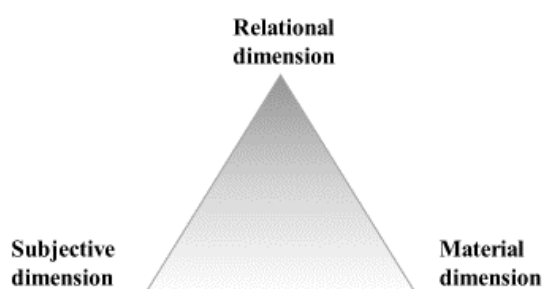


Figure 2.3. Conceptual view of Social Wellbeing.

Table 2.2. Dimensions of the Social Wellbeing approach. Adapted from White (2008:11).

| <b>Material concerns: practical welfare and standards of living</b>   |
|-----------------------------------------------------------------------|
| Income, wealth and assets                                             |
| Employment and livelihood activities                                  |
| Education and skills                                                  |
| Physical health and (dis)abilities                                    |
| Access to services and amenities                                      |
| Environmental quality                                                 |
| Ecosystem services                                                    |
| <b>Subjective concerns: values, norms, perceptions and experience</b> |
| Understandings of the sacred and the moral order                      |
| Self-concept and personality                                          |
| Individual and shared hopes, fears and aspirations                    |
| Sense of meaning/meaningless                                          |
| Levels of (dis) satisfaction (including job satisfaction)             |
| Trust and confidence                                                  |
| Happiness                                                             |
| <b>Relational concerns: personal and social relations</b>             |
| Relations of love and care                                            |
| Networks of support and obligations                                   |
| Relations with the state: law, politics, welfare                      |
| Social, political and cultural identities                             |
| Inequalities                                                          |
| Violence, conflict and (in)security                                   |
| Scope for personal and collective action and influence                |
| Power relations                                                       |

The Social Wellbeing approach was influenced, and has common grounds with, several bodies of literature, including Sen's Capabilities Approach, Sustainable Livelihoods, Economics of Happiness, and gender studies. Weeratunge et al. (2013) mapped the overlaps between the Social Wellbeing approach and several related approaches (Figure 2.4.) and provided a review of their interplay.

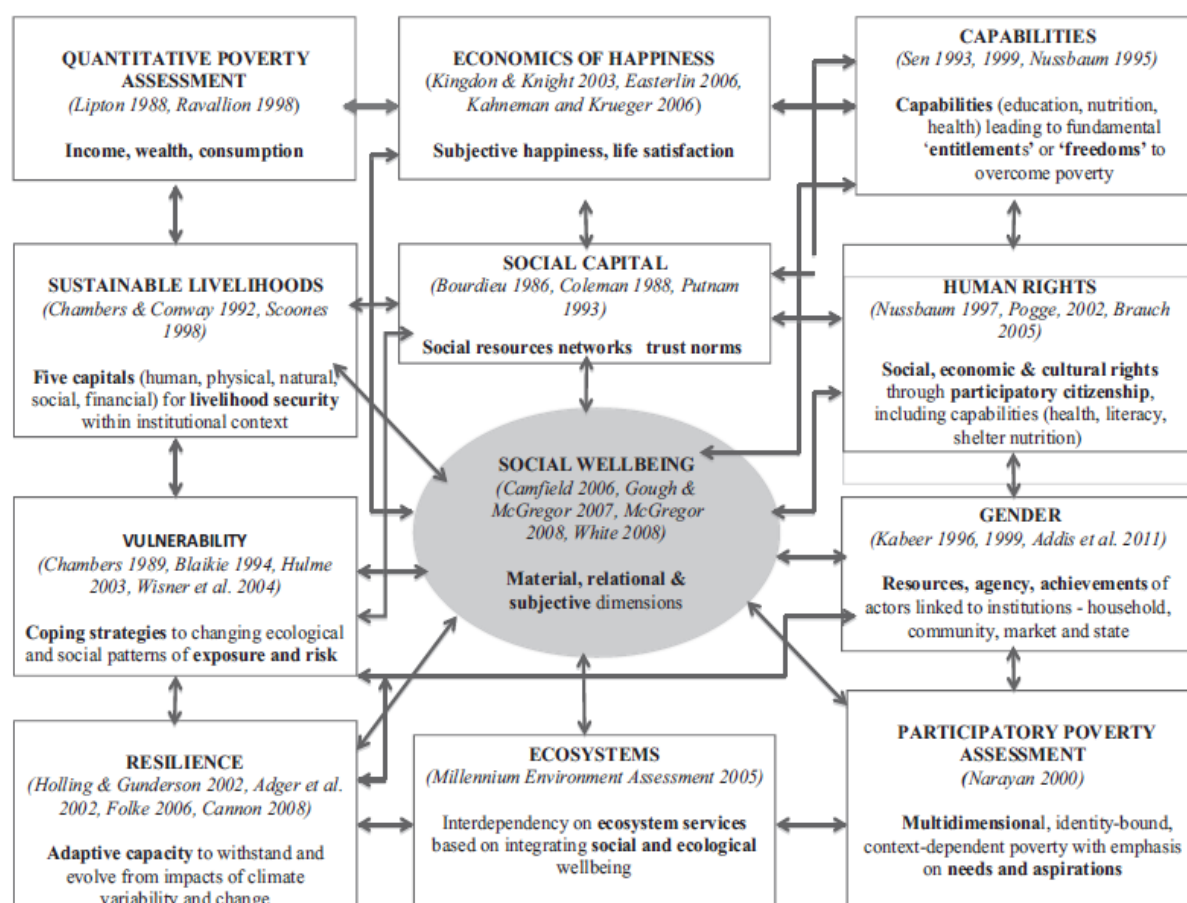


Figure 2.4. Common ground between the Social Wellbeing and related approaches. Source: Weeratunge et al. 2013:5, used with permission.

While the Sustainable livelihoods capitals are among the literatures that influenced the development of the Social Wellbeing Approach, the latter goes beyond the former in several ways. First, a Social Wellbeing lens prioritizes people's own understandings, worldviews, and purposes, and moreover, genuinely commits to actor-oriented approaches (White and Ellison, 2007; Coulthard, 2008; White, 2008). It helps in expanding or deepening the analysis of fishers' behaviours by illuminating the often-unpredictable motivations that

resource users have in times of change. Additionally, livelihoods studies often focus primarily on the material dimensions of wellbeing. Yet while options exist to fulfil basic needs (i.e. income and access to resources), other dimensions such as values, beliefs, job satisfaction and identity can strengthen our understanding of actual adaptation choices.

Second, the Social Wellbeing Approach posits that the character of resources depends on its interactions with other resources. In other words, an asset (or resource) category is not independent and unrelated to the other categories, and consequently there is a risk in representing them through a fixed ‘asset pentagon’ (White and Ellison, 2007). In fact, there is great interplay among the capitals, and they frequently influence each other in significant ways (de Haan and Zoomers, 2005). Land, for example, considered a natural capital in the SLA, also becomes imperative when analyzing important components of human and social capitals, such as people-place connections and individual and cultural identities. Therefore, land, as a natural capital necessary for rural households to make a living, also informs individuals’ worlds and worldviews (Bebbington, 1999, de Haan and Zoomers, 2005). By offering broader dimensions of wellbeing, the Social Wellbeing Approach attempts to overcome the limitation of the categorization of resources.

Third, the Social Wellbeing Approach explicitly aims to understand how relationships, and the social structures in which they are embedded, shape peoples’ autonomy, or agency, to improve (or maintain) their quality of life (White, 2008). Livelihood approaches also recognize such influences (Scoones, 1998), however the focus still lies on capital/assets (especially in the SLA) and less on the relationship between them, nor on the broader social and cultural context in which livelihoods are embedded (Bebbington et al., 2007; White, 2008). The Social Wellbeing Approach considers social structures that enable, or constrain, the exercise of human agency. The balance between agency, structural constraints and opportunities plays a central role in resilience processes.

How agents' actions are embedded in social structures and therefore constantly reproduced are questions Giddens (1985) makes in his 'Theory of Structuration'. The author argues that it is through the habitually routinized activities of actor's that social structures exist. For example, cultural structures frequently play a central role in defining access to material and social benefits, an example being the cast systems in India (Gough et al., 2007) and religious and ethnic tension in Sri Lanka (Lokuge and Munas, 2018). As people engage with structures, they also reproduce them; "things like relationships and cultural status, can be both means and ends." (Gough et al. 2007:7). On one hand, Giddens (1985) perceives agency as conditioned to social structures, and on the other hand, he argues that it is the agency of actors that constantly creates and re-creates social structures over time and space.

The social wellbeing approach embraces the social, cultural, and political contexts in its relational dimension (Armitage et al., 2012; Gough and McGregor, 2007; Weeratunge et al., 2013, White, 2008). Therefore, it considers structures that enable, or constrain, the flourishing of livelihoods (Idrobo, 2014; Lister, 2004). The relational dimension of wellbeing specifically offers a tool toward the incorporation of power relations and structures as constraints and platforms for the expression of human agency in resilience processes.

## **2.6. Panarchy and the linkage between levels**

Resilience literature has conventionally focused on the broader system level (Gunderson and Holling, 2002). Nevertheless, resilience at the system level (e.g. coastal systems) does not necessarily translate into resilience at lower levels (e.g. fishing households). In order to approach resilience of the social component of fisheries there is a need to direct efforts towards the understanding of dynamics, behaviours, and complexities of lower levels, such as household and community, and their interactions.

While resilience thinking has been broadly incorporated into sustainability discourses, both in the scientific and public realms, the panarchy concept's contribution has yet to take hold in a natural resources policy discussion (Berkes and Ross, 2016). Nevertheless, it is imperative to recognize that SES are composed of multiple levels, and that the interaction between these levels will influence, frequently in significant ways, the dynamics at other levels of the panarchy. For example, Berkes and Ross (2016) in their focus of the community level and associated processes, use a number of studies to showcase the connections between the community and other SES levels. From the role of an individual leader in implementing an adaptive management system for more socially and ecologically sustainable fisheries in the North American Great Lakes (Westley, 2002), to the negative impacts of cheaper farm-raised salmon from international markets on Alaskan communities' dependent upon wild salmon exports (Robards and Greenberg, 2007), Berkes and Ross (2016) highlight the importance of acknowledging the nested-level aspect of SES.

In this study, I explore how resilience interacts at individual, household and community levels, emphasizing shocks and stresses as a medium of exploration. Particular to this context, relevant questions include: is community resilience critical to household resilience in small-scale fisheries? How do contextual changes affect the resilient capacity of specific actors in a community? How does agency and structure enable or constrain resilience of different groups? What are the costs of adaptation processes for wellbeing? These questions point to the relatively sparse examples of explicit investigation into the scalar dimensions of resilience within the social component of SES in small-scale fisheries, which I attempt to address in this research.

## CHAPTER 3. STUDY AREA, PEOPLE AND RESEARCH METHODS

### 3.1. Study area: Ubatuba (São Paulo)

The study area is situated in southeast Brazil, on the north coast of the state of São Paulo (Figure 3.1 Study Area). The municipality of Ubatuba encompasses an area of approximately 71,078 km<sup>2</sup>, boasting over 70 public beaches, and as of 2016, has an estimated population of 87,364 inhabitants (IBGE-The Brazilian Institute of Geography and Statistics). However, during the high tourism season (December to February, and on holidays), the area population increases several-fold.

This study took place in a community composed of two neighbourhoods: Lázaro and Saco da Ribeira, located in the southern coast of the municipality (Figure 3.1). The two neighbourhoods were considered one community by participants, as there is no physical division among them, and the interaction between residents is a daily routine. The community is separated from other communities (or neighbourhoods) to the south and north by the *Serra do Mar* mountain range (however, most communities in Ubatuba are connected by the Rio-Santos highway).

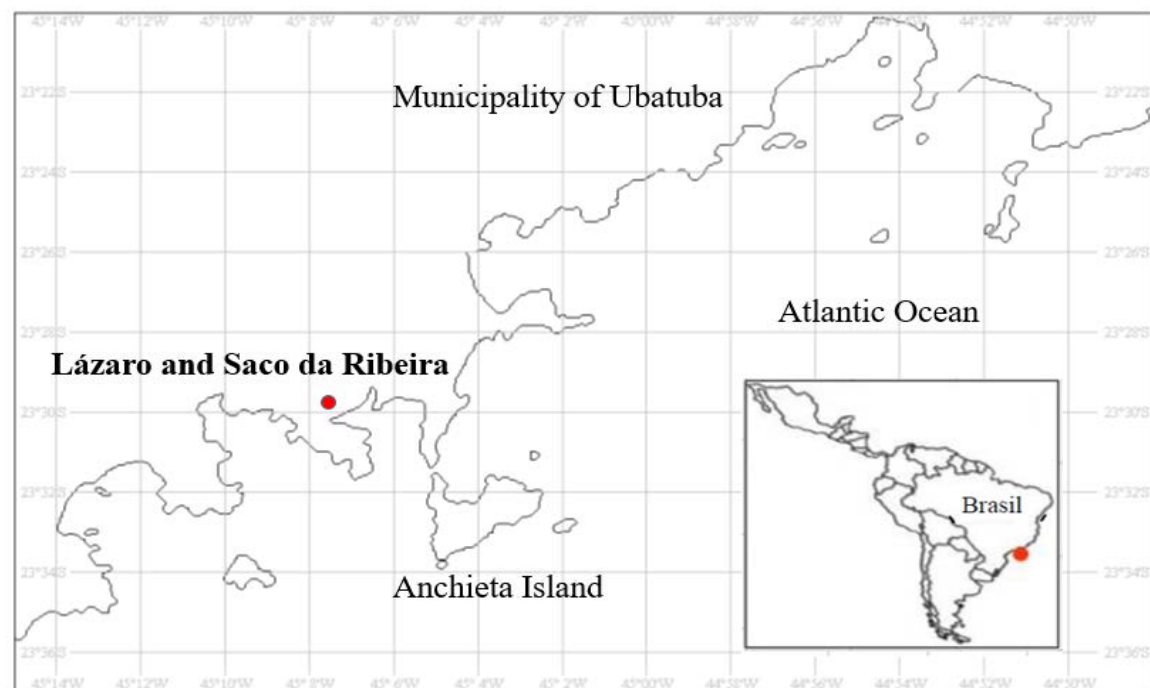


Figure 3.1. Saco da Ribeira and Lázaro Community, Ubatuba, São Paulo, Brasil.

Over 80% of the land base in Ubatuba falls within the Serra do Mar State Park (SÃO PAULO, 1977) and in other protected areas, which are designed to protect native Atlantic Forest (Figure 3.2). The coastline represents much of the remaining 20% of the land area, where one will find numerous small communities residing along beachfronts, a handful of islands (mostly uninhabited) and the main urban center of downtown Ubatuba and surrounding adjacent neighbourhoods.



Figure 3.2. Lázaro Beach, on the left, and Fazenda Beach (on the North coast of Ubatuba). Photos: Marta Leite and Connor Jandreau.

Additionally, the coast of Ubatuba is part of a marine protected area (Área de Proteção Ambiental do Litoral Norte de São Paulo) created in 2008, whose management plan is still under development and future fishing restrictions remain unclear. So far, fisheries, largely small-scale methods, are still allowed in the area although there is a movement to institute more restrictive protections within the confines of the still-emerging management plan.

### 3.2. Overview of fishing history in Ubatuba

The southeast Brazilian shelf receives seasonal upwelling and cool intrusions, resulting in moderately high productivity (Campos et al, 1995; Castro and Miranda, 1998). Consequently, the study is part of an attractive environment for fishing activities.

Most small-scale fisheries in the area are classified as multispecies, or in other words, directed to the catch of several species using different fishing gear according to seasonality and availability (Castro and Miranda, 1998).

In Ubatuba, fishing has played an important social role for centuries. Even so, the earliest records of fishing as an economic activity date back only to the beginning of the 1900s, with the traditional mullet (*Mugil platanus*) fishery (Diegues, 1974). In the 1940s, Japanese immigrants introduced a pound net fishery, locally called “cercos flutuantes” (Begosi 2006, Ibrobo, 2014), which is still present in many coastal communities. This, along with the opening of small dirt roads, granted access to middlemen as they turned fish into a local commodity. In the 1960s, corresponding to this growth in the regional fishing industry, the first trawlers, targeting shrimp, arrived in the area (Diegues, 1983).

In the 1970s fishing was one of the main economic activities in Ubatuba (Diegues, 1983). In the same decade, the construction of the Rio-Santos Highway connected the area to both São Paulo and Rio de Janeiro cities, accelerating the process of economic development and a shift towards tourism related activities. Consequently, growing demand for fisheries resources resulted in great pressure upon important local fisheries resources, including sardines, shrimp, sharks and several demersal fish species. These stocks were significantly reduced due to the lack of proper fisheries management, including policy incentives implemented in the 1970s, which reduced interest rates, encouraging investment in industrial fishing enterprises in Brazil (Abdallah and Sumaila, 2007).

Nevertheless, Vianna and Valentini (2004) argue that until the early 1990s fishing in the area was still mostly coastal and small-scale. The main fishing gear used were pound nets, hook and line, small gillnets and small (around 7 meters) sea-bob shrimp trawlers. However, in the late 1990s, large-scale fisheries started accessing the coastal areas of São Paulo state, and soon fish scarcity became a real challenge for artisanal fishers (Azevedo and

Seckendorff, 2007). D-incao et al. (2002) reports that both the Brazilian South and Southeastern coasts presented signs of overfishing of sea-bob shrimp (*Xiphopenaeus kroyeri*) stock by the end of the 20th century.

Despite evidence of overfishing, however, studies reporting the struggles of local fishers are still few within the study area. Of the studies that do exist, researches have identified several common difficulties faced by small-scale fishers including: declines in catch, conflicts between small and large-scale fisheries as well as within small-scale fisheries, conflicts between fishers and management institutions responsible for enforcement, insufficient enforcement of large-scale fisheries, lack of subsidies for artisanal fishers (e.g. gas and ice), unsafe working conditions on landing sites, and lack of cohesion between fishers (Gasalla and Pincinato, 2008; Leite and Gasalla, 2010; Leite, 2011). Illegal fishing, as well, is a recurrent challenge faced by fisheries management, leading to conflicts between local fishers and enforcement agents (Leite, 2011).

On top of these challenges previously identified, some of the current restrictions imposed by fisheries management applied to Ubatuba include: a three month (March-May) closed season for sea-bob shrimp (*Xiphopenaeus kroyeri*), pink shrimp (*Farfantepenaeus brasiliensis* e *F. paulensis*) and white shrimp (*Litopenaeus schimitti*) (BRASIL, portaria n° 74, 2001); specific sea-bob shrimp fisheries management rules, including boat licencing and size (IN 18, 2007 and IN3, 28, 2011), the prohibition of the capture, transportation and landing of the white mouth croaker (*Micropogonia furnieri*), the Argentine croaker (*Umbrina canosai*), the king weakfish (*Macrodon ancylodon*) and stripped weakfish (*Cynoscion guatucupa*, *Cynoscion striatus*) by purse seine boats (BRASIL, Portaria n° 43, 2007); the State Coastal Management Plan, including the Economic Ecological Zoning (SÃO PAULO, SMA/CPLEA, 2005), the creation of the previously mentioned Marine Protected area in São

Paulo Coast, including the marine area of Ubatuba (SÃO PAULO, Decreto nº 53.525, 2008), among others.

### 3.3. People: The Caiçaras

The Caiçaras, inhabitants of the Southeast Brazilian coast, originated from a mix of native Amerindians, Portuguese colonists, Africans, and other immigrants, such as Japanese (Begossi, 1988) (Figure 3.3). The traditional local populations of the region, which includes the Caiçaras, Quilombolas (originally slave-descendants) and Indigenous groups, historically relied on the cultivation of cassava, sugarcane, fruits (e.g. bananas and oranges), and coffee, as well as on fishing and the extraction of forest products such as wood for building fishing canoes for daily sustenance and livelihoods (Diegues, 2004; Denadai et al., 2009).



Figure 3.3. Caiçara fishers from Ubatuba. Photos: Marta Leite

After the 1970s, with the construction of the Rio-Santos highway, local livelihoods began experiencing rapid change in the local economy. The accelerated land speculation along beachfront properties led to significant conflicts over land, resulting in many Caiçara families moving to suburbs along the highway. This spurred a proliferation of illegal housing in areas of the Atlantic Forest slopes and mangroves, poorly planned with little infrastructure and encroachment on important forest resources and family based agriculture. Simultaneously, the region heaved under an influx of immigrants and tourists (MMA, 2013).

This population pressure along with the creation of state parks and the emergence of new conservation interests in the region, led to many regional and local conflicts regarding the use of natural resources, both terrestrial and marine.

Historically, conservation interventions were imposed on local people, without engaging shared decision-making, or even consultative processes. Begossi (2006) points that in the context of Caiçara communities located near to protected areas, natural resource management has become even more complex and delicate, with several restrictions to livelihood activities. Indeed, the creation of parks and protected areas banned Caiçaras access to important resources and activities, such as hunting and traditional small-scale agriculture rotating systems (locally called “roças”), as well as compulsory limits on fishing (including specific gear and fishing sites). Through this process, Caiçara families were required to adapt to a new context, where tourism activities and related livelihoods diversification gained greater economic importance (Hanazaki et al., 2013). This thesis approaches changes, responses and consequences for Caiçara’s livelihoods and wellbeing in this complex context, by employing interdisciplinary strands of literatures and research methods.

### **3.4. Methods and data collection procedures**

#### **3.4.1. Philosophical worldview**

Prior to defining the best data collection methods and procedures for a given research approach, it is important to identify the researcher’s philosophical worldview(s). Guba (1990:17) defines worldview as “a basic set of beliefs that guide action” and Creswell (2009) describes four different types: the postpositivist, the social constructivist, the advocacy/participatory and the pragmatic. I come from a postpositivist background, as my undergraduate studies were conducted in the fields of biology and natural sciences. Upon the completion of my undergraduate studies, however, I realized the importance of having a

broader understanding of the complex relations between societies and nature. During my master's research, I had the opportunity to study fishers' ecological knowledge and identify ecosystem-based alternatives for small-scale fisheries management in São Paulo's coast (Brazil). Although my focus at that time shifted from purely natural science interests towards a more interdisciplinary approach, I still lacked an understanding of how to carry out research with a truly holistic, integrated approach. I lacked background in social sciences.

Departing from postpositivism in my doctoral studies, I identify with features of two of Creswell's (2009) worldviews: the social constructivist and the pragmatic. The constructivist worldview posits the assumption that different individuals attribute diverse interpretations of the world, depending on their experiences and beliefs. My research agrees with this position, aiming to explore the complexity of my participant's views and adopt a strategy of inquiry and data collection procedure that allows the participants to share their own understandings of what is important to live well, through their experiences, ideas, perceptions, values, beliefs, and emotions.

The pragmatic worldview offers a fundamental concept I consider especially valuable: the focus on the research problem and the search for the best data collection procedure in response to a question (Creswell, 2009). Pragmatic researchers tend to adopt mixed research methods, as was the case with this research. Mixed methods are a useful way of filling data gaps, and triangulating the results found (Creswell, 2009) to better respond to a research question.

### **3.4.2. Strategy of inquiry: case studies**

Upon examination of one's research worldview and study design (qualitative, quantitative or mixed methods), the mechanics of defining data collection procedures is explored in a researcher's strategy of inquiry. The strategy of inquiry will pair the most

appropriate data collection procedures with a given research proposal (Creswell, 2009). Both my philosophical worldview and my research question require a focus on a qualitative approach and a strategy of inquiry that ensures an ability to succinctly understand how Caiçaras fishers from the community researched respond to change, and how these strategies are related to wellbeing priorities. Consequently, recognizing their past and recent experiences, and considering the complexity of meanings that they attribute to different elements of their livelihoods, was essential to my research.

Creswell (2009:13) defines case study as “a strategy of inquiry in which the researcher explores in depth a program, event, activity, process, or one or more individuals”. I choose to use case studies as the strategy of inquiry in my PhD research as it is appropriate for exploring my participants’ life contexts (Yin, 1994). Moreover, case study is best suited for the “how” and “why” questions (Yin, 1994), which suits my interest in identifying how change impacts fishing-dependent people, how they respond to change, and why they respond in the ways they do.

The Lázaro and Saco da Ribeira community was chosen because, as well as being one of the most active fishing communities of Ubatuba, the Saco da Ribeira Bay hosts the largest landing site of the municipality, where both small and large-scale fisheries are present. Fish landings, people selling and buying fish locally, and the presence of middlemen and fishmongers are a day-to-day routine. Moreover, the bay also hosts eight marinas and boathouses, where private boats share the bay space with fishing vessels. This context makes this community a rich and interesting case for the study of change, resilience and wellbeing, as it provides a wide range of interactions, opportunities and challenging features to explore.

My philosophical worldview, the strategies of inquiry I chose to use in my research, and my research topics together shaped the data collection procedures employed. Additionally, experiences in the field demanded the addition of a method, in this case focus

groups, to fill gaps not covered by the original methods selected. Indeed, the use of a plurality of methods presents potential to improve the quality of the data collected and the validity of findings (Bernard, 2006). Participant observation, household surveys, open and semi-structured interviews (including the GPGI- Global Personal Generated Index, and the Relational Landscape Method) and focus groups composed the final set of data collection procedures that I used in the field. Table 3.1. presents the data collection procedures employed to address the various thesis objectives.

Table 3.1. Research methods by objective.

| Objective                                                                                                                                                                                                                                    | Method                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Preliminary phase</u> : to identify the participants', households' and community's' profiles, including data on demographics, fishing data (gears, boat type, dedication to the activity, etc.), livelihood portfolios and food security. | Household surveys and participant observation                                                                                                                                       |
| 1) To identify small-scale fisher responses to social-ecological changes, including shocks, stresses and new opportunities that arose with economic development.                                                                             | Household surveys, open-ended interviews (applied to women and men separately) and participant observation                                                                          |
| 2) To investigate resilience processes at the individual, household and community levels, and how resilience at these different levels relate to one another.                                                                                | Open-ended interviews, semi-structured interviews, focus groups and participant observation                                                                                         |
| 3) To evaluate fishers and their wives' aspirations, priorities, and satisfaction levels in terms of material, subjective and relational wellbeing.                                                                                          | Semi-structured interviews, including the Global Person Generated Index (GPGI) and Relational Landscape, household survey (mostly for material aspects) and participant observation |
| 4) To understand how cultural identity and values shape perceptions of wellbeing.                                                                                                                                                            |                                                                                                                                                                                     |
| 5) To explore the interplay of multi-level resilience and social wellbeing, with a focus on policy implications.                                                                                                                             | Open-ended and semi-structures interviews, focus groups, and participant observation.                                                                                               |

The following sections will present definitions and benefits of each of the data collection procedures employed. The questionnaires and interviews used are available as appendices at the end of the thesis (Appendices 1, 2, 3 and 4).

### **3.4.3. Participant observation**

I initiated the fieldwork by conducting participant observation as a way of gaining familiarity with the community members and ultimate research participants. In participant observation, the researcher interacts with the people being studied in their daily lives (Creswell, 2009, Hay, 2008). This interaction allows the researcher to “see through the participant’s eyes” so as to better understand their worldviews (Yin, 1994) and cultural context (Bernard, 2006). Moreover, it helps participants to feel more comfortable with the researcher’s presence, and consequently reduces the problem of reactivity (participants changing behaviours due to the awareness of being observed) (Bernard, 2006). In this research a significant amount of time was dedicated to participant observation during fishing trips, informal conversations, and day-to-day interactions (Figure 3.4.). Indeed, participant observation was employed throughout the entire period of fieldwork. By living in the community with my family, relationships developed with participants exceeded research topics and purposes, granting us, in many cases, friendships. Indeed, approaching sensitive topics such as psychological resilience, subjective and relational wellbeing requires participants to trust the researcher, a process that requires time and is only possible by living in the community and participating in its daily dynamics.



Figure 3.4. Interactions during participant observation periods. Photos: Connor Jandreau and Marta Leite.

Another challenge refers to reflexivity, which is a limitation of both participant observations and ethnographic studies. Reflexivity refers to the influence or effect of the researcher on the data (Hammersley and Aktinson, 2005). Features such as researcher's personal characteristics (age, skin color, gender) and cultural background are to be considered by those acting as participant observers in groups that do not share the same characteristics (Hammersley and Aktinson, 2005). Recognizing these tendencies helps researchers to reduce the ever-present biases that arise from outsiders interpreting local realities. In the case of this work, the fact that I am Brazilian, that I have been conducting research with Caiçaras for over 8 years, and am very familiar with the area and with the Caiçara culture all helped reducing biased interpretations. Furthermore, the use of mixed methods and data triangulation also assists the researcher in defining the fine lines between facts and personal "readings" of what is being observed.

#### **3.4.4. Household surveys**

The goal of the household survey is to categorise quantitative descriptors of some aspect of a population (Fowled, 2014). Contrary to participant observation, household surveys grant the researcher less discretion for personal interpretations. Generally, the results of household surveys produce statistics about the target population through the answers to a sample of respondents (Hay, 2008). However, as I did in this study, the method can also be used independently of statistics, to produce contextual, or background information about a set of people (Fowled, 2014).

Household surveys involve three important steps: sampling, question design, and data collection (Fowled, 2014). Sampling demands assurances that the sample frame is representative of the population being studied, or in other words, that the entire population has the same chances of being represented. Further, the sample size needs to be defined, as well as the best sampling selection strategy (Fowled, 2014). Finally, the response rate needs to be acknowledged by pointing to the percentage of those sampled initially who subsequently provided data through active participation. In the case of this research, the sample was nearly 90% for the target population (41 out of 44 households), and therefore the matters of representativeness and sampling size were not an issue. Of the three households that did not participate, one was due to unwillingness of the household head to participate in the research, one due to sickness of a household member during the field trip, and the third due to difficulties in finding a time where the participant was available for answering questions.

The question design phase is equally critical for robust data collection. Clear questions, posed in the best way for the demographics of a target population, will largely influence the success of the method (Hay, 2008). Thus, each question's wording requires diligent and informed craftsmanship. As household surveys require standardized questions,

the best wording is also fundamental to ensure all participants are exposed to the exact replicate of questions. Rewording the questions during the process may lead to different answers and possible introduction of bias in results (Fowled, 2014, Hay, 2008). In this sense, pre-testing the interview protocol helps identifying any needs for re-wording and selecting the most fluid order to the questions. The household survey employed in this study was developed by the “Community-based resource management and food security in coastal Brazil” team (Hanazaki et al, 2103) and thoroughly pre-tested. Furthermore, special attention needs to be paid to accuracy; by reflecting on whether the questions provide accurate data regarding what the survey intends to measure (Fowled, 2014). In the case of my research, the use of qualitative methods, in association with household surveys, allowed gaps to be filled as they surfaced and were deemed important to the research questions being addressed.

Lastly, the researcher needs to decide how best to collect questionnaire data. Different options are available, including face-to-face verbal interviews, phone interviews, and mail, or Internet self-administrated surveys (Hay, 2008). Deciding the best data collection strategy will depend on the project objectives, budget, time frame, and human resources. Despite the costs and time benefits associated with phone, mail, and Internet surveys, face-to-face interviews generally grant better chances of success, as the researcher has more chances to ensure that the questionnaire is fully answered (Fowled, 2014). Yet, sensitive topics, such as sensuality or substance abuse, might have better outcomes with self-administrated surveys (Hay, 2008). During my fieldwork, I conducted all the 41 household surveys in a face-to-face fashion (Figure 3.6).



Figure 3.5. Face-to-face household surveys.

In this research, household surveys were essential to collecting contextual and background information, such as household compositions, household members' ages, education level, gender, occupations and livelihood portfolios. It also gathered data on food security (e.g. fish and catch consumption, food sharing within the community, vegetable and fruit production, existence of food insecurity within households, etc); data on fishers' history (e.g. number of years spent fishing, degree of dedication to fishing activities, local knowledge, boat, gear and boat ownership, main target resources and fisheries contribution for the household income, etc); data on household wellbeing data (e.g. overall household wellbeing rates, wellbeing rated in comparison to other fishing households in the community, material wellbeing and basic needs data, etc) and finally data on existing debts by household members.

### 3.4.5. Open-ended interviews

Interviews, as in household surveys, require many hours of preparation and formulation (Hay, 2008). Interviews are a valuable method to fill data gaps that both participant observation and surveys cannot bridge, as the method permits the researcher to investigate behaviours and motivations in depth (Hay, 2008). There are different types of interviews: open-ended, or unstructured, semi-structured, and structured interviews, each

offering advantages depending on the goal of the research questions. In this research, following the household surveys phase, I applied open-ended interviews, as a starting point in understanding opportunities and challenges (stresses and shocks) faced by fishers and their wives over the last 60 years. The open-ended interviews were applied to 16 carefully selected participants, of which ten were men and six women, to ensure representativeness of all participant groups (e.g. different age groups, gender, type of fishery, social strata, and household composition).

The open-ended question asked was “Could you please tell me about your life as a fisher, or as wife of a fisher, and the challenges and opportunities your faced thought it”. In this way, during the open-ended interviews I could gather both *narratives* of specific challenging life-events, as well as *life histories* of fishers and their wives, or in one case of a fisher’s mother living in the same household as two single fishers.

“Life history and narrative offer exciting alternatives for connecting the lives and stories of individuals to the understanding of larger human and social phenomena” (Hatch and Wisniewski, 2013:113). Narrative is “a language act by which a succession of events having human interest are integrated into the unity of this same act” (Bremond, 1980:186). Lejano et al. (2013: 63) agrees “it is the stories people tell that connect them and others, including non-human parts of the environment, into a coherent whole, and provide meaning.” Life history is considered a type of narrative, which could also be considered an autobiographical narrative. “While all life history are narratives, not all narratives are life histories (Hatch and Wisniewski, 2013:133), as life histories have a broader scope, and narratives can relate to a specific event, belief, or worldview of a participant.”

In this research, both narratives and life histories provided a valuable tool to understand meanings of personal life events and values associated with change. Creswell (2009: 13) suggests, “narratives combine views from the participant’s life with those of the

researcher's life, in a collaborative narrative". Following this argument, the use of participant observation *prior* to narratives grants the researcher a richer understanding of the reality and worldview of those being studied, assisting in a better interpretation of the shared narratives.

The open-ended interviews invited participants to share openly and freely their life histories and the main challenges they have faced as a fisher or fisher's wife, and often exceeded two hours in length. The open-ended interviews allowed for the identification of the main shocks, stresses and new opportunities experienced by participants, including challenges and opportunities directly related to fisheries and those related to economic development and increased tourism in the area (see Tables 5.2 and 5.3 for a complete list).

#### **3.4.6. Semi-structured interviews**

Whilst open-ended interviews give participants room to direct the interview to topics and discussion of their interests, semi-structured interviews favour the interests of the researcher, allowing for targeted questions in a more formal manner. Still, semi-structured interviews maintain a degree of flexibility to explore other related topics that might emerge during the interview (Dunn, 2008). Additionally, the researcher can probe, based on the participant's answers, beyond the previously defined questions (Berg, 2004). Another advantage of this questioning approach is that it allows the researcher to reorganize the sequence of the questions during the interview process, granting a better flow depending on the participant's responses.

Dunn (2008) identifies important points to be considered in the formulation of semi-structured interviews: 1) use of an easy and appropriate language, 2) respect for the participant's realities and cultures, and 3) avoid using questions that lead to particular answers. These points are important, indeed, for any type of interviewing. In this study, semi-structured interviews were applied to 30 participants, including 12 women and 18 men. The

main goal with this method was to explore wellbeing matters, as well as the relationships between household, individual and community resilience. Again, as was the case for open-ended interviews, participants were cautiously selected to ensure representativeness of all fishing groups, and households, in the community. The selection criteria called for the majority (greater than 60%) of the fishing community households to be interviewed, ensuring also that these interviewees spanned different age-groups, gender, type of fishery, education level and social status found in the fishing community. All interviewees had been involved in the previous stages of the research (household survey and open-ended interview).

Significant portions of the semi-structured interview questions were dedicated to understanding the meaning of living well for different participants, including material, subjective and relational dimensions of wellbeing. To achieve this, the Global Personal Generated Index of Quality of Life (GPGI) and the Relational Landscape methods were applied, in addition to open-ended specific questions (see Appendix 3). Following Coulthard et al. (2015) in their methods handbook, “Exploring wellbeing in fishing communities,” I adopted and adapted the GPGI method to assess participant’s wellbeing values and the meanings they associate with a good quality of life. The Relational Landscape method, also adapted from Coulthard et al. (2015), was employed to explore participant’s most relevant relationships, from households to institutional levels.

The GPGI is a technique designed to assess individualized quality of life measures for a holistic understanding of wellbeing in developing countries (Martin et al., 2009). In this technique, participants are requested to first list five of their most important areas in regards to wellbeing; secondly, participants are then asked to rank their level of satisfaction with each of these areas; and thirdly, to expand points they consider relevant regarding the self-selected areas.

I adapted the GPGI method in two ways. First, I asked participants to rank the five

most important wellbeing areas identified in order of relevance. This process often involved the reordering of rankings as participants contemplated and evaluated important wellbeing markers, and time was dedicated and allowed for such reflections by the participant. Second, I requested participants to elaborate in greater depth the areas where the levels of satisfaction where scored low, by probing as to “what would be needed for this area to receive a better score?” These methodological adaptations assisted me in identifying significant links between social-ecological changes and fluctuations in the perception of wellbeing, whether decreasing or increasing, overtime.

The Relational Landscape method, adapted from Coulthard et al. (2015), is part of the Governance relationship assessment proposed in the methods handbook, which aims to identify the most relevant relationships influencing participant’s behaviours. As suggested by the authors, “a broader approach could simply limit this question to relationships that are important for wellbeing in general” (Coulthard et al., 2015: 22). In my research, I employed the Relational Landscape method in the latter sense, to identify the most relevant relationships for the participants at several levels: household, extended family, fishing community, broader community and formal institutions (including management agencies).

### **3.4.7. Focus groups**

Focus group is a qualitative research method dedicated to collective discussions and interactions. In focus groups, the contribution from one participant can generate a whole set of contributions and responses among others (Hay, 2008). Focus groups, therefore, rely on the dynamism and interactions among participants themselves, as well as between participants and the researcher (Hay, 2008). Despite novel interpretations in more recent decades (e.g. webcams and social media) (Stewart and Shamdasani, 2015), focus group originally referred to a small group of participants (6-10 people) discussing face-to-face a

theme or issue proposed by a researcher (Hay, 2008). This is the model of focus group used in this research.

Focus groups are an intensive method, and it requires selecting and recruiting participants, elaborating on the guiding questions and probes, persistence and skill with reminding participants to participate, having a moderator and note taker, preparing food and beverages, and further analyzing and presenting the results (Hay, 2008; Stewart and Shamdasani, 2015). A group in which participants feel comfortable with each other is typically encouraged; however, the issue of participants under-disclosing details often represents a significant challenge (Hay, 2008).

In the case of research conducted in small communities, as is the case in this study, participants frequently know each other, and have a history with other community members. In this context, selecting participants that “get along” was an important element for the success of the focus groups. However, conflicts of ideas and perspectives were still present, and sometimes required an ability of the research team to negotiate the discussions around these conflicts in the best and most impartial ways. Indeed, researchers conducting focus groups should pay great attention to the moderator’s role, addressing conflicts in a sensitive way, ensuring that all participants get an opportunity to share their ideas (by encouraging less talkative participants to engage while limiting more talkative individuals’ contributions). These are essential skills focus group moderators and/or facilitators need to possess to ensure the best outcomes of the group discussions (Hay, 2008).

In this research, I counted on the support of two members of the CGCommns Group (University of Campinas, Brazil), Deborah Prado and Rafael Hummus, whom were both trained in facilitating focus groups. The facilitation of the focus groups was a shared role, where myself, as the lead researcher, conducted the primary questioning, and the additional facilitators helped to expand the questions with probes, as needed, as well as assisted with

note taking. Deborah assisted with the women's and youth focus groups, and Rafael with the men's. Additionally, the three focus groups were tape recorded, upon consent by participants. The recordings were further digitalized for data analyzes.

In this research, the focus groups helped to fill a data gap regarding community resilience that surfaced over the course of the fieldwork, as was not fully addressed by the other research methods. Therefore, the questions addressed in the focus groups primarily approached community level processes, including engaged governance, group agency and community-wide conflicts (see Appendix 4). The group meeting occurred with women (6 participants), men (11 participants) and youth (7 participants, 4 men and 3 women) separately, and lasted an average of two hours each.

Focus groups were the last method applied in this study. After the conclusion of the three focus groups, a community gathering was organized, where fishers and their family members joined for a closing event (Figure 3.7). The purpose of this gathering was both to thank participants for their contributions to the research, as well as to offer a farewell party prior to my departure from the field site. In the occasion, a painting by Connor Jandreau was drawn by lottery and given to a participant couple, whom by a fortunate coincidence owned one of the trawler boats illustrated in the painting.



Figure 3.6. Gathering after focus groups.

### 3.5. Coding and Data analysis

I used the software NVivo to manage, organize and analyze the large volume of data gathered across the five chosen research methods. NVivo supports both qualitative and mixed methods studies, and functioned efficiently for this study. Despite the lengthy time invested in digitizing and coding the data in specific research domains, the software was highly useful in assisting to synthesize a broad and clear understanding of all the data relevant to the various research topics. The data was divided by source (methods), and then coded by topics (nodes), allowing for the creation of subcategories. The topics were predefined according to my thesis objectives, as well as identified and added through the process of data analysis.

As an example, the entire dataset was sorted by method, and further grouped according to individual, household and community levels, in specific subcategories. The same applied for wellbeing data, and its three dimensions; material, subjective and relational. Each of these themes were further divided into sub-categories. For instance, the community level was divided into sub-categories such as infrastructure, community cohesion, participation and engaged governance, leadership, kinship ties, etc. Or in another example, the subjective dimension of wellbeing was sub-divided into 'attachment to the sea and fishing', Caiçara identity, fishers' identity, values, fears, insecurities, and so on. Furthermore, each subcategory could be again subdivided, to better reflect the nuance and richness of the data.

### **3.6. Consent and Anonymity**

This research was approved by the University of Manitoba Joint-Faculty Research Ethics Board, prior to the start of the fieldwork (Appendix 6). In the process a detailed consent form was developed, where the research purpose was explained (Appendix 7). Participants were insured of their freedom to participate or interrupt their contributions to the research at any time, and the anonymity and confidentiality of their identities would be secure throughout the process. Consent forms were delivered to all participants, and their consent was provided orally. Participants also gave their oral consent to the use of their images (photos) in this thesis.

### **3.7. Validation and dissemination**

The use of multiple methods and the organized approach to applying methods in a progressive manner so as to add depth to my data, fill data gaps and allow for triangulation, led to continuous validation of the data gathered over the period of fieldwork. In addition, a

return trip to the field site occurred during April 2015, and was dedicated to validating my research findings. During the validation trip, the main results found in this research were presented, validated, and delivered to community members (Appendix 5). In this sense, the validation trip was important to make sure that the research was successful in identifying the most relevant challenges, opportunities and related livelihood consequences experienced by participants during the last 50-60 years. As well as it provided an opportunity for a partial dissemination of findings. Validation was conducted with 20 participants that had participated in all previous phases of the research, and confirmed the summary of results as representative of the main points discussed throughout the fieldwork.

Moreover, a brief questionnaire, verifying any data that was still unclear was conducted with the 20 validation participants, and further incorporated into my data analysis. These participants were carefully selected to represent all research participants (e.g. gender, fishing gear, age, education level, etc.). The results presented and validated by participants in April were also given to the head of the Saco da Ribeira Fishers Association, to the municipal Environmental Secretary and was made available for any community member that had interest in having a copy. Nevertheless, after the thesis conclusion, I will revisit the community, with a more comprehensive document, in Portuguese, of the overall thesis findings.

## **CHAPTER 4. COMMUNITY AND HOUSEHOLD'S PROFILES**

### **4.1. Introduction**

The objective of this chapter is to introduce the research community and participating households and fishing activities, all of which are important for the context of the research. It largely consists of data gathered during the household survey phase early in the fieldwork. This chapter, unlike other results chapters, will not include discussion and conclusion sections, as its goal is to provide background and contextual information, rather than addressing broader research objectives. Greater elaboration of households and participants' profiles are treated in subsequent chapters, especially when related to fishing household's livelihood strategies.

#### **4.1.1. The community**

The community studied is part of the south coast of Ubatuba, which as stated before, is more developed compared to the northern coast. In the two neighbourhoods that compose the study area, supermarkets, drugstores, small local shops, and easy access to public transportation (connecting the area to other communities, downtown Ubatuba, and neighbouring municipalities) are available (refer to Figure 4.1). The community also has a public daycare, a school and a local public clinic, where locals have free access to public education (Primary and Secondary School) and basic health care. The daycare was founded in 2008 and the school in the 1980s. Prior to this, a small school that attended to students in grades 1 through 5 existed in the community.

The community is a mixture of local and outsider residences as well as seasonal vacation homes rented to tourists. According to data from the local clinic, in 2015 there were around 500 households residing in the study area (including both neighbourhoods). Hotels, a hostel and small bed and breakfasts (locally called "pousadas") are also common, of which

less than one-third are owned by local Caiçaras. However, as I will present in the next section, it is common for locals to rent a second house to tourists during the high season, or in some cases, throughout the year.

The Saco da Ribeira Bay hosts the largest landing site of the municipality, where both small and large-scale fishers interact daily. Fish landings, people selling and buying fish locally, and the presence of middlemen and fishmongers are a day-to-day routine. The main resources landed in the area include sardines, pink-shrimp, white-mouth croaker, blue runner, and seabob shrimp, among others (more details in Table 4.1). The bay also hosts eight marinas and boathouses, where private yachts and sailboats share the bay space with fishing vessels (Figure 4.1).

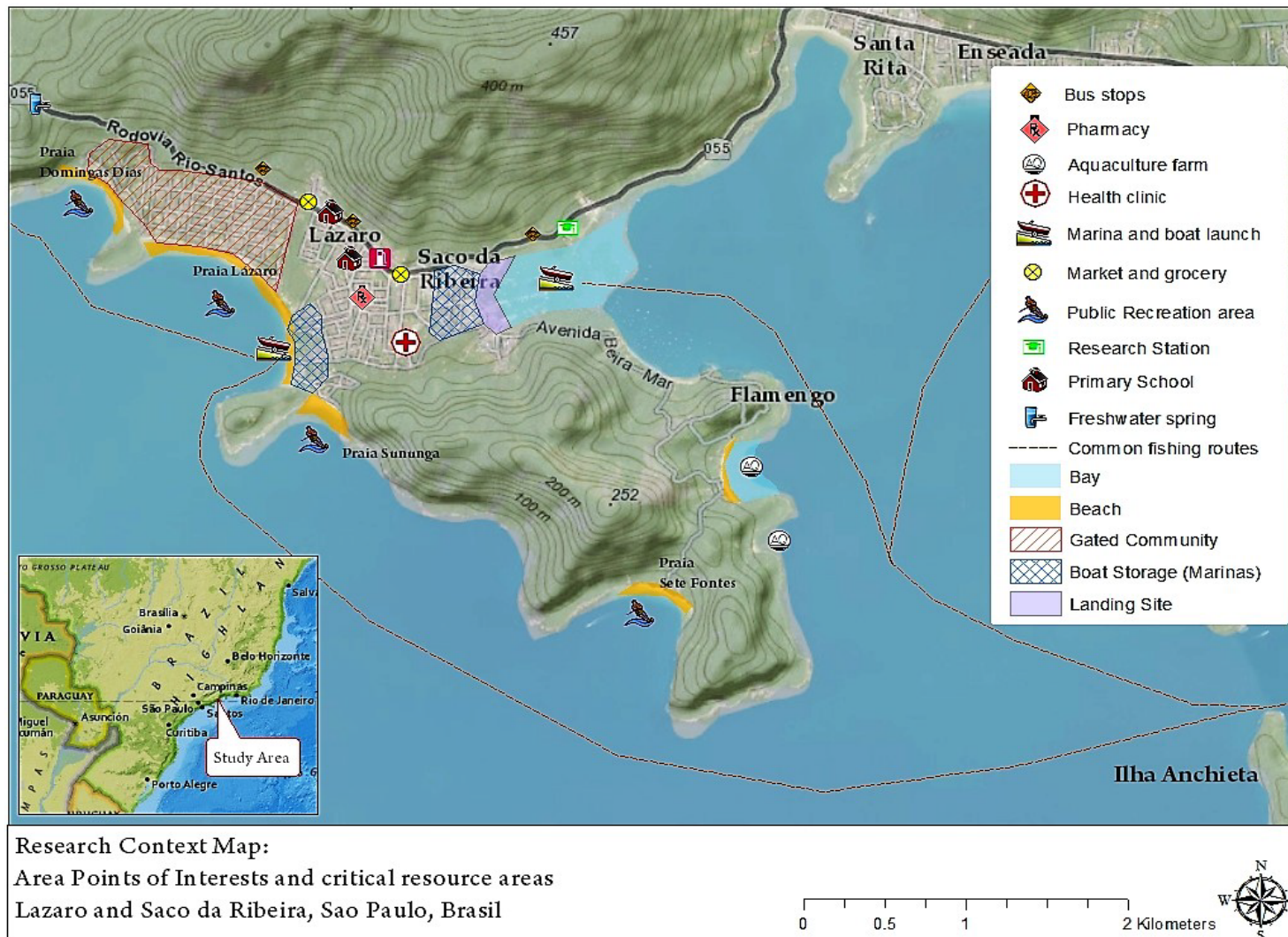


Figure 4.1. Research context map of Lázaro and Saco da Ribeira with areas of interest and main fishing routes (for a broader view of the study area location see Figure 3.1). Map created by author. Source: ESRI Geographical Information Products and World Imagery.

#### 4.1.2. The fishing community

At the time of fieldwork, the entire fishing community consisted of 43 fishing households, 41 of which agreed to participate in this research. This represents a small portion of the approximately 500 households living in the study area. Within the participant households, 48 fishers, ages 18 to 89, contributed to the study. However, there was a notable imbalance in age-classes, with over-representation of fishers of the 60-69 age group (Figure 4.2.). Of the 48 fishers, five were women and five were youth (all male between 18 and 28 years old). In addition, 11 women were also involved in fishing related activities, such as pre- and post-harvest activities (totalizing 16 women involved in fishing, and/or fishing related, activities). Here I am considering fishers as those individuals who actively fish on a regular basis, for home consumption and as a source of income. Recreational and occasional fishers were, therefore, not included.

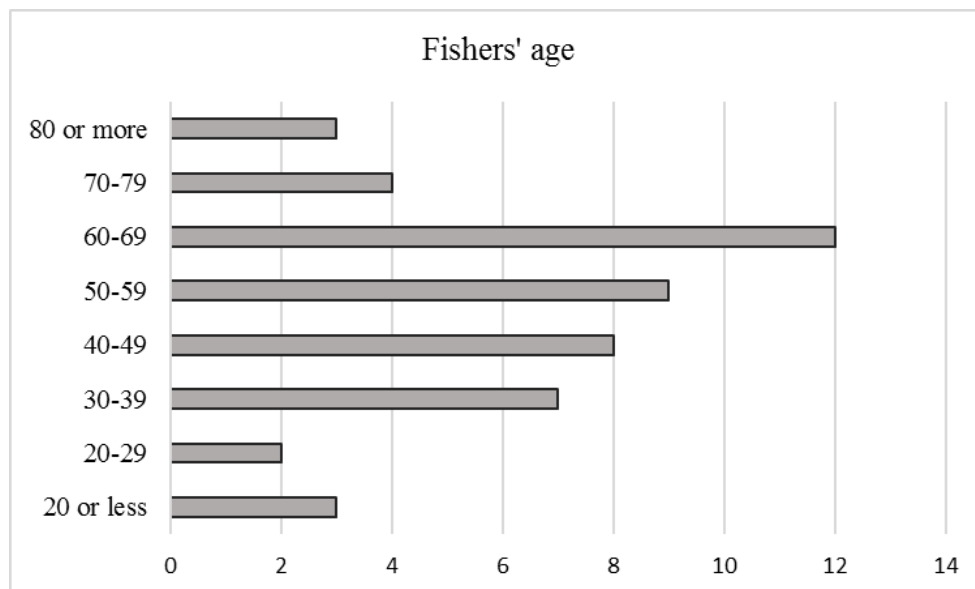


Figure 4.2. Fisher distribution by age-group.

Over two thirds of small-scale fishers used a variety of different fishing gear, depending on seasonality and the availability of commercial species. The main gear used included small gillnets (surface, mid-water and bottom), hook and line, and hand jigs. Trawler fishers composed the largest fisher group who employed just one type of fishing

gear. Out of 15 trawler fishers, five (33%) did not own trawlers and instead worked as a hired captain or crewmember for a boat owner. It is important to note that many households had more than one type of boat, e.g. canoes and skiffs, and it was common for fishers to shift boats depending on the resource targeted (Figure 4.3.). A list of the main commercial species mentioned during the interviews is presented in Table 4.1.



Figure 4.3. Canoes, skiffs (aluminum boats), small boats and trawlers. Photos: Connor Jandreau and Marta Leite

Only 35% of the participant fishers had livelihoods dedicated entirely to fisheries. The remaining 65% relied on fisheries as one part of their overall livelihood portfolio (considered here as part-time fishers). Out of the 35% of fishers that were fully dedicated to fishing activities, the majority (70%) were trawler fishers. Out of the 15 trawler fishers, only two (2) fished part-time, while of the 33 fishers that used canoes, skiffs, or both, 31 had fishing as a

part-time job, and only two (2) as a full-time activity. This difference illustrates the importance of fishing activities for trawler fishers in the study area.

Table 4.1. List of main species cited during the fieldwork, along with local and scientific names.

| English name         | Local name              | Scientific name                                              |
|----------------------|-------------------------|--------------------------------------------------------------|
| <b>PENAEIDAE</b>     |                         |                                                              |
| Sea-bob shrimp       | Camarão Sete-barbas     | <i>Xiphopenaeus kroyeri</i>                                  |
| White shrimp         | Camarão-branco          | <i>Litopenaeus schimitti</i>                                 |
| <b>LOLIGINIDAE</b>   |                         |                                                              |
| Squid                | Lula                    | <i>Doryteuthis plei</i><br><i>Doryteuthis sanpaulensis</i>   |
| <b>SCIANIDAE</b>     |                         |                                                              |
| Whitemouth Croaker   | Corvina                 | <i>Micropogonias furnieri</i>                                |
| Jamaica weakfish     | Goete                   | <i>Cynoscion jamaicensis</i>                                 |
| Stripped weakfish    | Maria-mole              | <i>Cynoscion striatus</i>                                    |
| Acoupa weakfish      | Pescada-amarela         | <i>Cynoscion acoupa</i>                                      |
| Southern kingcroaker | Betara ou perna-de-moça | <i>Menticirrhus americanus</i> <i>Menticirrhu littoralis</i> |
| King weakfish        | Pescada                 | <i>Macrodon ancylodon</i>                                    |
| <b>CARANGIDAE</b>    |                         |                                                              |
| Blue runner          | Carapau                 | <i>Caranx crysos</i>                                         |
| Crevalle jack        | Xaréu                   | <i>Caranx hippos</i>                                         |
| African pompano      | Xaréu-branco            | <i>Alectis ciliaris</i>                                      |
| Lesser amberjack     | Olhete                  | <i>Seriola fasciata</i>                                      |
| Atlantic moonfish    | Galo                    | <i>Selene setapinnis</i>                                     |
| Atlantic leatherjack | Guaivira                | <i>Oligoplites saurus</i>                                    |
| Spanish mackerel     | Sororoca                | <i>Scomberomorus brasiliensis</i>                            |
| King mackerel        | Cavala                  | <i>Scomberomorus cavalla</i>                                 |
| Grey triggerfish     | Porco                   | <i>Balistes capriscus</i>                                    |
| <b>SERRANIDAE</b>    |                         |                                                              |
| Dusky grouper        | Garoupa                 | <i>Epinephelus marginatus</i>                                |
| Bluefish             | Anchova                 | <i>Pomatomus saltator</i>                                    |
| Common snook         | Robalo                  | <i>Centropomus undecimalis</i>                               |
| White mullet         | Parati                  | <i>Mugil curema</i>                                          |
| Lembranche mullet    | Tainha                  | <i>Mugil Liza</i>                                            |
| Largehead hairtail   | Espada                  | <i>Trichiurus lepturus</i>                                   |
| Snapper              | Vermelho                | <i>Lutjanus sp.</i>                                          |
| <b>ARIIDAE</b>       |                         |                                                              |
| Sea Catfish          | Bagre                   | <i>Arius couma</i>                                           |

#### 4.1.3. Household profiles

The 41 participating fishing households presented different compositions, both in terms of number of members, as well as number of members that were fishers. A significant amount of fishing households (36%) were composed of only husband and wife, from which

the majority belonged to the 60-69 age group and had older sons and daughters now living in their own homes. Most of these fishers also had retirement pensions. Table 4.2 presents the number of members per household, household compositions, and the number of women and youth that were active fishers. Additionally, 11 women also took part in pre- and post-harvest activities.

Table 4.2. Household (Hh) compositions.

| Household composition |           |                                                                                     |                                 |
|-----------------------|-----------|-------------------------------------------------------------------------------------|---------------------------------|
| N° Hh members         | N° Hh     | Household composition                                                               | N° of women and youth fishers   |
| 1 member              | 6         | All 1 fisher male Hh: 3 Single, 1 widowed, 2 divorced                               | 0 women, 0 youth                |
| 2 members             | 15        | 13 Hhs: husband and wife; 2 Hhs: father and son                                     | 3 women, 2 youth                |
| 3 members             | 10        | All Hhs: husband wife and 1 son or daughter                                         | 2 women, 0 youth                |
| 4 members             | 6         | 5 Hhs: husband, wife and sons/daughters;<br>1 Hh: mother, adult sons and grandchild | 0 women, 2 youth                |
| 5 members             | 3         | All Hhs: husband, wife and sons/daughters                                           | 0 women, 1 youth                |
| 6 members             | 1         | All Hhs: husband, wide and sons/daughters                                           | 0 women, 0 youth                |
| <b>Total</b>          | <b>41</b> | <b>101 members</b>                                                                  | <b>5 women, 5 youth fishers</b> |

The levels of formal education among age groups differed significantly per household. There was a clear tendency for higher education (high school completed) among household members in their 30s or younger, and all house members aged 20 and younger were in school at the time of the fieldwork. Men had lower levels of education in older generations as compared to women. Most men aged 40 or older had not completed middle school (Grade 6-8), and for individuals aged 60 or older, formal education ceased at Grade 5 or lower.

Women in their 40s presented lower levels of education (elementary school completed) as compared to women in their 30s or younger, with an even more significant drop for women 50 years or older. No women fishers studied passed elementary school (Table 4.3.).

Table 4.3. Levels of education by gender and group age in Lázaro and Saco da Ribeira.

| Levels of formal education |                                                      |                                            |
|----------------------------|------------------------------------------------------|--------------------------------------------|
| Age group                  | Female                                               | Male                                       |
| < 9                        | All currently enrolled                               | All currently enrolled                     |
| 10 to 19                   | All currently enrolled                               | All currently enrolled                     |
| 20 to 29                   | High School completed                                | High School completed                      |
| 30 to 39                   | Mixed completion of High and Middle School           | Mixed completion of High and Middle School |
| 40 to 49                   | Mostly completed Middle School                       | Middle School (many incomplete)            |
| 50 to 59                   | Mostly completed elementary School (many incomplete) | Mostly Middle School incomplete            |
| 60 to 69                   | Incomplete elementary (<Grade 5)                     | Incomplete elementary (<Grade 5)           |
| 70 to 79                   | Incomplete elementary (<Grade 5)                     | Incomplete elementary (<Grade 5)           |
| 80 <                       | Incomplete elementary (<Grade 5)                     | Incomplete elementary (<Grade 5)           |

Finally, other important information regarding household livelihood portfolios, food security and adaptation strategies are presented in the next chapter, where I will discuss resilience at individual, household and community levels.

## **CHAPTER 5. MULTI-LEVEL RESILIENCE FROM A SOCIAL PERSPECTIVE**

### **5.1. Introduction**

There are several obstacles to the application of resilience theory to social systems. First, the idea of SES resilience assumes that ecological and social dynamics works in similar ways (Cote and Nightingale, 2012), and therefore primarily emphasize system responses to change, rather than stakeholder responses (Béné et al., 2014). Such emphasis is problematic, as resilience at the level of an ecosystem (e.g. coastal systems) does not necessarily translate to resilience at social levels (e.g. small-scale fishers), or neither to improved wellbeing for people within the SES system (Coulthard, 2012). Second, social systems themselves are far from homogenous. A “macro” approach to the social dimension of SESs inherently ignores how individuals and groups are impacted differently when confronted with change. Consequently, matters of agency, power and social inequalities are frequently overlooked in resilience studies (Béné et al., 2014, Brown, 2016; Brown and Westaway, 2011). The question then becomes: if a systems approach is not the best lens for studying resilience in the social sphere of small-scale fisheries, what level is most appropriate? One possible approach, I propose, is to unpack adaptation processes at multiple levels.

The objective of this chapter is to address the first two thesis objectives: 1) To identify small-scale fisher responses to social-ecological changes, including shocks, stresses and new opportunities that arose with economic development; and 2) To investigate resilience processes at the individual, household and community levels, and how resilience at these different levels relate to one another. Additionally, the chapter elaborates on the various factors that play a fundamental role in shaping the resilience of small-scale fishing-dependent people, such as social stratification, community cohesion, leadership, the role of human agency and power dynamics between fishers and management agencies.

It is worth noting how ‘community’ is framed in this study. Community resilience studies have typically focused on communities of place (Berkes and Ross, 2013). A community of place frequently encompasses dynamic groupings of actors from diverse social strata who present different interests, as well as shifting associations, or the so-called ‘communities of interests’ (Agrawal and Gibson, 1999). This study addresses small-scale fishers’ and their households, which could be better described as a community of interest living in a particular geographical location (community of place).

The chapter is organized by first presenting the main shocks, stresses and new opportunities that arose during the last six decades (since construction of the regional highway), as identified by participants. The chapter elaborates on participants’ main responses to these changes, along with the consequences for their lives and livelihoods (Section 5.2.1). Subsequently, the findings for resilience at individual, household and community levels are approached separately (Sections 5.2.2, 5.2.3, and 5.2.4). The results sections ends with an analysis of the relations between resilience processes across and within the three levels approached in this study (Section 5.2.5). Section 5.3 presents a broader discussion of how these findings contribute to resilience thinking within SES. Lastly, Section 5.4 closes the chapter with conclusions and policy implications for local fisheries. This section finishes with a primer on Social Wellbeing which follows in Chapter 6; pointing to the relatively novel approach that helps narrow the gaps identified by this chapter in our understanding of adaptation processes for fishing-dependent people as they respond to rapid social-ecological changes.

## **5.2. Results**

### **5.2.1. Shocks, stresses, and new opportunities for fishers' livelihoods**

A logical starting point when exploring resilience at multiple levels is to present the main shocks and stresses felt among participants. In so doing, I focus on the changes that surfaced in the nearly six decades since the construction of the Rio-Santos Highway in the 1970s, which brought significant changes to Caiçaras' livelihoods. Additionally, I highlight the responses adopted (coping and adaptation strategies) and finally how these impacts percolated across different social levels (Table 5.1).

The shocks and stresses identified by participants were not confined to just one level, nor only to the three levels approached in our framework. In addition to presenting the main shocks and stresses, responses and consequences for local livelihoods, Table 5.1 provides a summary of the results presented in this chapter. In these sections, I will present the shocks and stresses directly related to fishing activities. Other shocks/stresses identified as imperative for the individual, household and community resilience analyses (outside of fisheries issues) will be addressed in the next thesis chapter.

Table 5.1. The main shocks and stresses described by participants, responses and consequences for their livelihoods.

| Shocks and stresses                                                                                              | Description                                                                                                                                                                                                                                | Responses                                                                                                                                               | Consequences                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of land due to real estate speculation during the 1960s and 1970s.                                          | In the 1960s and 1970s many Caiçaras sold their lands below fair market value, or were deceived by outsiders to sign title documents unknowingly giving away their lands.                                                                  | Out-migration to downtown Ubatuba and surrounding cities, or in many cases, to lands further away from the beachfront.                                  | Harder access to the sea. A widespread sense of injustice. Distrust of outsiders.                                                                                                        |
| Creation of the Serra do Mar State Park in the 1970s.                                                            | 80% of the land-base of Ubatuba is now inside protected areas. Caiçaras were forced to stop practicing their shifting agriculture system, as well as hunting.                                                                              | Greater focus on fishing, both small-scale and crewing in large purse seiners. Greater focus on tourism related activities.                             | Loss of local knowledge. Marginalization and disempowerment. Distrust of government environmental agencies.                                                                              |
| Fish scarcity. *                                                                                                 | Decline in fish stocks have been reported by fishers for decades. The years of 2014 and 2015 recorded very low catches for squid (important resource from Nov-April) and for the sea-bob shrimp (from Dec-Feb, the tourism's high season). | Diversifying activities, mainly tourism related. Diversifying fishing gears in order to target different species, depending on availability and season. | Impoverishment of households that have less access to financial resources and/or land. Fish scarcity, on top of fishing restrictions, are leading fishers to place their boats for sale. |
| Creation of fishing non-take areas, including the surrounding waters of Anchieta Island State Park in the 1980s. | Banning of fishing areas, especially the rich-waters around the Anchieta Island, have had a significant impact on fishing activities. The Island's coves and offshore fisheries used to be favoured fishing grounds for local fishers.     | Illegal fishing. Intensified use of other ("not as good") fishing grounds, including off shore waters of other Islands. Diversifying activities.        | A widespread sense of injustice. Distrust of government environmental agencies.                                                                                                          |
| Illegal fishing *                                                                                                | Many fishers choose to risk fishing illegally, both in non-take areas and on closed seasons (trawlers mainly). Particularly Anchieta Island is a place of constant illegal fishing.                                                        | Fishing at night without lights to reduce the risk of detection.                                                                                        | Arrestment, seizure of fishing gear and catch. Fines. Conflicts with enforcement agents. Higher risk of accidents at the sea.                                                            |
| Level of bureaucracy to obtain necessary fishing licenses.                                                       | Fishers find paperwork excessive and an obstacle to proper registration and legal documentation.                                                                                                                                           | Choosing to be undocumented or allowing the expiration of licenses.                                                                                     | Risk seizure of fishing gear and catch, fines, as well as arrestment. Conflicts with enforcement agents.                                                                                 |
| Constraints on livelihood diversification due to lack of access to financial assets.                             | Besides livelihood diversification being an important adaptation response, better-off households have more resources to diversify activities.                                                                                              | Less privileged individuals and households are engaging in day-labour.                                                                                  | Impoverishment and marginalization of lower income households.                                                                                                                           |
| Constraints on livelihood diversification due to restrictive policies.                                           | To receive the closed-season unemployment insurance, fishers must not engage in other official employment activities.                                                                                                                      | Pursuit of unofficial employment, such as day-labour/seasonal jobs, and illegal fishing.                                                                | Marginalization and constraints on freedom of choice.                                                                                                                                    |
| Economic fluctuations and the economic/political crisis in Brazil affecting tourism-dependent livelihoods.       | The current (2014 to present) economic crisis in Brazil has had a ongoing effect on tourism, particularly during the high season. Fishers depend on tourism to sell the catch, and for livelihood diversification.                         | Taking out loans from banks. Wider search for day-labour positions and more reliance on short-term informal jobs.                                       | Debt, insecurity. Uncertainty due to the volatile nature of fisheries, tourism, and day-labour.                                                                                          |

| Table 5.1 - continuation                                                                                                                                 |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                    |                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Substance abuse within participant's households * (mainly mentioned by women)                                                                            | Many older fishers have/had suffered from alcoholism-related issues, while some in the younger generation are using drugs such as cocaine and crack (as well as alcohol).                                                                                                   | Families are joining the evangelic church as support systems. The evangelic church does not allow for the use of alcohol and recreational drugs in general.                                                                        | Individuals' health compromised, as are relationships with the immediate household, extended family, and with the overall community.                    |
| Lack of available crew members (mainly mentioned by shrimp trawler fishermen).                                                                           | There is a growing difficulty to find crewmembers to operate fishing vessels for two different reasons: 1) Substance abuse are affecting fishers' capacity to commit to the job. 2) Youth are not interested in fishing.                                                    | Fishers are choosing to fish alone or forced to risk working with crewmembers that might compromise safety at sea, or who cannot be relied on to regularly show up to work.                                                        | Many fishers (especially sea-bob shrimp trawler fishers) had placed their boats on the market. It is not uncommon to see abandoned boats in the region. |
| Domestic violence (mainly mentioned by elder women) *                                                                                                    | In some households, gender relationships were characterized by power imbalances favouring men. Domestic violence occurred physically in the past and verbally and emotionally currently.                                                                                    | Very few women have divorced in the study area. Threatening divorce. Recovering alcoholics.                                                                                                                                        | Search for the church as a support network (especially the evangelic church). Elder women are suffering from depression and other mental disorders.     |
| Increased rates of crime and violence * within the community                                                                                             | Crime rates are higher especially in the high touristic season. Quoting a Fisher: "after the tourists come opportunistic thieves" (typically outsiders).                                                                                                                    | Local people are fencing and locking their homes (in the past they talk about houses being always open).                                                                                                                           | Feelings of insecurity and vulnerability. Distrust of outsiders.                                                                                        |
| Pollution and environmental degradation *                                                                                                                | There is no public sewage system in the community. Most sewage is treated in septic tanks. The water table is very high, and with the increase in population (up to 7 times) in the high season, the beach often becomes unhealthy, or unsuitable for recreation.           | Many participants participated in collecting trash from the beach; however, there was no response to the lack of a public sewage system.                                                                                           | Health problems, i.e. hepatitis. High-end tourism compromised, as wealthy tourists have been choosing other less polluted and more isolated beaches.    |
| Influx of lower income tourists, as compared to the past (due to higher levels of criminality, environmental degradation, and pollution inside the bay). | Since the early 1980s there has been a shift from wealthier tourists visiting the study area to middle-class tourists, affecting fishers because tourists are an important market for fish, and most forms of livelihood diversification are related to higher-end tourism. | Fishers are forced to sell their catch for less return. Fishers are more dependent on middlemen to sell their catches. Fishers are charging less for tourism-related services. Fishers are struggling to rent their second houses. | Impoverishment and more competition between individuals/households for tourism resources. Increased vulnerabilities.                                    |

\*Items to be approached more critically on Chapter 6 and 7.

In Table 5.1 I deliberately chose not to differentiate between shocks (abrupt and often unexpected impacts) and stresses (long-term and constant pressures), as many of the shocks to older generations have turned into current stressors today. For example, loss of land due to real estate speculation and the creation of parks, as well as non-take fishing areas, all were

experienced as shocks by elders, yet are currently perceived as persistent stressors. Loss of land in the past reflects fewer options for diversification presently; those families and households who have maintained title to their land often gain “passive” income through renting out second houses to visitors, while those who sold/lost their land are constrained from such options. In another example, the creation of the Serra do Mar Park in the 1970s turned small-scale agriculture and hunting into illegal activities inside the Atlantic Forest, representing a shock for locals’ livelihoods at the time. Nowadays, illegal hunting is not uncommon, and is a recurrent stressor for locals that persist in the activity despite the risks of being charged for environmental crime. Finally, in a similar example, the creation of fishing non-take areas represented a loss of rights to elders, and therefore a shock; but currently, is experienced by many as a stress as they partake in illegal fishing to remain productive.

Shocks and stresses varied along various axes including community, household, and individual levels. The shocks/stresses identified as affecting community levels are those that affected the vast majority of participants, such as fish scarcity and fishing restrictions. However, while some households’ primary challenges overlapped with those identified as community level shocks or stresses, a few households experienced nearly all the shocks/stresses presented in Table 4.3. These were identified as stresses or shocks at the household or individual levels.

In particular, sea-bob shrimp trawler fishers were (with very few exceptions) the poorest households, often struggling more with both environmental policies and resource scarcity, facing difficulty in finding crew-members for their operations, and facing challenges with substance abuse. In that sense, specific shocks and stresses were also related to fishing gear and the scale of fishing activities. Trawler fishers whom, in general, relied most on fisheries for income (see Chapter 4), tended to face the most challenges as compared to canoe and small aluminum boat fishers due to restrictive policies. Policies have neglected to balance

these fishers' needs and conservation measures leading to marginalization, including arrest for illegal fishing, impoverishment, and feelings of injustice. Quoting an elder shrimp fisher:

“I never had formal employment, we always had boats, four [boats] until now. I will be honest with you, if I were a kid, nowadays, I would go to school. I never missed a day in my three years of school. I wanted to go on studying, but I was the eldest of 6 siblings, and I had the duty of taking care of them. I love to fish you know! I feel free. I belong to the sea. But nowadays we are losing everything. They [enforcement agents] treat us like criminals. The laws are taking our dignity. I worked hard my whole life... I am an honest man.”

As a consequence, many shrimp fishers reported placing their trawler boats on the market and were considering exploring alternative options. Some were considering transitioning to aluminum boats, others debating whether to pursue alternatives outside of fisheries, while still others remained unsure of what alternatives to pursue. As stated by a younger fisher:

“First, it has been hard to find shrimp. When there is some, IBAMA does not let us work. Second, there is no incentive from the government, and gas and ice are very expensive. Many times, you spend more money to go fishing than you get from the fishing trip. I am tired of this life. I am considering leaving fisheries and trying to make a living off something else. There is no future for trawler fishers here. They [IBAMA] want to make us go extinct...but I bet they like to eat shrimp.”

If on one hand shrimp trawlers are facing challenges due to environmental policies and resource scarcity, canoe fishers, on the other hand, have limited mobility, and therefore, limited access to alternative fishing grounds (Figure 5.1.). The creation of non-take areas (especially Anchieta Island and its surroundings) forced many fishers to seek livelihood alternatives as their prime fishing grounds were usurped by the State. Many of the current canoe fishers are elders and retired. Quoting a young canoe fisher:

“I have to work on the landing site, sell native plant seedlings, make art crafts with seashells, and I have an aquiculture license. I do what I can do pay the monthly bills. Being a canoe fisher, and living only off it? Impossible! No one can. The elders have their retirement, and complement it with fishing.”



Figure 5.1. Canoe fishers on the way to collect gillnets in the late afternoon in Lázaro beach. Anchored is a shrimp trawler during the closed season. Photo: Marta Leite.

While analyzing responses to these shocks and stresses, it became clear that the response mechanism employed did not always occur at the same level where the given shock or stress took place. To elaborate this, Table 5.2 presents the *main* levels of the panarchy affected by each shock/stress and the *main* levels where responses occurred. Furthermore, let it be emphasized that the *main* level affected by a shock/stress, as described in the table, is not necessarily the *only* level impacted. For example, shocks and stresses that affect individuals are very likely to affect their households, even if emotionally (e.g. when a fisher's wife worries when her husband fishes in a non-take area).

Table 5.2. Stresses and shocks to fishers' livelihoods, the main level affected, responses, and the level in which responses took place.

| <b>Shocks and stresses</b>                                                                          | <b>Main level(s) affected</b>   | <b>Main coping/adaptation response</b>                                                                                                                                  | <b>Main level(s) of response</b> |
|-----------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Loss of land due to real estate speculation during the 1960s and 1970s.                             | Community level                 | Out-migration to downtown Ubatuba and surrounding cities, or in many cases, to lands further away from the beachfront.                                                  | Household level                  |
| Creation of the Serra do Mar State Park in the 1970s.                                               | Community level                 | Greater focus on fishing related activities, including crewing in large-scale purse seine boats.<br>Livelihood diversification.                                         | Individual and household levels  |
| Fish scarcity.                                                                                      | Community level                 | Livelihood diversification.<br>Greater focus on tourism activities.                                                                                                     | Household level                  |
| Creation of fishing non-take areas, including the surrounding waters of Anchieta Island State Park. | Community level                 | Intensified use of other ("not as good") fishing grounds, including off-shore waters of other Islands.<br>Illegal fishing.<br>Livelihood diversification                | Individual and household levels  |
| Illegal fishing.                                                                                    | Individual level                | Fishing in forbidden areas/seasons (especially at night without lights to reduce the risk of detection).                                                                | Individual level                 |
| Level of bureaucracy to obtain necessary fishing licenses                                           | Individual level                | Choosing to be undocumented.<br>Allowing the expiration of documents.                                                                                                   | Individual level                 |
| Constraints on livelihood diversification due to restrictive policies.                              | Household level                 | The pursuit of informal employment, such as day labour/seasonal jobs, and illegal fishing.                                                                              | Individual and Household level   |
| Constraints on livelihood diversification due to access to financial assets.                        | Household level                 | The pursuit of informal employment, such as day labour/seasonal jobs, and illegal fishing.                                                                              | Individual and Household level   |
| Substance abuse within participants' households.                                                    | Individual and Household levels | Individuals and families are joining the evangelic church as support systems. The evangelic church does not allow for the use of alcohol, and illegal drugs in general. | Individual or Household levels   |
| Lack of available boat crew members.                                                                | Individual level                | Fishers are choosing to fish alone, or else risk working with crewmembers that might compromise safety at sea, or who cannot be relied on to regularly show up to work. | Individual level                 |
| Domestic violence.                                                                                  | Individual and household levels | Very few women have divorced in the study area, although threatening divorce was common. Many women found support in religion by joining the evangelic church.          | Individual level                 |
| Increased rates of crime and violence.                                                              | Community level                 | Local people are fencing and locking their homes.                                                                                                                       | Household level                  |
| The influx of lower income tourists.                                                                | Community level                 | Fishers need sell their catch for less return or are dependent on middlemen to sell their catches.<br>Charge less for tourism services.<br>Women engaging in day-jobs.  | Individual and household levels  |

A clear pattern that emerges from Table 5.2 is the absence of community level responses, regardless of shock or stress. Thus, while numerous stressors and shocks impacted the community level, such as restrictive environmental policies, the influx of lower income tourists, and higher criminality, responses seem always to occur at the household and individual levels.

Despite many of these shocks and stresses having been triggered by economic development, the same drivers have also translated into new opportunities. Table 5.3 presents a collection of new opportunities that arose in the study area in the last 50-60 years along with different adaptation responses and corresponding consequences for local livelihoods. Importantly, these opportunities frequently translated into the development of new skillsets, as for example the social skills required to work with tourists, or navigate the laborious certification process to become a yacht captain. Moreover, for some families, relationships with tourists, especially those that owned vacation homes within the community, became important resources in difficult times. In one example, a fisher struggling to operationalize his dilapidated and dysfunctional canoe, received a new boat donated to him by a wealthy summer vacationer from Sao Paulo.

Table 5.3. New opportunities that arose from economic development, coping and adaptation responses and consequences for participants' livelihoods.

| Opportunities                                                                                             | Description                                                                                                                          | Adaptation response                                                                                                                                                                                                                                                                                                         | Consequences                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tourism and increased job opportunities: not directly related to fisheries.                               | With economic development and increasing tourism activities after the 1970s, job opportunities increased greatly in Ubatuba overall. | Caiçaras started engaging in tourism-related activities such as working in grocery stores, hotels, construction, home services and babysitting, selling pastries on the beach, the service sector in restaurants, renting out beach sporting goods, etc.                                                                    | Livelihoods shift. Locals that were formerly dependent on fisheries, small-scale agriculture and hunting increasingly diversified to tourism related activities.                                                                                                                                                                                                            |
| Renting houses to tourists.                                                                               | Many participants have one or more houses used for renting (mainly to tourists).                                                     | Households are maximizing the construction of rental housing on their lands to cater to tourist demands.                                                                                                                                                                                                                    | Important income source in high seasons and holidays.<br>Households that do not have land are excluded from this opportunity.<br>Increased social differentiation. Properties are continuously subdivided into smaller parcels.                                                                                                                                             |
| Diversification based on fisher knowledge: Guiding tourists on fishing, beach, or island excursions.      | Many fishers have combined their fisher's knowledge/skills with learned skills/knowledge to take advantage of tourism.               | Taking tourists out to fish or visit other beaches/islands. Fishers use their fishing and navigation knowledge, while they have to learn how to deal with tourists and administrate the budget (often a women's task).                                                                                                      | It is a way that fishers found to be at sea, apply their knowledge, and take advantage of tourism. Nevertheless, only fishers that have motorized boats and gear can pursue this opportunity. Therefore, not all households can access this tourism market (e.g. canoe fishers are excluded).                                                                               |
| Diversification based on fisher's knowledge: To work as a "marinheiro" (yacht operator) for yacht owners. | The study area has eight marinas/yacht clubs. These are located in the same bay, and very close to the landing area.                 | Working as a "marinheiro" for wealthy yacht owners is perceived as one of the best options for fishers recently. The job offers the security of a monthly wage, while at the same time offers the freedom to fish whenever they are not on duty (they are requested to work mainly during the high season and on holidays). | Besides the contrast between community members and very wealthy people from São Paulo and Rio de Janeiro, the marinas create stronger social stratification locally as well. <i>Marinheiros</i> get better paid when compared to other local activities. They need to be literate and educated to have a special license. The process of obtaining it is not cheap or easy. |

After the identification of specific shocks, stresses, and new opportunities faced by participants, I move on to explore specific data on resilience at each level of our panarchy framework. The next sections explore resilience features at the individual, household, and community levels.

### 5.2.2. Resilience at the individual level: protective factors and vulnerabilities

Individual resilience was highly variable among participants. Elders experienced a vast array of shocks, or traumas, including loss of land and loss of rights to access natural resources (including agriculture, hunting, and important fishing grounds), while the younger generations face obstacles related to higher crime rates, drug abuse (mainly cocaine and crack) and lack of life goals. The youth<sup>1</sup> focus group (ages varied from 18-28) revealed that only two participants of seven had a clear idea of what they would like to achieve in the near future. One of them being a fisher and ‘*marinheiro*’ assistant (and the youngest participant), and the other being the oldest participant, also a “*marinheiro*” and happy with his professional situation:

“I want to continue fishing and to become a ‘*marinheiro*’ like my father. I am his assistant; I am learning with him. That is what I want to do.”

“I like to be a ‘*marinheiro*’, that is what I want to be doing in the future. I like to be in the sea and to have a salary at the end of the month. To live only off fisheries is too uncertain nowadays.”

Besides the participants quoted above, all the others declared to be unhappy with their current livelihood activity (working in the kitchen of a hotel, renting sports gear to tourists at the beach, working as a hairdresser, working in construction, and even working as a ‘*marinheiro*’ assistant). Yet, they remain unsure what they would like to pursue instead. Plans like leaving the country to try a life abroad were mentioned by two young males during the focus group discussions. Both had experienced traumatic events with abusive parents. One of them declared interest in searching for psychological counseling to help him dealing with such traumas:

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<sup>1</sup> The definition of youth varies per country and culture. According to Brazilian laws approved in 2013, youth are considered Brazilian citizens between 15 and 29 years old. The United Nations considers youth as individuals between 15 and 24 years old.

“My father was not a good father for my siblings and me. He was never there, and that was better, because when he was [around] it was worse. He was very violent with us.”

Interestingly, seven out of 30 individuals (adults, both male and female) that participated in the semi-structured interviews also reported seeking psychological counseling for themselves or household members, either recently or in the past. This number is particularly high considering there was no specific question, nor probe, about psychological counseling during interviews. These data surfaced during the interview question asking which individual(s) participants relied upon during challenging times. Due to the personal nature of this subject, it is not unreasonable to assume the numbers are even higher, but which didn't explicitly surface in interviews. Reasons varied, including women feeling constrained by their husbands, traumas caused by past experiences of domestic violence (cited by women and youth), an incapacity to adjust to modern lifestyles, feelings of vulnerability due to criminality, mental health problems, and the loss of fishing rights due to illegal fishing.

Table 5.4. summarizes the protective factors, strengths and the vulnerabilities related to individual resilience found in this study. In the table, youth are considered individuals from 15 to 29 years old.

Table 5.4. Protective factors, strengths and vulnerabilities identified as essential for individual resilience.

| <b>Protective Factors and strengths</b>                                                                     | <b>Gender/age group</b>                                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Spouse, household members, and extended family support                                                      | Both genders, more cited by adult and elder men                                                             |
| Psychological counseling                                                                                    | Both genders, more cited by adult and elder women, and youth                                                |
| Fishing as an invigorating environment                                                                      | Mostly cited by adult and elder men                                                                         |
| Church and faith                                                                                            | Mostly cited by adult elder women, and youth                                                                |
| Good daycare and school in the community                                                                    | Mostly cited by adult and elder women                                                                       |
| Health services (small clinic in the community, and advanced medical care on the neighbouring municipality) | Both genders, mostly cited by adults and elders                                                             |
| Friendship ties with other community members                                                                | Both genders, slightly more cited by youth, adult and elder women                                           |
| Formal education                                                                                            | Both genders, more cited by adult man and women                                                             |
| Local knowledge                                                                                             | Both genders, slightly more cited by adult and elder men                                                    |
| Sociability and social charisma                                                                             | Both genders, mostly cited by adults and elders                                                             |
| Autonomy                                                                                                    | Both genders, mostly cited by adults                                                                        |
| <b>Vulnerabilities</b>                                                                                      | <b>Gender/age group</b>                                                                                     |
| Feelings of constraints to freedom due to restrictions upon fishing rights                                  | Mostly men, however, women fear for their husbands fishing illegally and being caught by enforcement agents |
| Conflicts with enforcement agents due to illegal fishing and marginalization                                | Mostly adult and elder men                                                                                  |
| Feeling of insecurity due to higher criminality in the high season                                          | Both genders, slightly more cited by adult and elder women                                                  |
| Easy access to drugs/presence of drug dealers living in the community                                       | Both genders, youth, adults and elders                                                                      |
| Lack of life objectives                                                                                     | Both genders, youth                                                                                         |
| Domestic violence (verbal and physical)                                                                     | Mostly cited by elder women and youth                                                                       |

The series of quotes below exemplify cases of vulnerabilities faced by individuals, placing in context the data on Table 5.4, as in the case of one woman's difficulties facing societal changes in her community:

“I do not like all these changes; you know? It is hard for me. I feel alienated. I do not have a bank account, cell phone, computer, Facebook... I can't adjust [to modern life]. Before there was more simplicity. I have a friend, from São Paulo, who is a psychologist. I have depression, you know? She tells me “you need to shake off the past.” But I can't. Because I like my past better. Today I am afraid, afraid of what will happen to our place, to our children. There is so much more violence [...].”

Conversely, adversity to one participant may be perceived as a new opportunity by

another. The father of the woman quoted above worked and raised his sons and daughters by working on the construction of the highway that now connects São Paulo and Rio de Janeiro to Ubatuba, igniting the process of economic development in the region. While he is proud of being part of that process, his daughter is depressed and could not adapt to a more modern lifestyle. This points to how different individuals perceive and experience changes in very different ways, even within the same family. Nevertheless, examples where family members were the source of strength for individuals in times of crisis were commonly cited during semi-structured interviews:

“I had a hard time when I was constructing my house. We had a little store, things like cloth and accessories my wife and I would buy in São Paulo and resell to people here. The money from the store and fishing would help us pay the costs of constructing our house. Once we went to São Paulo, but when we came back thieves had broken into our store. They took everything. I got in debt, and couldn’t finish the house in time for the high season. Our plan was to move to my father in-law’s place and rent our home. I got very depressed. I was feeling very vulnerable. I went to a psychologist for one year and finally got better. My family, and my wife’s family helped me to finish the house and recover. Now I am good; I haven’t taken any medicine [for depression] for many years.”

In this fisherman’s case, feelings of vulnerability, being victimized by crime, in addition to being financially insecure led him to depression, and therefore lack of resilience. Family support and psychological counseling worked as protective factors, while criminality generated higher vulnerability.

In the study area, psychotherapists are available as part of the public health system if the patient is approved according to pre-defined criteria. Still, some participants complained that their treatment was considered finished before they felt fully recovered. The search for psychological counseling was more common among women than men. While five women reported seeking psychological counseling, only three men (including two adults and one youth) said the same. A key-informant suggested an explanation for this finding:

“Men have the sea, and for them, the sea is like therapy. It makes them feel better about themselves and their problems. We, women, stay, and have no escape like them [men].”

Indeed, when asked about the meaning of fishing, all fishers (including three fisherwomen) described the sea and fishing with a reverence beyond what could simply be described as an income source. They described their intimate contact with nature as well as being physically active and greeting the constant challenges of the sea. Some important aspects of fishing activities cited were: stress reduction, positive emotions, feelings of freedom, and the pride of a good catch:

“I am retired, yet I do not want to stop fishing, I know that the day I stop is the day I die. Fishing is not just about money; it is health. To breathe the sea air! The waves wash away our problems. I feel alive, happy; my problems seem smaller. I want to die fishing.”

“I love to fish. In the sea, I am my own boss. Many times I have a bad day, a bad catch, even though it is good because I feel free, there is no one to tell me what to do, only my wife [laughs].”

Despite such high importance placed on the sea and fishing activities for fishers’ resilience and wellbeing, the creation of non-take fishing areas and closed seasons have exposed fishers to vulnerabilities not experienced before. Cases of misfeasance by enforcement agents were cited by the majority of fishers. These conflicts were characterized as an imbalanced power dynamic, based on fear and subordination. As explained by participants, it is common for fishers to be approached by agents with firearms, even when fishing legally. The case below reflects on how relationships with enforcement agents, often characterized by power imbalances, can have significant impacts on fishers’ psychological health:

“My father was caught fishing illegally when I was young. He has a strong personality. He got in a discussion with the enforcement agent because he thought it [fishing] was his right. He got bitten [literally] and offended by that man. He lost everything that day: gear, catch, his pride. My father started drinking. He never went back to fishing. He couldn’t even take care of himself, always drunk [...]. My mother started working more and more, buying

and processing shrimp from other fishers; she even had many other women working for her. My father took more than ten years to stop drinking.”

In instances where fishers engaged in ‘discussions’ with agents, consequences could be significant, ranging from pre-defined punishments (arrest, seizure of fishing gear as well as the catch) to physical and verbal abuse (beatings and violent threats). Conversely, according to participants, if fishers remain quiet, show subordination and fear, a second chance *may* be given:

“They got me fishing close to the Anchieta Island. I am sure I was out of the forbidden area, but they said I was in it. I just got my head down and said “yes Sir” to everything they said. I could not afford to lose my gear. They said I could go, and that they did not want to see me around anymore, or I would regret it.”

Mistreatment by enforcement agents contributed to the abandonment of fishing among youth, lower job satisfaction and substance abuse by crew members. Two main reasons were attributed to the difficulty fishers expressed in recruiting crew members: 1) the younger generation’s lack of interest in fishing, and 2) many fishers have substance abuse problems and are therefore not as reliable. Indeed, in the youth focus group, participants agreed that some of the reasons making fishing unattractive to them included fish scarcity, restrictive policies, the laborious bureaucracies to obtain a fishing license, and on top, fears of conflicts with environmental enforcement agents. The fact that youth are, in general, not interested in fishing might have consequences to the future of artisanal fisheries in the study area.

### **5.2.3. Resilience at the household level: livelihood diversification and social stratification**

Even while youth generally show little interest in fishing, a fact posing potential implication for the future of artisanal fishing in the study area, households have demonstrated notable resilience in finding ways to retain fishing as part of their livelihood portfolios. It is

central to notice, however, that while some have adopted coping mechanisms to fulfill basic needs, others demonstrated an ability to adapt in more secure ways by accumulating financial and material resources which translated into more options to invest in tourism related activities. There were several attributes common among households responding positively to change: 1) possessing land (commonly inherited family land) and houses so as to avoid expensive rent themselves, and to rent to tourists (a passive, and lucrative, source of income); 2) possessing boats and fishing gear, and especially, having the financial capital to invest in modifying/adapting the boat for tourism activities; 3) having freezers to store their catches at home and therefore sell the catch directly to tourists; 4) coupled formal education and local knowledge, thus opening the doors for higher-end tourism related activities such as working as hired captains for wealthy yacht owners. Other households with less access to such assets adopted more volatile activities, such as working construction as day-labourers, working as occasional maids or babysitters, or working at landing sites handling the catches of large-scale vessels and selling their catches to middlemen (Figure 5.2.). Moreover, it was more common to find an “if, then” type of strategy among fishers that adopted coping mechanisms as compared to those who possessed more favorable attributes as described above (Table 5.5).



Figure 5.2. The Saco da Ribeira Bay on top. The middle photos show tourist yachts on the right, and shrimp trawlers on the left. On the bottom is a photo of small-scale fishers working the landing of a catch by a large-scale purse seine vessel. Photos: Connor Jandreau

Table 5.5. “If, then” strategies adopted by households.

| If                                                                                                                                    | Then                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| “If the catch is big”                                                                                                                 | “then I sell to the middleman” [prices fall, and normally others also have good catches, making local markets saturated, less lucrative, and more competitive]. |
| “If the catch is small”                                                                                                               | “then I sell at home to tourists” [there is limited space for storage at fisher’s houses]. *                                                                    |
| “If the fish [species] caught has high market value”                                                                                  | “then we sell it directly to tourists, or keep it to for special occasions [festivities].”                                                                      |
| “If the fish [species] caught has low market value”                                                                                   | “then I sell it to the middleman, or to other community members.” or “then, I share more with friends and neighbours.”                                          |
| “If the large-scale fleets land big catches, and the prices are lower”                                                                | “then I buy fish from these fleets, and sell it locally.”                                                                                                       |
| “When [If] there is sardine or pink shrimp landings [large-scale fleets] I work landing their catches and get paid in cash and fish.” | “then I resell it to tourists [if shrimp] or to community members [if sardines or other cheaper resources]”                                                     |

\*Women are frequently in charge of processing and selling the catch at home, while men are in charge of negotiating and selling the catch to the middleman.

Seasonal strategies occurred not only in the form of shifting resources and gear, but also by taking the most advantage of the tourism season. One of the participants, for example, concentrated all his fishing activities during the colder months (from May to September), and focused on tourism, in this case, as a rental manager assisting off-site homeowners from São Paulo or Minas Gerais to market their rentals to tourists (paid commission for houses rented).

However, lack of financial and material assets has limited long-term livelihood diversification options for the poorest households. When livelihood diversification becomes a prominent driver of change, variation in households’ capacities to take advantage of new opportunities can intensify social stratification, particularly under a neoliberalizing economy.

Moreover, some opportunities represented gains for some and loss for others. The marinas and boathouses, for example, brought opportunities for many fishers to work for high-end tourists as captains-for-hire, locally called “*marinheiros*” (in charge of sailing and maintain the yacht). From these fishers’ perspectives, the development of high-end nautical

tourism improved their livelihoods. Other community members, however, share a different viewpoint:

“The marinas brought a lot of jobs to our place, jobs as *marinheiros*, *marinheiros*’ assistants, mechanics, electrician, security guards... I am a *marinheiro*, and so is my brother and brother in law, my son is my assistant.”

“Despite all the jobs, the marinas brought a lot of pollution to our sea, and we lost access to the Saco da Ribeira beach where we used to collect mussels, swim, and fish.”

“In the Saco da Ribeira, where the marinas are today, it used to be a beach full of mussels and fish. After the marinas, it all disappeared, beach, mussels, fish.”

There were eight marinas and boathouses in the study area during the time of the fieldwork (seven on the Saco da Ribeira Bay, and one on Lázaro beach). Many community members talked with nostalgia about how they used to have access to these areas and beaches; but are now restricted and instead cope with a highly polluted, densely congested Saco da Ribeira Bay. The fact that some fishers could take advantage of the marinas and associated high salaries, while others were cut off from their historic landing areas is just another example of how development generated stronger stratification in the community.

Nevertheless, diversification opportunities were not the only driver of change for participants financial/material resources. Environmental policies targeting fisheries management have played a significant role in marginalizing Caiçara fishers. The Ilha Anchieta surroundings (see study areas map) was consistently identified as the best fishing grounds by local fishers. The Island and surrounding bays were designated a non-take area in the 1970s, without consultation or participation by locals. The area is still the arena for constant conflicts between fishers and enforcement agents.

In particular, those that rely primarily on fisheries for livelihoods are struggling, and typically impoverished. This is the case for most trawler fishers. Moreover, trawler fisheries have been particularly targeted by environmental regulation due to the impact of trawling on

the seafloor and associated bycatch. For example, during the closed season for shrimp, fishers receive unemployment insurance. The annual closed season lasts three months (from March to May), during which fishers receive less than a third of the income they would typically earn when fishing. On top of that, fishers are not allowed to engage in other formal sectors for risk of losing their fisher's insurance. Consequently, informal jobs were very common among these participants. Less than 10% of households (4 of 41) relied exclusively on fishing activities as their sole source of household income (Figure 5.3), all being trawler fishers' households.

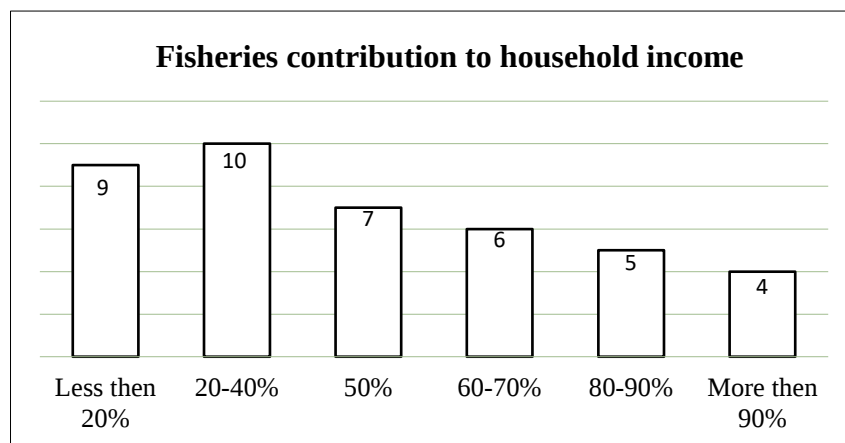


Figure 5.3. Percentage of contribution of fisheries for household's income. Total: 41 households.

Livelihood diversification, therefore, is a consequence of both restrictions upon fisheries, and new opportunities that emerged in the study area. An important component not yet captured here is the role women play in diversifying households' livelihoods portfolio, which I will revisit further on in this section.

While not the only source of income (and for two-thirds of participants, not even the main income component) fishing has demonstrated substantial contributions to household's food security. Household surveys revealed that 98% of households consume part of their catches. Also, 90% declared to share their catches with relatives, and 66% with friends and

neighbours (Table 5.6.). Therefore, kinship ties and systems of sharing the catch also contribute to the food security of the overall community.

Economic development also contributed to improved food security in the area by increasing and diversifying the goods available. A classic example given by older participants was an essential staple: salt. Before the 1970s when there was no highway access, Caiçaras from Ubatuba would need to travel for days, by canoe or by foot through the Atlantic forest, to the City of Santos to purchase salt. As of 2015, there exists two supermarket chains in the community, and several small businesses such as a bakery, fruit and vegetable markets, and smaller locally owned grocers. However, it was interesting to note that despite no reports of current food shortages in the community, elders viewed the easy access to markets, and therefore a greater variety of food products available as both a benefit and a down side of economic development. The elders (fishers and their wives) reported having a healthier diet in the past, when they produced and harvest the great majority of their foods. Additionally, 29 out of 41 households still produce vegetables, fruits, spices and medicinal plants on their lands and continue to share produce as part of a kinship system.

Table. 5.6. Reported catch sharing from canoe, aluminum boats, and trawler fishers in the community.

| Catch sharing across different fishing scales/boat types         |       |        |          |
|------------------------------------------------------------------|-------|--------|----------|
|                                                                  | Canoe | Skiffs | Trawlers |
| Consumed by the household                                        | 100%  | 100%   | 86%*     |
| Shared with relatives                                            | 100%  | 100%   | 72%*     |
| Shared with neighbours/friends                                   | 80%   | 78%    | 45%*     |
| Sell at home to tourists                                         | 100%  | 100%   | 35%      |
| Sell at home to other community members                          | 23%   | 39%    | 29%      |
| Sell to local restaurants and kiosks                             | 34%   | 33%    | 64%      |
| Sell to local fish markets (locally called “ <i>peixarias</i> ”) | 34%   | 55%    | 50%      |
| Sold to bigger markets at São Paulo through middlemen            | 0%    | 0%     | 14%      |

\*Mainly bycatch species.

The role that women play in household resilience showed to be essential to food security and livelihoods diversification. Out of 41 households, 21 (or 51%) had women contributing financially to the household income. Women contributed to household income

through both paid jobs (76%) and by conducting their own businesses in the community (24%). Paid jobs included being housekeepers, teachers' assistants, working in restaurant services among others. Businesses included making pastries to sell at the beach or at home, and working in family kiosks. Additionally, five women went out fishing with their husbands, one of whom is considered a top fisher in the community. All five fisherwomen were also responsible for pre (cleaning and packing the fish) and post fishing activities (selling and managing the budget). Additionally, 11 other women did not fish, but were responsible for cleaning and selling their husbands' catches at home. Therefore, in total, 16 women were involved in fishing activities.

While it was common for women to sell catches at home, men were normally responsible for negotiating and selling the catch to local markets, restaurants and kiosks, and to middle men. It was women's paid jobs, indeed, that allowed many fishers to continue fishing, despite fish scarcity and periods of poor catch. Women normally earned less income per year; however, their income sources were generally more foreseeable and stable when compared to the unpredictability of fishing. As a fisher's wife explains:

“My job, as a house keeper, is what makes us sure that we will pay the bills at the end of the month. When my husband has a good fishing day, it is great, good money, but there are hard months too. Sometimes the fish just disappear from the water, and the catch does not pay the investment in going fishing, you know?”

It was common for women to mention the pressures of having to balance jobs with household activities:

“I work a lot, and when I get home, I work more. I know my husband and my kids expect a nice dinner waiting for them, a clean house, a present mother... Sometimes it is very hard to find the energy, but I always end doing.”

“I would rather just work at home, but we could not afford to have our daughter doing ballet, having nice cloths... I want to give her what we did not have, so I work at the hotel, despite not liking it.”

“I love fishing. I am a better fisher than much of the fishermen from Lázaro. You can ask [others in the community]. My husband is very good too. But when we get home from fishing he drinks beer, and I cook, clean, wash.”

Despite contributing to household income, women also demonstrated awareness of the need to save money for future ‘surprises’. While less than 20% of households had debt, two with amounts over R\$15,000 (Brazilian Reais, or around \$5,000 USD at the time of fieldwork), only 10% of participants had a savings account, all of which were women. In one case, a woman had a savings account that only she had access to because her husband would always invest any extra money on fishing gear or on his boat. Therefore, they agreed that whatever they could save, they would split, and while he would invest in fisheries, she would save her share to meet unexpected future needs. Nevertheless, it was interesting to note that participants would invest in what they called “other forms of savings”. Many participants believe that keeping their money in banks was not the best way of investing their resources. For example, common statements included:

“I do not have a savings account, but I have land, and in case of an emergency, I can sell it.”

“I do not trust banks, and the interests are not very good anyway. If I ever need to sell my second house, I will.”

“My boat is my savings account.”

Strategies for preparing for future uncertainty, however, were not a priority for the great majority of participants. As explained by a key-informant, and a fisher’s wife, and reflected in many semi-structured interviews:

“Fishers live in the present. For us the future is the end of the month, when all the bills need to be paid.”

“He [husband] is more in the present, He tells me: let’s think about what we need to do now, not in the future. I am the one that managed our money. He says money is for spending. He does not think about saving money. I always save a little. Every month a little.”

Nevertheless, flexibility in combining livelihood strategies, such as presented in Table 7 (the “if, then” responses) demonstrates a degree of flexibility to deal with uncertain events. In this sense, households in general manage to find ways of adapting to changes triggered by economic development in the study area. However, there were clear trade-offs at the community level.

#### **5.2.4. Resilience at the Community level: trade-offs between economic development and community cohesion**

When asked how economic development affected the community over the last several decades, participants characterized change in terms of trade-offs. Particularly, as a point of discussion across all focus groups (with youth, women, and men) participants recognized this push and pull between economic development and loss of community cohesion. For instance, in terms of income, all agreed that employment opportunities improved, and this effect of development was viewed in a positive light. However, these opportunities also led to a loss of social capital at the community level, through the erosion of traditional customs. Even amongst the youth focus group (ages 18 to 28 years), participants described fond memories of community-held events during their childhood and which do not occur today. These stories lend evidence to the loss of social capital at the community level, occurring as a slow process that began in the early 1970s.

As discussed in the focus groups, economic development granted community members less dependence upon one another. Additionally, economic development, and especially opportunities related to tourism, intensified social stratification, initiating a shift towards more individualized lifestyles in the community. As interests in the community became more individualized, important social networks were weakened, in some cases resulting in their extinction. In other words, focus group participants agreed community

cohesion was much stronger in the past, and in recent decades, households are more focused on their domestic units and families. For example, the gathering known as “multirões” used to unite locals to construct a house for a community member. Nowadays, however, community-wide “multirões” do not occur anymore; instead, contractors are hired or simply done within the family.

Fishing activities also required more collective action. While the beach seines were owned by less than a handful of fishermen, the fishing method required large numbers of fishers to aid in pulling the net from the sea, men, women and children alike (Figure 5.4.). The fish were then divided in pre-determined ways, all participants receiving part of the catch. At the time of the fieldwork, most fishers had their own fishing gear and boats (See Chapter 4, section 4.1.3 for details). Moreover, fishing with beach seines has been forbidden since the 1980s, contributing to the erosion of important social networks in the community. Nevertheless, quoting a fisherman participant during a semi-structured interview:

“Even if the beach seine was allowed, it would not happen as often because now everyone has their own boats and gillnets, they do not need to come together anymore.”



Figure 5.4. Historical beach seine fisheries. Painting on the left showing the catch on the beach. Source: Caiçara Museum. Photo on the right showing mullets (*Mugil spp.*) jumping as the seine is pulled onto the shore, Santa Catarina, Brazil.

As a result, networks of support have shifted, with greater reliance placed on the extended family levels. When asked whom participants relied on in difficult times, the vast

majority pointed to either their immediate household or extended family members. Indeed, focus groups discussions confirmed that extended families, and church circles, are now the key social institution. The role of church circles for community cohesion will be approached in Chapter 6.

Despite diminishing community networks and a greater reliance on family-centered systems of support, all participants declared to share fishing resources with other community members, including not only family members, but also neighbors and friends. These kinship ties go beyond fishing resources, also applying to garden vegetables and fruits, poultry and eggs. Furthermore, it includes sharing and exchanging food with friends and family from neighboring communities. Trading fish for locally cultivated vegetables/fruits, chicken, ducks, and eggs was particularly common with the neighboring community to the south, which is not located on the beachfront and therefore has less restrictive policies regarding small-scale agriculture (ZEE, 2005).

Furthermore, the existence of community-level coordination and rulemaking was evident. Informal rules did take place when defining where an individual fisher's gear and boats (skiffs and canoes) could be stored on the beachfront, or on the landing spot (trawler boats). In another case, a "moral code" exists that stipulates any fisher under distress at sea shall be assisted without question. All fishers strongly agreed upon this rule. Exchanging information about fishing grounds and resources is also a common habit among local fishers; however, information regarding good catch locations is shared only with closest friends and fishers in the family. Aside from concerns such as these, the fishing community within the study area conducted no *formal* meetings or engaged in any active organizations at the community level until July 2015 (end of the field work). Quoting three fishers from the men's focus group:

"Fishers are not united here, there is no effort to come together to fight for the benefit of all."

“The hard part is to agree. Canoe fishers think very differently from shrimp trawlers.”

“We are small [small-scale fisheries], we have no power, no voice [insinuating there is no point to organize].”

My findings suggest the main reasons for the lack of interest in organizing has its roots in: 1) the history of the study site and its conflicts with top-down conservation initiatives, where participants see little prospect of overturning relations of domination, 2) aspects of the Caiçara culture, and the local fishing culture, and 3) consequences of economic development, and the trade-offs to community cohesion, as discussed in this section. The second item (cultural aspects) will be elaborated upon in Chapter 6 and 7, where I analyze understandings of wellbeing (Chapter 6) and its influence in adaptation processes in the study area (Chapter 7).

Another commonly mentioned negative impact of development was higher pollution, and consequent impacts on tourism, especially during the high season. Participants also related higher levels of pollution with fish scarcity. And yet, despite the overwhelming concerns within the community concerning pollution, Caiçaras have yet to organize to demand solutions to the sewage system in the community, and more broadly, in the municipality.

One possible vehicle for such organization is within the now reactivated fisher association. The association was reactivated after the fieldwork had ended, and the data regarding it was gathered during the validation trip, in May 2016. Box 1 presents data about the reactivation of the Saco da Ribeira Fisher Association, which was founded in 2012 by Petrobrás (Brazilian national oil and gas company) in order to provide legal social compensation for oil and gas extraction in the neighboring municipality of Caraguatatuba. After the Association was funded and the claims for compensation decided among a group of

9 local fishers, Petrobrás stalled for 2 years to return to the community, leaving the Association inactive and in debt.

**Box 1. Social Capital as a latent (or dormant) property.**

Eight month after the completion of fieldwork, a data validation effort was carried out in the field site (April-May 2016). During this time the Saco da Ribeira Fisher Association was reactivated by a group of over 25 fishers who paid the outstanding debt, kept up the monthly fees, and participated actively. According to the active participating fishers, the reactivation of the Association occurred primarily due to: 1) the recent and immediate prohibition of the use of surface gillnets, one of the main fishing gears for artisanal fishers, 2) the initiative of a young fisher, who assumed the role of President of the association, 3) the return of Petrobrás to the community to build the promised *rancho de pesca* (building to store canoes and fishing gears), as part of the legal compensation for oil and gas extraction, and 4) capacity building courses provided by a consultancy (FUNDESPA) hired by Petrobrás, where as part of the course, fishers had to negotiate the rules of use of the new *rancho de pesca*. Moreover, some fishers mentioned that the focus groups conducted in this research project had led to discussion among fishers regarding the benefits of getting organized and fighting for fishing rights, even before the mentioned fishing gear was forbidden and Petrobrás returned to effetely start the compensation process.

The question of if and how the fisher's association will sustain itself is an important topic for further research. If on the one hand, it may have spurred a fundamental shift in fisher attitudes towards engagement, where they no longer "remain in silence", or cope with their lack of voice in decision-making processes that impact their livelihoods. On the other hand, the fact that the Fisher's Association was activated primarily in response to the banning of surface gillnets may indicate the effort will dissipate as time passes and anger subsides. In any case, it does suggest that the social capital held by community members, mainly manifested as kinship ties and informal linkages, is a latent asset that can potentially be accessed in times of crisis.

#### **5.2.5. Resilience across multiple levels and within levels**

Resilience at different social levels (individual, household and community) functioned both independently from each other, but also in overlapping ways. Many shocks or stresses that affected the community level also affected, to some degree, households and individuals.

Examples include environmental policies, pollution, crime and the shifts in tourism. However, there were also shocks and stresses particular to specific groups, frequently more vulnerable ones, such as trawler fishers and households lacking extended families in the community.

Still, it is essential to emphasize that the boundaries between levels, at least in this study context, were often hard to define. Households are made of individuals, and part of communities. Therefore, I recognize the risk of over simplifying the data by separating levels. Nevertheless, contemplating resilience at multiple levels allows for understanding more critically the consequences of diverse drivers of change, originating at different levels, for different individuals, households, and for the fishing community. Approaching resilience at multiple levels gives the researcher diverse tools, derived from interdisciplinary fields, for deeper analysis of how change impacts different actors over time.

The current economic/political crisis in Brazil (2014-ongoing) is a good example of a higher-level shock, in this case at the national level, which has percolated down through all social levels including states, municipalities, and the three levels approached in this study. While the crisis had the potential to threaten tourism as a source of income for the community, the short-term consequences have been relatively unexpected in that they have been generally positive. As pointed by participants, the 2015/2016 high season was busier, and more crowded with tourists, when compared to the past couple years. Participants explained that such a phenomenon was in large part due to the influx of tourists who would typically travel abroad (e.g. to the Caribbean, or to the USA) or to farther corners of Brazil, but instead chose to stay in the country and explore the nearby São Paulo and Rio de Janeiro coasts. Traveling abroad was extremely costly due to the poor performance of the Brazilian Real against the dollar.

Nevertheless, the long-term effects of the crisis, which has no indication of disappearing any time soon (Brazil is going through political upheaval as of 2017, with the new President and Parliamentary leaders being accused of corruption) will potentially result in most extemporaneous travel and leisure, even amongst well-to-do travelers, diminished as citizenry find themselves in vulnerable economic conditions. As is often the case with tourism, the volatility of vacationers in Lázaro has placed a cloud of uncertainty over many families who have invested in tourism as an alternative for fishing livelihoods. This example demonstrates how a higher-level shock cascades all the way down to households and individuals, affecting all levels of our panarchy.

The different levels approached in this study presented many varying degrees, or shades, of resilience depending on the shock, stress or opportunity approached. For example, lack of resilience at individual levels did not necessarily translate into lack of household resilience, even when it affected the “head” of the family. This is best represented in the case where a fisher suffered from alcoholism, yet the household responded with strength due to the wife’s resilient response at the moment. In this case, while one household member, the husband, faced challenges responding in a positive way to an adversity in his life, and subsequently lacked individual resilience capacity, the wife remained incredibly resilient and provided for the whole family. Same household, different individual responses, and therefore varying resilience processes.

Household resilience varied as well, but to a lesser degree. By this I mean that all participant households have managed to remain in the community and kept fishing as part of their livelihood strategy, as opposed to many others Caiçaras that out migrated to the downtown Ubatuba area, or larger regional cities. Moreover, despite clear wealth and standards-of-living differences, all households surveyed reported no food insecurity. Even with diminished fish abundance, and rights to access important fish stocks curtailed,

participants still reported considerable availability of fishing resources, which coupled with kinship ties and food-sharing systems appeared to have an important role in maintaining food security for many households. More generally, basic needs such as shelter, health care, and safe drinking water were reported accessible by all participants. While non-existent in the past, children and youth currently also have access to relatively good public school and daycare facilities within the community.

Yet, some groups demonstrated to have less capacity to take advantage of tourism activities, such as those with no extended families within the community, and those households that kept fishing as their primary source of income (mainly trawler fishers). Therefore, flexibility in combining livelihood strategies, diversification of activities, and women's contributions to household income showed to be key aspects of a resilient household. Still, social stratification has increased, social capital decreased, and community resilience (as in the ability to mobilize community resources for a common goal) was demonstrated to be quite low.

### **5.3. Discussion**

#### **5.3.1. Resilience 'of whom, to what'?**

SES resilience is an incomplete concept if not merged with strong social analysis. This study demonstrated that a macro system's analysis would inevitably ignore how change affects individuals and households, within a community, in different ways. Leach (2008) and others have too questioned the inadequacy of a systems-level analysis of resilience, where resilience has often failed to ask 'of what', 'for whom' or 'of whom'.

This thesis focuses on the question of resilience 'of whom' (individuals, households and fishing community) to identified shocks, stresses and new opportunities ('to what'). By doing so, my findings leads to strong agreement with Béné et al. (2014) that resilience "is not

a pro-poor concept, in the sense that it does not exclusively apply to, or benefit, the poor.” In the case of this study, once political interests turned to tourism in the municipality, local’s needs were disregarded in favour of real state speculation, and conservation for ecosystem resilience. In this new reality, the families that were capable of resisting the pressures posed by real state speculation were capable of staying in the community. Yet, within these households, those that had more land, extended families in the study area, and had sufficient financial resources were capable of re-tooling themselves and take advantage of tourism as a new source of income. Others that kept fishing as the primary activity faced in large part negative consequences to their livelihood from development. As Islam and Chuenpagdee (2013) found in a study on mangrove fishing communities in Bangladesh, better off households employ more effective resilience strategies as compared to more vulnerable ones.

I argue that before developing policies to improve the resilience capacity amongst the poorest households, there is a need to first focus on ways of identifying and reducing vulnerabilities, and second on understanding what are the adaptation trajectories that fishers and their households would like to pursue. In Ubatuba, unless fisheries policies aim for solutions to improve the wellbeing for the (often poorest) trawler fishers, social stratification and marginalization (of the already marginalized full-time fishers) will likely continue to increase. In this context, the consequences of maladaptation can go beyond the household level; with risks of affecting the whole community by continuing to erode social capital, which could potentially be one of the main assets for less privileged households in times of crisis.

“Social capital is a resource for action” and “lie with ‘relations’ and the benefits that arise from these relations” (Trimble, 2013:30). Social capital is inevitably dependent upon the interactions and relationships between people. Lacking extended families in the community often meant those households were more vulnerable and less prepared to deal with social,

environmental and economic changes. If community cohesion were stronger, networks of support would predictably also be strengthened, as the lack of community cohesion leaves the community as a whole more vulnerable to larger shocks, such as high criminality, the consequences of polluted sea waters on high-end tourism, or fisher's lack of voice in fisheries management decision making. Stronger community cohesion could assist community members' efforts to claim more security and policing, and/or a re-engineered public sewage system, either of which would likely have positive impacts on tourism and initiate a positive-feedback loop for the whole of the community. Moreover, fishers' commitment to maintain an active Fisher Association could benefit all, as fishers would likely have more voice, and systems of support would transcend extended family levels.

Approaching resilience in a normative way, and therefore highlighting the need to maintain a system in a 'status quo', may imply reinforcing existing power unbalances (Brown, 2016). As noted, households that retained fishing as their main source of income, which we can consider 'the most resilient' ones following the ecological definition of resilience (as maintaining the same basic structure and function), happened to also be the most vulnerable. In other words, the most resilient (full time fishers) participants were also the most vulnerable (poorest and more marginalized). In fact, the households that were able to transform some aspects of their livelihoods (e.g. women engaging in paid jobs), while maintain others (e.g. fishing activities), demonstrated to be the ones better apt to respond to social-ecological changes.

### **5.3.2. Resilience: Is it about resisting, adapting or transforming?**

Resilience literature tends to consider adaptability and transformability as opposite concepts (Walker et al., 2004). The idea of resilience as "bouncing back", or "maintaining the same structure and identity" works counter to major changes or transformation (Brown,

2014). Indeed, at first the two concepts might seem antagonistic. However, this study illustrates that it is essential to include adaptation and transformation as both integrated phenomenon occurring simultaneously when addressing multi-level resilience. This furthers Brown's (2014: 112) position that: "The key to this (apparently counterintuitive) relationship between transformation and adaptation is cross scale dynamics."

In the study area, as coastal communities along the highway corridor participated in rapid transformation from a subsistence-based economy to a tourism-orientated one, livelihoods were required to, at the same time, persist, adapt and transform in order to respond to change and adjust to a new way of life. For example, at the household level, while many men have *persisted* in fisheries by *adapting* their knowledge and skills in order to diversify activities to include tourism as a income source (e.g. becoming a hired captain), women began engaging in wage labor (e.g. working as housekeepers, in the local markets, or in business in downtown Ubatuba), and therefore *transformed* significantly their previous day-to-day routines. In fact, many fishers themselves adapted and transformed their lifestyles to accommodate the new lifestyle. As hired captains, for example, fishers had to expand their skillset to interact with a different public and accept the loss of 'being their own boss,' a defining characteristic of a fisher as they often point out. These strategies together allowed households to resist the pressures of outmigration and maintain fishing as part of their livelihoods. Therefore, when looking at specific levels, as well as multiple levels, as stressed by the concept of panarchy (Gunderson and Holling, 2002), it becomes clear that all three phenomena (persistency, adaptation and transformation) were frequently taking place simultaneously in Lázaro and Saco da Ribeira.

Additionally, the same livelihood strategy may translate into a short-term coping mechanism for one individual or household, or a long-term adaptation response, or even transformation, for another individual or household (Béné, 2014). This showed to be the case

for women engaging in wage labor. While some female participants saw it as a coping mechanism (they would rather only work from home and did not desire to maintain their paid jobs long-term), others viewed it as an opportunity for empowerment, and had no intention to stop working out of the home. In fact, in this study, I found that some female participants felt their freedom of choice was constrained and were overwhelmed by reconciling home-life with paid jobs. This finding has also been observed in small-scale agriculture families, where women play significant roles in household resilience. In rural Australia, for example, by working on and off the farm, women's paid jobs allow men to remain farming. However, in the process, women most often prioritize household needs in place of their own (Alston, 2006).

These data illustrate that in the face of the complexities of social systems, resilience analysis is a multifaceted and dynamic process, where separating persistency, adaptability and transformability becomes difficult, if not impossible. Folke et al. (2010:20) claims "transformational change at smaller scales enables resilience at larger scales." We could also agree that transformational change at smaller scales enables *adaptation* at larger scales, and vice versa. In sum, persistence, adaptation and transformation may all be required for small-scale fishers and their communities' resilience. Recently, Bené et al. (2014) suggests a new conceptualization of resilience where absorptive, adaptive and transformative capacities are all included as a continuum in resilience thinking; my findings strongly supports their proposal.

### **5.3.3. The role of human agency and structures allowing resilience to take place**

A system approach to resilience also risks overlooking human agency. Human agency has been applied to both individual and group levels, referring to people's abilities to negotiate and make decisions impacting their lives, including those related to adaptation and

transformation strategies in response to change (Berkes and Ross, 2013; Brown and Westaway, 2011; Coulthard, 2012). Important attributes of individuals with higher human agency include autonomy and a felt freedom of choice (Lister, 2004). Therefore, agency relates to how able people are to direct their own livelihoods in the face of change, and consequently manage their own resilience (Béné et al., 2014). Berkes and Ross (2013) consider “adaptive capacity as a latent property, which can be achieved when people exercise their agency.” By approaching resilience at social levels, and focusing on the *capacity* of individuals, households and communities to respond to shocks/stresses and prepare for future uncertainty, we are implying that resilience is about human agency.

At this angle, seeking organization in order to become an agent of ones’ own life is ultimately an act of empowerment (Jentoft, 2007). Magis (2010: 401) states that community resilience requires the “‘existence, development and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability and surprise”. Community resilience is therefore dependent on the agency of a group of people working for a communal goal. Community action requires self-organization, problem solving, negotiations, and collective agency (Berkes and Ross, 2013, Brown and Westaway 2011; Magis 2010, Kulig et al., 2010; Wilson 2012). In Lázaro and Saco da Ribeira, until very recently, the fishing community seemed to lack important resilient features, as there was a lack of community level action.

As expressed in focus group discussions, fishers reaffirmed the generally held view by most that “we are small; we have no voice.” This common sentiment expresses a sense of victimization of institutional structures and power imbalances that strip freedom of choice, and therefore, agency to inform the directions of their own resilience pathway. Nevertheless, the community of fishers has recently engaged in the re-activated Fisher Association, indicating that kinship ties, and social capital, can be accessed and translated into community

action in times of crisis (see Box 1). I would agree, therefore, that community resilience, just as individual resilience, is domain-specific and varies over time, and that social capital can be a latent asset, even in communities where community action is seemingly absent.

#### **5.4. Concluding remarks and policy implications**

Besides the analysis of resilience at three levels (individual, household and community), it is essential to understand how institutions themselves are resilient to change, including day-to-day rules and norms that govern society, as well as more usual notions of formal institutions (Adger, 2000). A central tenet of livelihoods resilience is the presence of flexible institutions (formal and informal) and policies (Badjeck et al., 2010). Consequently, livelihoods resilience also requires flexibility from higher levels of decision-making.

Aside from recent discourse about participatory processes in fisheries management in Brazil (Bockstael et al, 2016), the top-down history of decision-making in the study area has established a pattern of distrust between stakeholders and government agencies. This challenge will require sincere dedication from management institutions to overcome. Environmental agencies, such as IBAMA, would have to commit time, human resources and persistent devotion to construct a relationship of trust and respect with Caiçara fishers. After decades of being excluded from decision-making and worse, marginalized by environmental policies, it is folly to believe that such a deep-mistrust can be solved with a few meetings, particularly in their favored format (see Trimble et al. 2014).

Fishers in the area are known for their hesitation to participate in meetings with government, which they believe is ultimately a waste of their time and will produce little in tangible benefits (Trimble et al., 2014). Additionally, as opposed to government staff who are being paid to coordinate and attend such meetings, fishers are not just missing a day of work and the income from it, but normally also investing money and time to travel to the meeting

location. Meetings are rarely, if ever, in the communities where fishers live. Finally, as I will discuss in Chapter 7, there are also cultural barriers to fishers' engagement in governance, or lack thereof, that surfaced in this research.

This brings us to conclude that co-management, in the context of many Caiçara fishing communities, including Lázaro e Saco da Ribeira, is as yet unattainable. Before participation can be achieved, there is a need for fundamental changes in how fishers and environmental agencies relate to one another. In the meantime, alternatives to the dominant format of co-management proposed by participation and shared responsibilities between resources users, other stakeholders and government, needs to be pursued.

Additionally, despite the clear importance of human agency in resilience processes, empowerment of local communities to exercise their power as agents is rarely (if ever) the emphasis of policy approaches and development initiatives (Gough and McGregor, 2007). While resilience theory is criticized for not considering the role of agency, one of the main criticisms of the livelihoods approach is the stress placed on human agency in livelihoods resilience processes, and the subsequent blindness to the role of structure and power in constraining peoples' freedom of choice and room for maneuvering (Gough and McGregor, 2007). These structures include formal (e.g. fisheries top-down management, and inclusion policies), and informal institutions, such as patterns of behaviour that decreases fishers', as a group, agency as in the lack of organization and cohesion within the fishing community.

Finally, I would like to quote Gunderson and Holling (2002:417) in their influential 'Panarchy' book: "Natural incentives can end up trapping a community of experts into a bad basin of attraction that is perversely resilient to the introduction of potentially useful alternative points of view". Despite recognizing the remarkable contributions of SES resilience literature for natural resources management, it is vital to be aware of its inability to address the complexity of social systems dynamics. As argued by Béné et al. (2014):

“households can be very poor and very resilient. In fact, we would argue that the chronic poor are (by definition) very resilient—to be able to survive, a homeless person in the streets of Kolkata or Lagos has to be resilient. But clearly what these chronic poor need is not more resilience, but less poverty and less marginalisation.”

As noted, one of the main criticisms of resilience is its failure to address the roles of agency and of power allowing or constraining adaptation for poor people (Béné et al., 2014; Leach, 2008; Davidson, 2010). Rather than an either-or approach, I would like to close the chapter by suggesting the social wellbeing approach as one that helps to fill a major gap in resilience theory by addressing responses to change according to what people value doing and being, or, in other words, how understandings of what it means to live well informs fisher behaviour, including resilience strategies, in times of change (Armitage et al., 2012; Couthard, 2012).

## **CHAPTER 6. SOCIAL WELLBEING, CULTURAL IDENTITY AND VALUES**

### **6.1. Introduction**

The aspirations and values underpinning perceptions of what it means to live well are highly diverse depending on individuals and groups (Narayan, et al., 2000, Gough and McGregor, 2007). The Social Wellbeing framework acknowledges this diversity by taking a three-dimensional approach where a “relational” dimension is added to the previously economic-binary view described solely by subjective and objective aspects of wellbeing (Weeratunge et al., 2013). The framework considers relations at several social levels including household (e.g. family and gender dynamics), community (e.g. informal roles and institutions, forms of collective action, cultural identities) and, more broadly, society and the state (Britton and Coulthard, 2012). Therefore, the framework highlights the importance of relationships, while recognizing that wellbeing is, by definition, a subjective concept. As White (2008) emphasizes, the means and perceptions of both material and relational dimensions are largely influenced by subjective interpretations and evaluations of what matters for different people to live well.

In this chapter, I adopt a Social Wellbeing lens to better understand aspects of what is important for Caiçara fishers, and their wives, to live a fulfilling life. The chapter relates to the thesis objective four and five: 4) To evaluate participants’ aspirations, priorities, and satisfaction levels in terms of material, subjective and relational wellbeing; and 5) To understand how wellbeing understandings are influenced by cultural identities and values.

The chapter is organized by first presenting an introduction (current section), followed by the results section (6.2.), which is further divided by: 1) the data found on the material dimension of wellbeing, collected mainly during the household surveys phase (presenting a more wide-ranging scope, approaching overall household quality of life, rather than individuals’ wellbeing); 2) individual perceptions regarding important wellbeing areas, as

classified by participants themselves through the Global Person Generated Index; 3) an overview of participant's relationships gathered through the relational landscape method (Coulthard et al., 2015); and 4) the barriers and challenges for the fishing community to live the life they find reason to value, with a focus on vulnerabilities and constraints to freedoms.

Section 6.3 presents the Discussion section, where I explore the main research findings and how it relates to the literature on wellbeing in fishing cultures more generally. Further, I attempt to contextualize my results within the Social Wellbeing framework and discuss how identity and core values of the Caiçara culture shape different understandings of wellbeing. The chapter's discussion section places particular emphasis in two subjects identified as fundamental for participant's relationships: religion and family. These aspects were previously identified in Chapter 5 as matters to be re-visited here. Religion and family dynamics are the de facto support networks, having shifted from the broader community level to extended families and church circles in the face of economic development, growing population (including non-Caiçaras) and social stratification (see Chapter 5). Finally, Section 6.4 closes the chapter with concluding remarks and policy implications.

## **6.2. Results**

### **6.2.1. Household quality of life: material resources and needs**

The material dimension of wellbeing identified resources, or assets, important for households to meet their family needs. During the household surveys, general information such as boat and gear-ownership, fishers' working regime, target species, household composition and education levels were approached. These data are presented in Chapter 4 (Community and participant's profiles). Additionally, the household surveys addressed households' overall wellbeing rates, as well as how participants rated their own household's quality of life compared to other fishing households living in the community. In this section, I

specifically emphasize the data directly related to wellbeing gathered during the household surveys.

Nearly all participants rated their household life quality as *good* or *very good* (Figure 6.1), demonstrating a generally high level of perceived wellbeing. Further, interviewees were asked to rank their household's current wellbeing situation as: *better*, *average*, or *worse*, when compared to other fishing households in the community (Figure 6.2.).

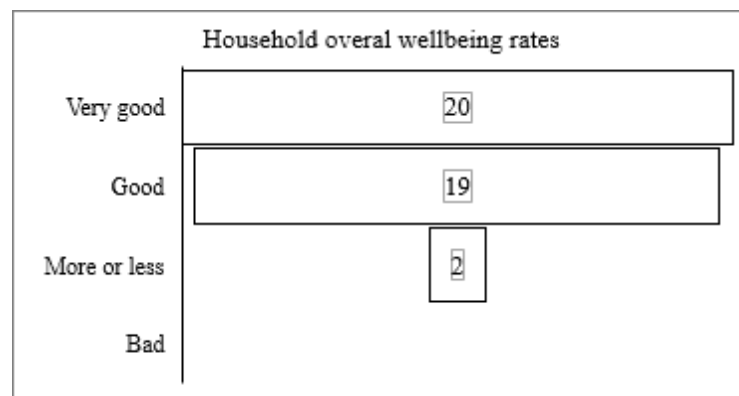


Figure 6.1. General household wellbeing rates. Total 41 households.

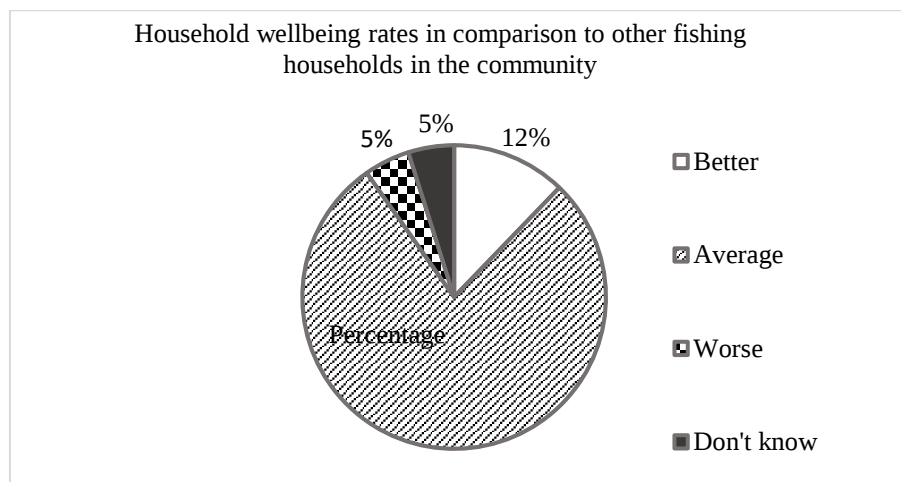


Figure 6.2. Participants' perceptions of their household quality of life when compared to other fishing households. Total 41 households.

A notable finding that surfaced from these questions was the fact that most participants (78%) rated their wellbeing as '*average*' as compared to other fishing households living in the community. This data is particularly interesting due to clear differences observed regarding material possessions and financial assets between different fishing households in

the community. For example, Figure 6.3. illustrates differences in fishing household's infrastructure (such as having a ceiling vs exposed rafters, cement floors vs ceramic tiled floors, number of rooms and bedrooms, owning a freezer, etc.). Other differences with regard to material assets included land, boat and gear ownership, as well as levels of education (see Chapters 4 and 5).



Figure 6.3. Fishing households. The photos demonstrate examples of differences in housing among participants' households. In the top and bottom left photos, the houses have ceilings and tiled floors. These houses belong to some of the better-off fishers in the community. The top and bottom right photos illustrate houses with exposed rafters and cement floors and unpainted walls, the top right being one of the smallest houses in the community, belonging to a trawler fisher.

Of the five participants who rated their household wellbeing as “better” in comparison to others, three were hired captains (or “*marinheiros*”) for yacht owners, and two were elder and retired fishers. All five belonged to traditional family lineages (which have

been in the community for at least four generations). These participants were also part of financially ‘better-off’ families. Four of the five participants associated their better conditions to higher incomes. As explained by a female participant, land and a secure source of income are central for a more secure livelihood:

“We got land from my husband’s father, and my husband is a hired captain (“*marinheiro*”). His [husband’s] salary is very good, “*marinheiros*” get well paid here. Not many fishers can make that much money nowadays, and fishing income is never certain.”

The two participants that rated their household wellbeing as “worse” relative to other households were both trawler fishers; one did not have extended family living in the community, and both had faced or were currently facing substance abuse challenges. These were also the two participants that rated their household wellbeing satisfaction as “*more or less*”:

“We [my family] could be way better today. I spent a lot of money drinking in the past. Ah, how I regret my past mistakes... I did make a lot of money fishing, but spent it all. We could have had land, our own house, more education for our kids... That is why my family is not doing better today. Fishing is not the same nowadays, you know? I lost my opportunity.”

The issue of substance abuse within the fishing community will be re-visited further in this chapter. The main point to highlight here is that despite significant variation in households’ material resources, there is a generally perceived sense that Caiçara fishers’ households share similar wellbeing conditions, with the exception of the examples given above. The fact that most participants choose the ‘*average*’ rating option reflects the importance of the fishing lifestyle and of cultural identities in defining how wellbeing is perceived in the community, as much or more than material wellbeing.

As a way of further exploring what participants viewed as important for their household overall material wellbeing, the question: “*what would be your three investment*

*priorities if your household had more money?”* was asked during the household survey. The most cited investments related to:

**1<sup>st</sup> priorities:**

- a) Housing infrastructure (mainly ceiling and floor improvements);
- b) Buying land and constructing a second house to rent, and
- c) buying new boats and fishing gear.

**2<sup>nd</sup> priorities:**

- d) Investing in higher education for sons and daughters, and
- e) Paying down debts.

**3<sup>rd</sup> priorities:**

- f) Buying a car, and
- g) Traveling and entertainment.

A thought-provoking outcome of this question was the absence of a declared 3<sup>rd</sup> investment priority for many participants. Only 39% (16 out of 41) of household survey participants shared a 3<sup>rd</sup> priority. Answers such as: “That is all,” or “I can’t think of anything else right now” or “I do not need anything else,” were commonly given. This data reflects, to some extent, how Caiçara fishers perceive material wellbeing, and what their needs are, or aren’t as it were. Many fishers indeed conditioned that money is important for their wellbeing only to the extent that it satisfies their basic needs. Other values, such as being healthy, family togetherness, faith and religion, and freedom demonstrated to have more central importance for wellbeing, as I will demonstrate in the coming section.

Finally, perceived material needs overlapped greatly with the household assets required for better responding to change (see Chapter 5). For example, land and home ownership, possessing a second house to rent, having a passive source of income (such as rent or retirement), engaging with high-end tourism (e.g. being a hired captain) and being part of a local-traditional lineage demonstrated contributions to both household resilience and household material wellbeing.

### 6.2.2. Wellbeing priority areas: material, subjective and relational dimensions

A comparison of households' overall wellbeing with individual wellbeing demonstrated similarities, as well as significant differences. The graphics in Figure 6.4 illustrate that individual wellbeing, as with household wellbeing, was in large part rated highly ("very satisfied" or "satisfied"), with minor gender differences. However, through the more in-depth individual semi-structured interviews, significant nuances and differences in satisfaction levels depending on varying aspects of quality of life surfaced.

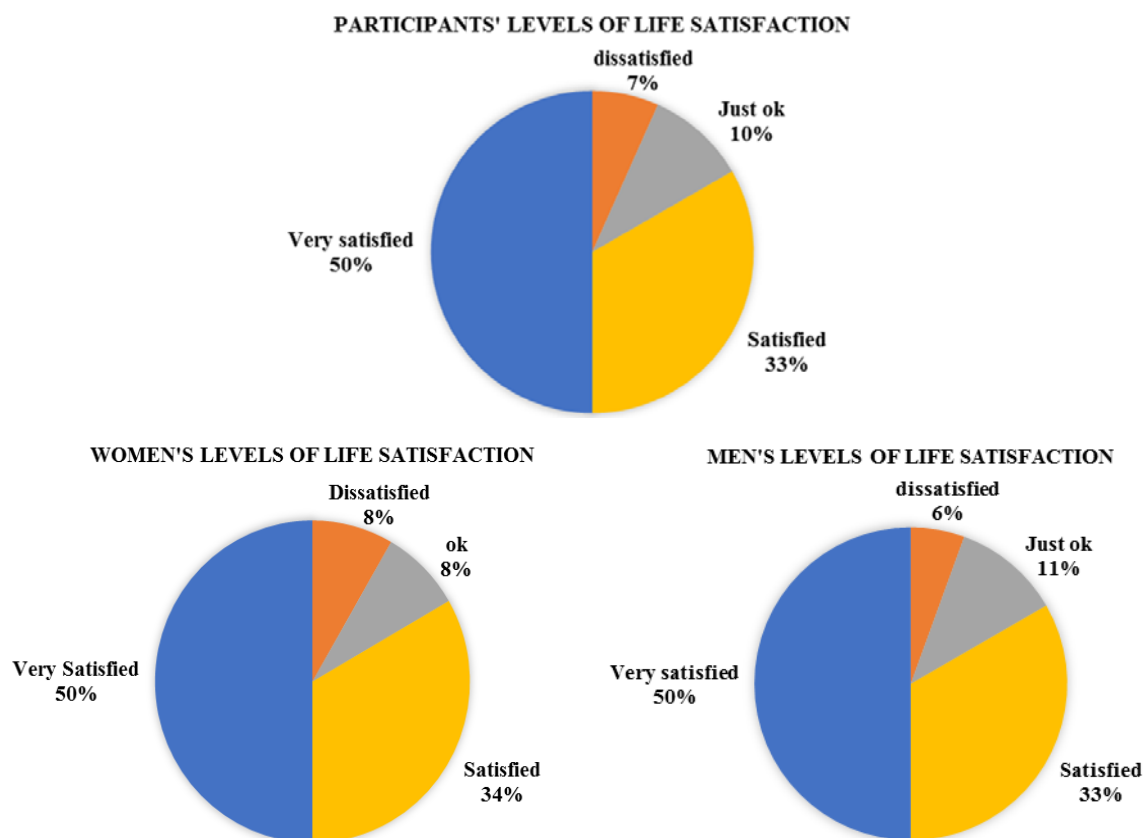


Figure 6.4. Life satisfaction levels, independent of gender (top) and by gender (bottom).

As part of the semi-structured interview, the Global Personal Generated Index (GPGI) assembled five areas, in order of importance (from 1st to 5th) considered by participants as the most relevant for their wellbeing. It also gathered participant's satisfaction levels in these self-selected areas. A quantitative analysis of the data allowed for the identification of

common areas. Table 6.2. presents all cited areas and their order of importance, grouped by gender.

Table 6.2. The most important wellbeing areas as rated by participants. Areas were classified according to their order of importance (1<sup>st</sup> to 5<sup>th</sup>), and differentiated by gender (F=female, M=male). Data presented in percentage of participants that mentioned each area. Total of 30 participants (12 women and 18 men).

|                          | 1st area |      | 2nd area |      | 3rd area |      | 4th area |      | 5th area |      | Total per gender |     | Total |
|--------------------------|----------|------|----------|------|----------|------|----------|------|----------|------|------------------|-----|-------|
|                          | F        | M    | F        | M    | F        | M    | F        | M    | F        | M    | F                | M   | F & M |
| Being healthy            | 25%      | 56%  | 33%      | 11%  | 17%      | 11%  | 0%       | 6%   | 0%       | 0%   | 75%              | 83% | 80%   |
| Money                    | 0%       | 6%   | 17%      | 22%  | 8%       | 17%  | 8%       | 6%   | 8%       | 11%  | 42%              | 61% | 53%   |
| God/Faith                | 42%      | 6%   | 0%       | 6%   | 0%       | 0%   | 8%       | 0%   | 25%      | 6%   | 75%              | 17% | 40%   |
| Freedom to fish          | 8%       | 6%   | 0%       | 0%   | 17%      | 6%   | 0%       | 17%  | 8%       | 11%  | 33%              | 39% | 37%   |
| Friends/neighbours       | 0%       | 0%   | 0%       | 0%   | 8%       | 6%   | 33%      | 17%  | 8%       | 6%   | 50%              | 28% | 37%   |
| Family (in general)      | 0%       | 0%   | 8%       | 11%  | 8%       | 6%   | 8%       | 6%   | 17%      | 6%   | 42%              | 28% | 33%   |
| Son/daughter doing well  | 8%       | 6%   | 8%       | 11%  | 0%       | 0%   | 8%       | 0%   | 17%      | 11%  | 42%              | 28% | 33%   |
| Relationship with spouse | 0%       | 11%  | 8%       | 6%   | 8%       | 0%   | 8%       | 17%  | 0%       | 0%   | 25%              | 33% | 30%   |
| Land/house ownership     | 0%       | 0%   | 0%       | 11%  | 0%       | 22%  | 0%       | 11%  | 0%       | 0%   | 0%               | 44% | 27%   |
| Job satisfaction         | 0%       | 6%   | 8%       | 11%  | 0%       | 11%  | 0%       | 0%   | 0%       | 6%   | 8%               | 33% | 23%   |
| Peace                    | 0%       | 0%   | 8%       | 0%   | 8%       | 6%   | 0%       | 6%   | 0%       | 0%   | 17%              | 11% | 13%   |
| Entertainment            | 0%       | 0%   | 8%       | 0%   | 0%       | 6%   | 8%       | 6%   | 0%       | 0%   | 17%              | 11% | 13%   |
| Being honest             | 8%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 6%   | 8%       | 0%   | 17%              | 6%  | 10%   |
| Freedom                  | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 8%       | 6%   | 0%       | 6%   | 8%               | 11% | 10%   |
| Owing a car              | 0%       | 0%   | 0%       | 0%   | 0%       | 6%   | 0%       | 0%   | 0%       | 11%  | 0%               | 17% | 10%   |
| Nature                   | 0%       | 0%   | 0%       | 0%   | 17%      | 0%   | 0%       | 0%   | 0%       | 0%   | 17%              | 0%  | 7%    |
| To help others           | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 8%       | 0%   | 0%       | 6%   | 8%               | 6%  | 7%    |
| Good food quality        | 0%       | 0%   | 0%       | 6%   | 0%       | 0%   | 0%       | 0%   | 0%       | 6%   | 0%               | 11% | 7%    |
| Love and affection       | 8%       | 0%   | 0%       | 0%   | 8%       | 0%   | 0%       | 0%   | 0%       | 0%   | 17%              | 0%  | 7%    |
| Did not mention          | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 8%       | 6%   | 8%               | 6%  | 7%    |
| Being humble             | 0%       | 6%   | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%               | 6%  | 3%    |
| Living a simple life     | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 6%   | 0%               | 6%  | 3%    |
| Formal education         | 0%       | 0%   | 0%       | 6%   | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%               | 6%  | 3%    |
| Sports and gym           | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 0%   | 0%       | 6%   | 0%               | 6%  | 3%    |
| Knowledge and skills     | 0%       | 0%   | 0%       | 0%   | 0%       | 6%   | 0%       | 0%   | 0%       | 0%   | 0%               | 6%  | 3%    |
| Total                    | 100%     | 100% | 100%     | 100% | 100%     | 100% | 100%     | 100% | 100%     | 100% | -                | -   | -     |

Figure 6.5. presents data from Table 6.2, in graphic form, showing wellbeing areas cited as relevant for participants, independent of their order of importance (1<sup>st</sup> to 5<sup>th</sup> area) or gender. Figures 6.6. presents the same data, grouped by gender, allowing for a first set of

analyses on data gathered through the GPGI. Again, the graphics present percentages of total numbers of citation per area, **independent** of the area's classified order of importance.

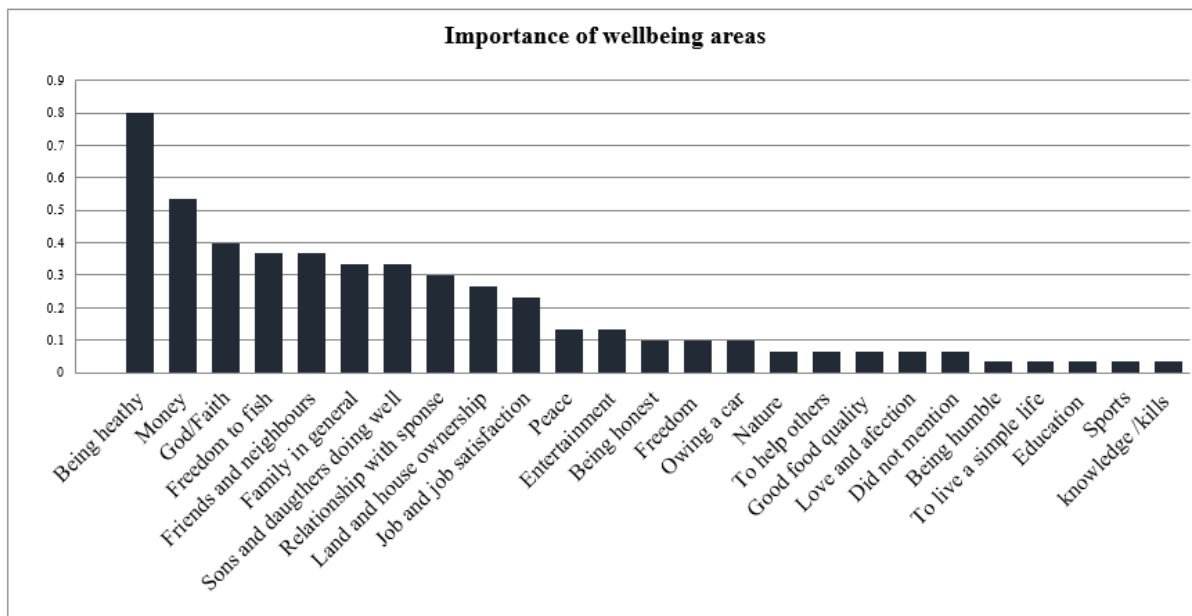


Figure 6.5. Importance of wellbeing areas independent of gender. Data presented in percentage. Total 30 participants.

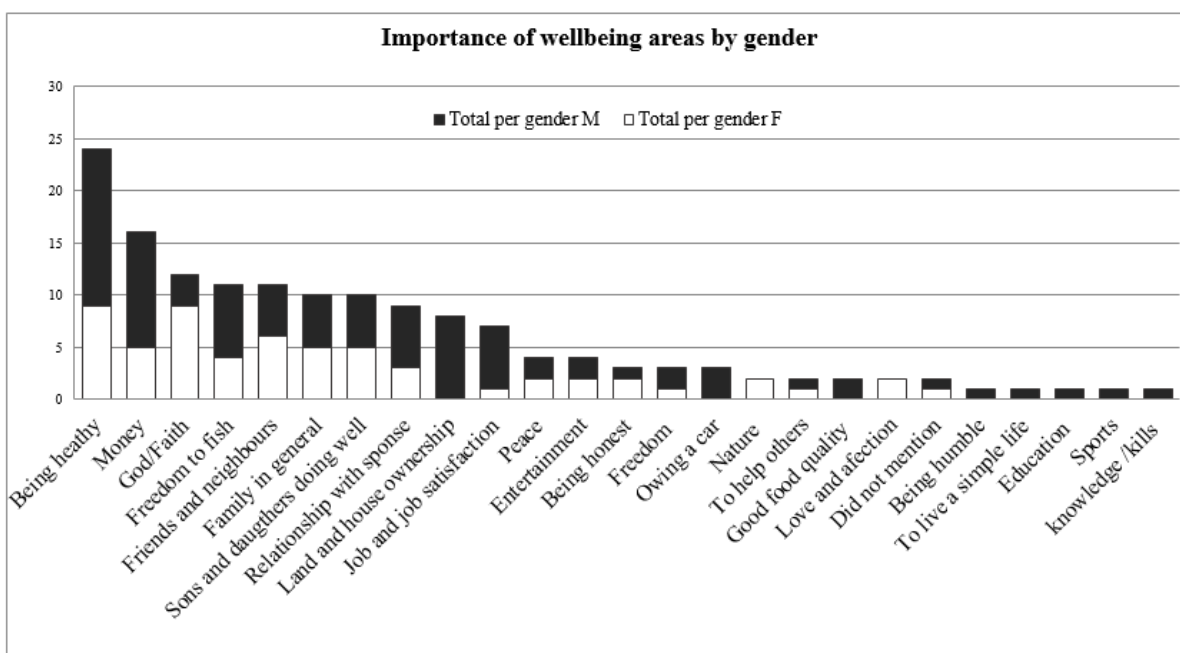


Figure 6.6. Important wellbeing areas by gender. Black represents males and white females. Total 30 participants (12 women and 18 men).

Some significant distinctions surfaced when comparing overall citations to citations by gender. A gender analysis revealed that for men the most prioritized areas (more than 30%

of participants cited it) were: “Being healthy,” “Money,” “Land and home ownership,” “Freedom to fish,” “Relationship with spouse” and “Job satisfaction.” For women, on the other hand, the prioritized areas were: “Being healthy,” “Faith and God,” “Friends and neighbors,” “Family (in general),” “Sons and daughters doing well,” “Money” and “Freedom to fish.”

Below I explore the ten most relevant areas mentioned as important for participants’ wellbeing, highlighting which of these demonstrated a more significant gender component. An analysis of how these areas were rated (from 1<sup>st</sup> to 5<sup>th</sup> in order of importance), and associated levels of satisfaction per area will also be elaborated. A *critical* point to emphasize is that *only* participants who mentioned a specific area further rated their levels of satisfaction with it. In other words, areas were only rated by individuals that mentioned them. For example, 40% of participants mentioned “God and Faith” as one of the five most important areas for their wellbeing. Therefore, the same 40% of participants then rated their levels of satisfaction with the “God and Faith” area as “excellent,” “good,” “ok,” “poor” or “bad.”

### ***I) Being Healthy***

The category “being healthy” was the most important area for participants’ wellbeing when analyzing the total number of citations per area (cited by 80% of participants). However, a gender oriented analysis made evident that men tended to value this category more than women. Men also gave “being healthy” a larger weight, as 56% of men considered it the most important component for their wellbeing, while for women, the “being healthy” area was more evenly spread between the 1<sup>st</sup> and 3<sup>rd</sup> areas in order of importance (Figure 6.7.).

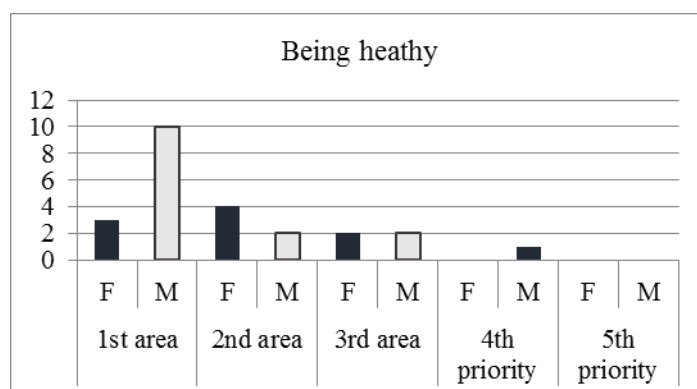


Figure 6.7. The “being healthy” area classified according to its order of importance (F=female, M=male).

An explanation given by a key male participant for this gender difference was that fishing is an activity that demands physical engagement, and therefore “being healthy” is essential for fishers’ day-to-day active routines. Another central point is that for many participants, “being healthy” meant more than just physical health, also incorporating components of mental health, including psychological and emotional features.

Indeed, fishing demonstrated significant contributions to fishers’ mental health and subjective wellbeing. This is explicit in the quote: “The waves wash our problems away.” As mentioned by many fishers during the semi-structured interviews, fishing and the pleasure of being at sea represented a source of relief from day-to-day struggles and stress reduction (Figure 6.8.).

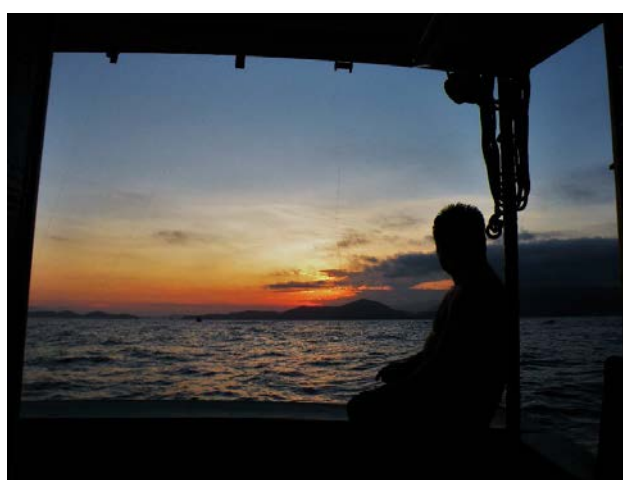


Figure 6.8. A Fisher pauses to contemplate the sunset as he navigates back home.

Figure 6.9. presents participants' levels of satisfaction with the "Being healthy" wellbeing area. Men (all fishers) generally scored the area as "Excellent" or "Good," with only 20% declaring it as "Ok." Women had more citations identifying with the "Ok" score when compared to men. No participant scored their level of satisfaction with the area as "Poor" or "Bad."

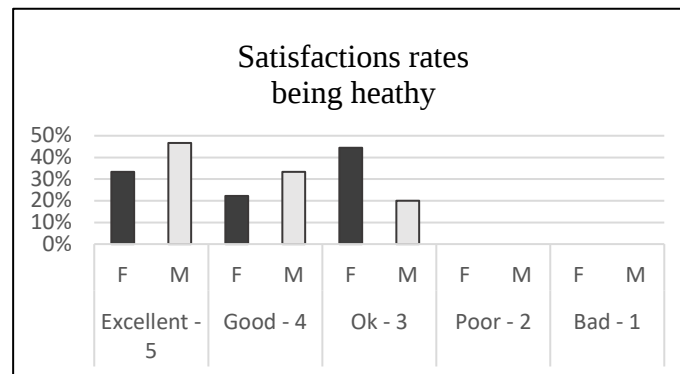


Figure 6.9. Levels of satisfaction of participants that cited "Being healthy" as one of the five most important areas for their wellbeing (F=female, M=male).

For the most part, participants that rated the "Being healthy" area as "Ok" were facing health problems at the time of the fieldwork, and typically related to advanced aging. One participant also attributed it to mental health conditions (depression). For minor health issues, the local clinic is considered by participants to function well, the clinic doctor being highly appreciated and respected by local residents. However, for more serious cases (such as laboratory tests, hospitalization, and surgeries) the municipal hospital is perceived as inadequate in providing quality care. Reasons often cited for this perception includes non-functional and poorly maintained equipment, insufficient staff availability and generally poor infrastructure. In the case of more serious treatments, locals reported having to travel to the neighbour municipality of Caraguatatuba, or to larger cities such as São Paulo or São José dos Campos. In this sense, levels of satisfaction also reflect the quality of health services in the community and municipality. Minor health issues were also dealt with by local healers. In particular, an elder couple (a fisher and his wife) and their daughter possessed a vast

knowledge of medicinal plants and were frequently visited for advice and healing requests by community members. According to the daughter:

“I know how to do many natural medicines, I learned with my parents, and I like it a lot. Lots of people come to me to ask for medicine for themselves and their kids... even their dogs! I help them, but I never ask for help myself, I figure it out for myself. It is my personality.”

## II) Money

At first, the research findings seemed to be contradictory in relation to the importance of money, as money was less valued in the household survey compared with the GPGI method. Yet, while the “Money” theme had general importance according to the frequency of citations, as demonstrated in Figure 6.5, only one participant classified it as the most important area for wellbeing. Moreover, the category was classified as the second most important by only four men and two women. Indeed, women, tended to value “money” less than men. Finally, the area was mentioned as one of the five most important wellbeing areas (independent of order of importance) by just over half of participants (Figure 6.10).

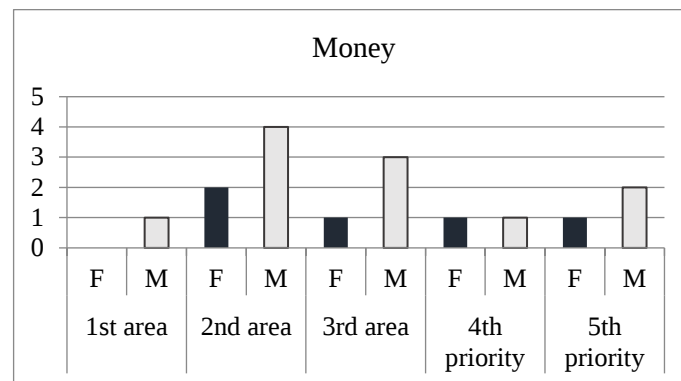


Figure 6.10. The “Money” area classified according to its order of importance (F=female, M=male).

The analyses on levels of satisfaction demonstrated that despite placing greater value on “Money”, men tended to be less satisfied with the area than women (Figure 6.11). Men declared their levels of satisfaction with “Money” primarily as “Ok,” and to a lesser extent

“Poor,” while women had the same numbers of citations for “Good” and “Ok”, while only 20% of women declared it as “poor.”



Figure 6.11. Levels of satisfaction among participants that cited “Money” as one of the five most important areas for their wellbeing (F=female, M=male).

This can potentially be explained by two factors, those being gender roles and the existence of social differentiation in the fishing community. Regarding gender, even as women were increasingly more engaged in paid jobs, men seemed to experience more pressure to provide financial security for the household. Therefore men tended to prioritize the area, as well as be less satisfied with it. As explained by a fisher, and his wife:

“My wife works, but the responsibility for paying our bills is mine. I appreciate her help, but that is a responsibility of the men.”

“I work because fishing is not enough to pay the monthly bills. But my husband is too proud to admit it. I would rather not have to, but we need the money, so I work as a housekeeper.”

Other seemingly contradictory data that emerged from the “money” area analysis was that while many participants declared money as important mainly as a means of meeting their basic needs, the levels of satisfaction within the category were not necessarily high (in spite of basic needs being met among most households interviewed). Therefore, while general levels of life satisfaction were high (for both men and women) as demonstrated earlier in Figure 5.5, more targeted questions about “money” gave a nuanced if not contradictory perspective.

However, it is important to remind readers that only participants who declared “Money” as one of the five areas with the most relevance for their wellbeing were then asked to rate their levels of satisfaction with it. Therefore, almost half of participants, those who did **not** declare “Money” as one of the five most important areas, are not represented in the satisfaction rating analysis for this area. In further exploring those individuals who declared their “Money” satisfaction levels as “Ok,” most of these ratings came from fishers who did not have alternative sources of income and were part of households composed by only one fisher, or a fisher and his (also fisher) son. In other words, lower levels of satisfaction with “Money” were common among individuals that had fishing as their sole source of income. Again, households that did not have extended families living in the community also tended to elect the “Money” area as important for their wellbeing, and present lower levels of satisfaction with it. Therefore, there is a strong indication that individuals experiencing harder financial circumstances were the ones relying primarily on fishing for income, and with weaker social community networks, as those individuals both tended to include “Money” as one of the most important areas for their wellbeing, as well as rated their levels of satisfaction as “Ok” or “Poor”.

Finally, retirement was considered an important income source for elder fishers (including many of the canoe fishers), as it represents a predictable income every month (while fisheries and even renting second houses are more uncertain sources of income). Therefore, fishers that previously depended only in fisheries, but are now retired, were not represented by the group that rated their satisfaction levels with money as “Ok” or “Poor”.

### III) *God and faith*

While the two first themes (“Being Healthy” and “Money”) had higher representation among men, the category “God and faith” was most frequently cited by women. In fact, 75% of women interviewed prioritized the area as important for their wellbeing, compared with only 17% of men. Moreover, almost half of the women interviewed elected “God and faith” as the most important area for their wellbeing as compared to a single male participant (Figure 6.12).

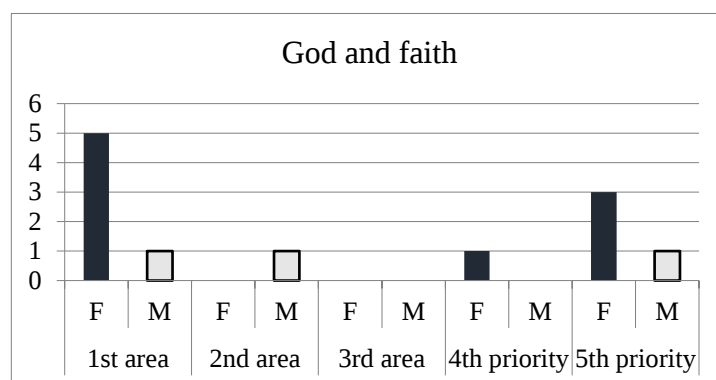


Figure 6.12. The “God and Faith” area classified due to its order of importance. F=female, M=male.

This data would seem to suggest that men did not necessarily value ‘God and Faith’ as an area of wellbeing. However, it is important to reaffirm that while an area may not be prioritized as one of the *five* most important areas for an individual’s wellbeing, such absence does not necessarily mean it is not valued by participants. The fact that the GPGI method only allows for the recognition of five areas must be acknowledged as a limitation for the identification of other possible important areas that do not necessarily surface in the method.

This is an important limitation for the “God and Faith” wellbeing area as noted through further examination by other methods in the field. In fact, the “relational landscape” method and several complementary questions made to participants during the semi-structured interviews, along with participant observation, suggested a strong relationship between Caiçara men and faith. Despite its higher significance for women, Caiçara people are, in

general, very spiritual and/or religious. Very common greetings in Caiçara culture include: “*Vai com Deus*” (Go with God), “*Fica com Deus*” (Stay with God), “*Se Deus quiser*” (If it is God’s will), and “*Com fé em Deus*” (With faith in God). These sentences were heard daily, independent of gender, in the study area. As a male fisher explained:

“Women are more dedicated to the church, but men have a lot of faith in God too. Fishers need faith: faith in God, and that he [God] will help us bringing home a good catch. If a good catch does not happen today, we need to have faith it will tomorrow, you know? He [God] also protect us at the sea.”

The importance of religion and spirituality for participants is also reflected by the general levels of satisfaction with the “God and faith” area, where 100% of women that cited the area declared their levels of satisfaction to be “excellent”, and men to be either “excellent” or “good” (Figure 6.13).

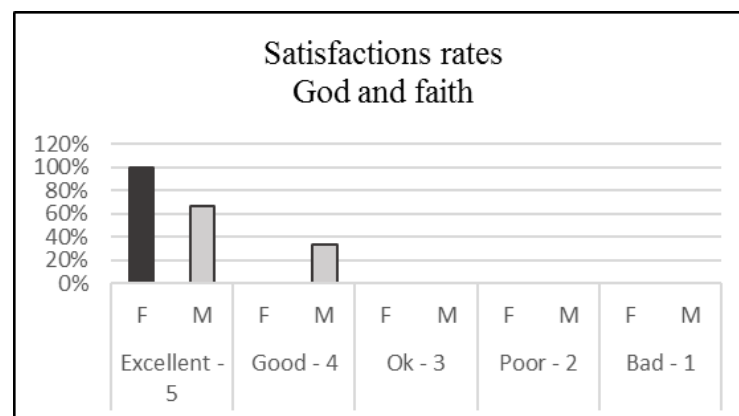


Figure 6.13. Levels of satisfaction among participants that cited “God and Faith” as one of the five most important areas for their wellbeing (F=female, M=male).

There were, at the time of the field work (2014-2015) four different churches in the community: one Catholic, and three evangelic. The role of churches is important to be acknowledged in terms of both subjective and relational wellbeing. A topic deeply discussed at the women’s focus group was the role of the church in enhancing subjective wellbeing for religious individuals and creating networks of support for members of the same churches, while compromising the quality of relationships at the broader fishing community. The

quotes below were part of the discussion on religion conducted during the women's focus group:

Participant 1 [1<sup>st</sup> Evangelic church]: "It used to be easier for us in the past. Today there is less union [in our community]."

Participant 2 [Catholic]: "I think religion contributed to that."

All participants [Catholic and Evangelic]: "Yes," "It is true," "I agree," "For sure!"

Participant 2 [Catholic]: "Yeah, it [religion] divided [the community] a lot. I feel it in my own skin, with my family. We used to have many festivities together, now that half of the family is evangelic, we do not get together on New Years and many holidays."

Participant 3 [from a 2<sup>nd</sup> Evangelic church]: "Yes, I was going to say that too, but thought it could cause problems [conflict]."

Participant 1 [Evangelic]: "We have no bad intention. It is the Church's teachings, and we follow it. We do not celebrate Saints' holidays."

Participant 2 [Catholic]: "Yes... but the truth is that it [religion] has divided people."

Participant 1 [Evangelic]: "I know, it is true."

Participant 3 [2<sup>nd</sup> Evangelic church]: "Yes, I think one of the main things that made union less strong here was the different churches. Because before, when there was just the Catholic one, every year there were parties, and everyone would go."

Participant 4 [1<sup>st</sup> Evangelic Church]: "Yes, but we have a very strong union inside our church nowadays. Our community is more focused on people from our church. We have faith in God and follow Jesus's words. It is our faith that unites us now."

Participant 5 [Catholic]: "Yes, evangelic people are more closed in their own communities, but they help each other more too [compared to Catholics]. Still, it is sad when your family is half Catholic, half evangelic, because they do not celebrate many things together."

This data suggests that the growth of religious diversity and participation in church life has had at least three distinct impacts, or roles, in the study area: 1) it has created smaller networks of support within like-church communities, 2) it has contributed significantly to the subjective wellbeing of religious individuals, and 3) it has weakened relationships at the broader community level. Moreover, the consequences of growing divergence in religious belief systems demonstrated an impact on relationships within extended family members (as illustrated in the focus group) and even within households:

“I wish my husband would join our church, but he resists it.”

“I respect my wife’s faith and her church, but she has to respect my choice of not going too, eh?”

#### **IV) Freedom to Fish**

Freedom, as a wellbeing area, frequently translated into freedom to fish. The area “Freedom to Fish” was expressed as one of the five most relevant for the wellbeing for nearly 40% of participants (Figure 6.14). Additionally, 10% of participants declared “Freedom” (in more general terms) to be essential for their wellbeing. As most fishers in the study area are men, higher number of citations were observed for men when compared to women. However, women also cited the area, some fisherwomen (3), and one wife of a fisherman.

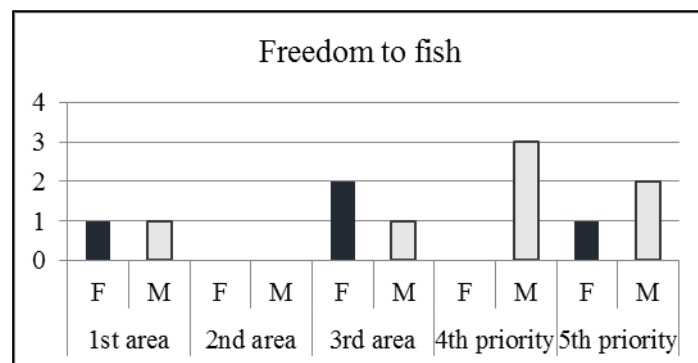


Figure 6.14. The “Freedom to Fish” area classified according to its order of importance (F=female, M=male).

Freedom, indeed, can be seen as more than an area relevant to wellbeing, but rather as a core value for the fishing community studied. Again, as observed through other methods, including informal conversation and focus group discussions, the fact that the area was not elected as one of the five most important wellbeing themes for 50% of participants does not imply that many of the participants, especially fishers, do not feel the constraints imposed by fisheries management in their day-to-day freedoms. The high levels of dissatisfaction with the area illustrates this point (Figure 6.15).

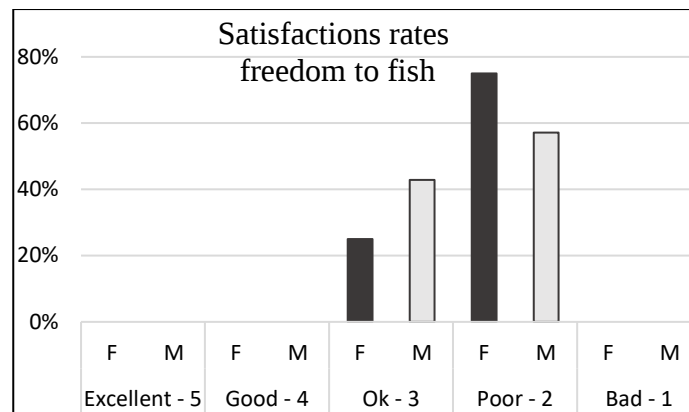


Figure 6.15. Levels of satisfaction among participants that cited “Freedom to Fish” as one of the five most important areas for their wellbeing (F=female, M=male).

Freedom to fish was the wellbeing area with lower satisfaction levels (“Ok,” and “Poor”), followed secondly by “Money.” Fishers’ frustrations with imposed limitations on their fishing activities are reflected by numerous quotes, including:

“Nowadays we fish with fear. We can’t fish here; we can’t use that net... We can’t go fishing when, where and how we want anymore. They [enforcement agents] control everything we do. I fish because I have been a fisher my whole life. If not, I would probably give up, you understand? They [Ibama] wants to extinct us; they do not care about artisanal fishers.”

A way of dealing with the issue of imposed fishing restrictions commonly mentioned during interviews and informal conversations was making the decision to fish illegally, particularly in the surroundings of the now-protected Anchieta Island:

“If they [Ibama] do not let me fish, I will “steal the fish” [fish illegally]. Not because I want to be an outlaw or a criminal, but simply because I am a fisher, and fishers fish. That is what we are, that is what we do.”

Illegal fishing is the primary ‘tool’ small-scale fishers use to ‘fight’ top-down management policies and conservation initiatives that do not respect their needs, as I will discuss in the next thesis chapter. Nevertheless, there are severe consequences for fishers if caught fishing illegally, such as arrest and loss of fishing gear, as mentioned previously. Furthermore, it results in the marginalization of small-scale local fishers more generally.

### V) Relationships with neighbours and friends

While the data showed men to have closer ties with fishing peers than with community members more generally, relations with neighbours and friends demonstrated to be central to women's wellbeing. Of women participants, 50% declared "relationships with neighbours and friends" as one of the five most important areas for their wellbeing. The same was declared by 28% of men. While participants commonly cited this wellbeing area, it rarely ranked higher than 4<sup>th</sup> in order of importance, men and women alike. Actually, it was never identified as a 1<sup>st</sup> or 2<sup>nd</sup> order area, and only two participants reported it as being a 3<sup>rd</sup> order area (Figure 6.16). Social cohesion, while remaining an important part of wellbeing for most participants, may be reflected in this data as trending downward with diminished community cohesion over recent decades, as presented in the previous thesis chapter (see section 5.2.4).

Still, relationships with friends and neighbours played important roles in the community in terms of kinship ties, including the sharing of fish, vegetables and fruits, looking after others' children and fishing together, as mentioned previously (see Chapter 5, section 5.2.3). Friendship ties also were declared important as emotional support in hard times, especially (but not exclusively) by women, who many admitted having concerns regarding their domestic lives that they could not share with family members, and thus friends were essential in this regard.

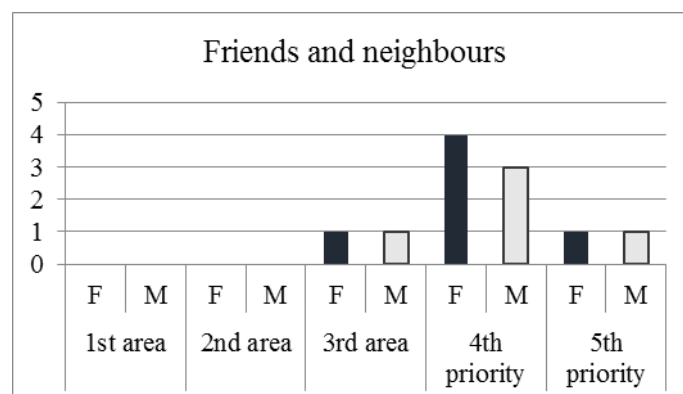


Figure 6.16. The "Friends and neighbours" area classified due to its order of importance (F=female, M=male).

For those participants who included “Friends and Neighbours” as one of the five most important areas, their levels of satisfaction varied (Figure 6.17). A strong trend that surfaced from this data was higher levels of satisfaction within members of extended families living in the community for many generations (normally for 3 or more generations), and lower levels of satisfaction within fishing families that were the first generation in the community. Indeed, participants that were not born in the community reported feeling a certain “clubish” mentality among local traditional families:

“The Caiçaras from here at first seem open to outsiders, they smile at you, say hi. But as you get to live here for some time, you learn that there is a difference. If you are not from here, and not part of one of the big families of Lázaro, you will never really be one of them. It is different, you understand? They will say: She is nice, but she is not a Caiçara from here, she was not born here.”

The fact that Caiçaras are open and at the same time closed to outsiders does not seem so contradictory when analyzing the history of the community. On one hand, a certain level of openness can be explained by the fact that the local economy now depends on tourism, and welcoming outsiders is essential for maintaining livelihoods. On the other hand, however, the loss of land, competition over natural resources, and ecosystem degradation are all attributed to the influx of both tourists and outside residents into the community.

Moreover, marriages between members of traditional extended families in the community were quite common and played a role in maintaining the stronger networks of support within the traditional local families. There were, at the time of the fieldwork, eight different extended families living in the community for more than three generations (normally 4 or 5). These families were, for the most, the Caiçaras that still held land in the study area, and that passed down land, boats, fishing knowledge and skills through generations.

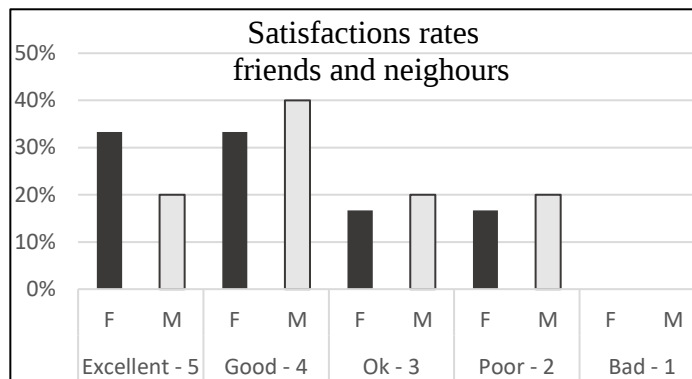


Figure 6.17. Levels of satisfaction among participants that cited “Friends and neighbours” as one of the five most important areas for their wellbeing (F=female, M=male).

## VI) Family

If considering the three categories related to family: “Family (in general)”, “Relationship with spouse”, and “Sons and daughters doing well” as one broad “Family” category, it then becomes the most cited area (independent of level of priority), as it outnumbers both “Being healthy” and “Money” areas in total number of citations (Figure 6.18.). Indeed, a directed analysis of numbers of individuals that considered some aspect of “Family” as one of the five most important areas for their individual wellbeing, results in a tally of more than 96% of participants.

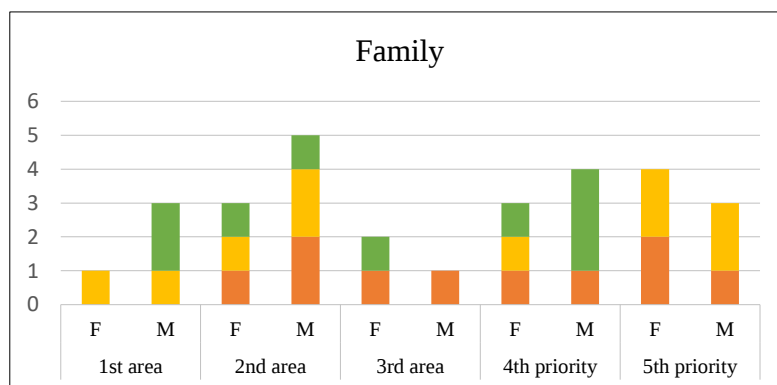


Figure 6.18. All areas related to “Family”: Colors represent different areas: a) yellow: “Sons and daughters doing well”, b) green: “Relationship with spouse”, and c) orange: “Family” (not specified).

The central role of the family unit, either represented as immediate family members or as extended family, accounts for a main core value for Caiçaras and an essential element of their wellbeing. Triangulation with other methods, such as the “Relational Landscape” confirmed, very clearly, this finding.

When approaching levels of satisfaction for the three categories related to family as separate areas, some interesting findings surfaced. While both men and women demonstrated high levels of satisfaction with “Family” as a general area, areas related to “Sons and daughters doing well”, and “Relationships with spouse”, showed that men tended to present higher levels of satisfaction in both areas compared to women (Figure 6.19). Participants identified indicators of “doing well,” for their young children and teenagers for activities such as attending school, earning good marks and not being involved with drugs, while for their young adult children, indicators of “doing well” included being “well-married,” having a job and decent income, and being good parents to their own children.

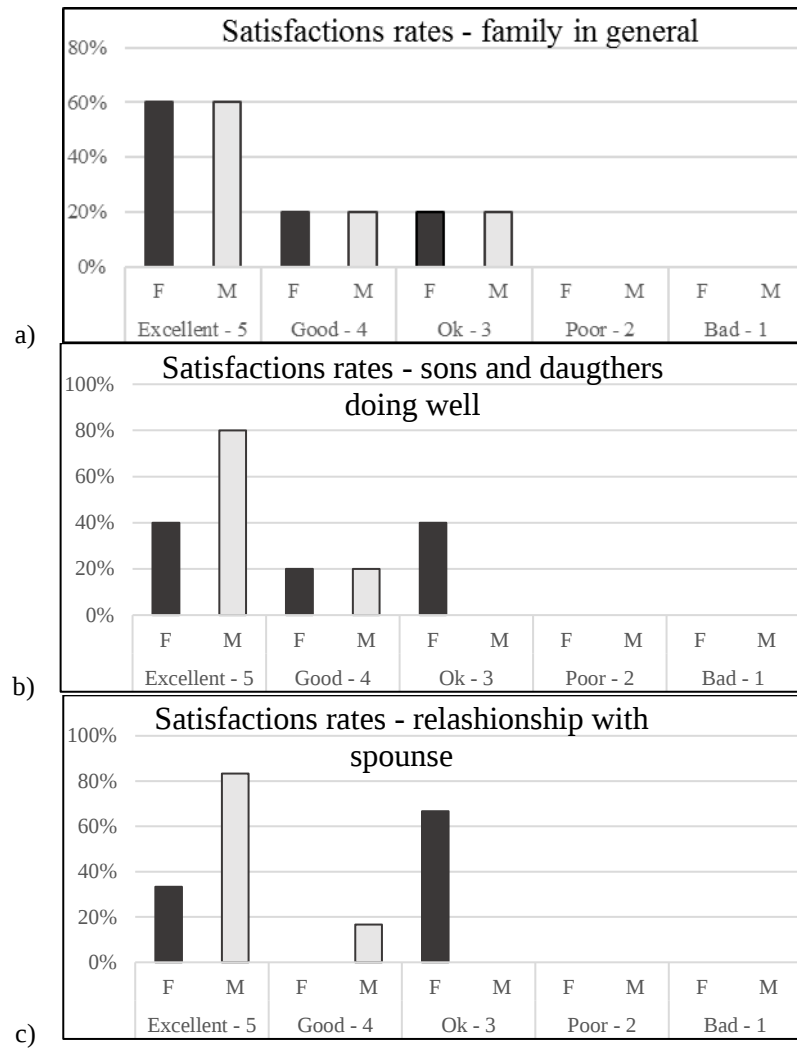


Figure: 6.19. Levels of satisfaction for participants that cited one or more categories related to “Family” as one of the five most important areas for their wellbeing. a) Refers to satisfaction levels with family in general (not specified), b) Satisfaction levels with sons and/or daughters doing well and c) Satisfaction levels with the spousal relationship (F=female, M=male).

An explanation, based on some women’s interviews, might be that mothers tended to have higher expectations for their children compared to men. Perhaps one reason is the perception, often held by men, of less need for formal education, and rather an emphasis on local knowledge, required for fishing activities. Some women also demonstrated greater anxiety over their children’s futures, as exemplified in the previous chapter, where data indicated that women tended to save money, while fishers found themselves more often in

“the present moment”. In effect, while women tended to be more concerned with the future of their children, men appeared more concerned with how they are doing currently.

Finally, the men that demonstrated higher levels of satisfaction with the category “Relationship with Spouse” where for the most part, elders who have engaged in larger scale fisheries in the past, and/or fishers that faced alcoholism issues in their younger years. For these men, being out of the family setting for long periods in their past lives as fishers, and having their wives and children patiently waiting for them back home, seemed to contribute to valuing their relationships with their wives nowadays:

“This woman is strong, you know? She stuck by my side through hard times. She forgave my absence, my drinking, and rudeness in the past, and I respect her for that!”

Nevertheless, elderly women struggled during these times; they shared memories of being insecure about when their husbands would be back home, their safety at the sea, if the income would be enough to fulfill their family needs, and furthermore having always to readapt to their presence and absence in the community:

“We were always waiting for him to come back, but I will admit to you, sometimes I couldn’t wait for him to leave to the sea again. He came home and thought he deserved to rest and did not realize how much work it was for me to stay inland with our seven kids.”

## ***VII) Land and house ownership***

Having land is a “big deal” among Caiçara fishing households in Lázaro and Saco da Ribeira. Historically, Caiçaras lost thousands of hectares of land in Ubatuba. The families that could keep land are usually very proud and attached to it. Currently, land is quite expensive in Ubatuba area, making it hard for many Caiçaras families to buy land, especially close to the coastline and with easy access to the sea.

Moreover, as presented in the previous chapter, owning and renting out a second house is generally perceived to be one of the best opportunities for taking advantage of tourism, as it makes for significant source of income during holidays and the high season.

Frequently, it is the income from renting a second house that provides fishers the financial security to maintain fishing activities throughout the year, even when catches are low. This is even more the case for households where women are not involved in paid jobs. Nevertheless, rental agreements, cleaning and preparing the rental for tourists, and managing the household budget are tasks largely conducted by fishers' wives.

The area “Land and house ownership” was cited as one of the five most important wellbeing areas by male participants only, and scored as the second, third, and fourth areas in order of importance (Figure 6.20).

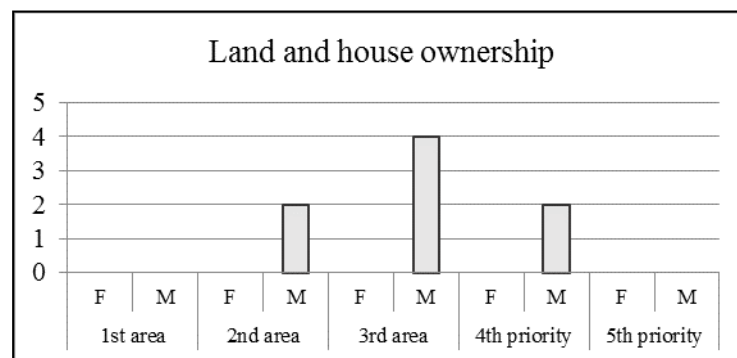


Figure 6.20. The “Land and house ownership” area classified due to its order of importance (F=female, M=male).

All male individuals who rated their levels of satisfaction as “Good” or “Excellent” were those that had land within the community (Figure 6.21). As demonstrated in the household wellbeing data, many participants had “buying land” as one of their main priorities if they had more money. Contrary to other categories, where individuals that mentioned a given wellbeing area were usually those that to some degree lacked it (e.g. in the “Money” area); here, having land was cited as a priority mostly by individuals that possessed land. This might be due to the history of land loss in the area, as mentioned in the start of this section, where “land” was identified as a reason for pride.

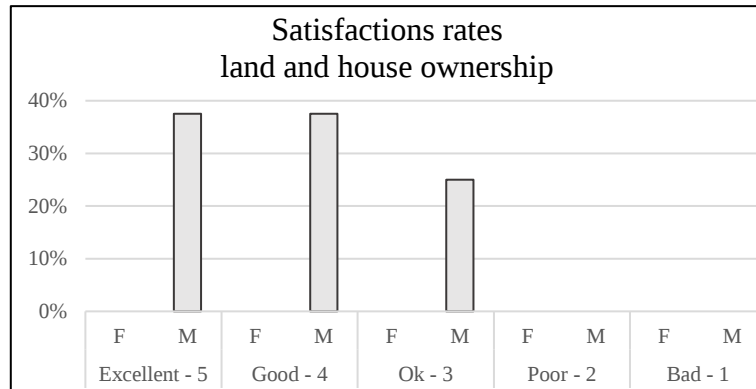


Figure 6.21. Levels of satisfaction among participants that cited “Land and house ownership” as one of the five most important areas for their wellbeing (F=female, M=male).

Finally, in Ubatuba, land is acquired mainly through inheritance (for Caiçaras). Consequently, properties are continuously subdivided into smaller parcels from generation to generation to allow for passing down land to sons and daughters. Properties are also subdivided inside generations, for constructing second houses to rent to tourists. This might translate into consequences for the future generations of Caiçaras and their access to land title.

### **VIII) Job Satisfaction**

Job satisfaction offered another indication of the high importance placed on fishing for participants. Despite income from fishing representing a relatively small percentage of the overall household income (with exceptions for trawler fishers) as compared to other activities, fishers still dedicate most of their time to fishing activities. For one, this can be explained simply by the fact that the primary sources of revenue for local fishers frequently did not take much of their time (such as managing tenants and seasonal tourist renters, and being retired). Of course, another reason is that fishers find great satisfaction in fishing. Job satisfaction, indeed, demonstrated to have more importance for the wellbeing of men than women (Figure 6.22). As an elder and a younger fisher explains:

“Yeah, it [fishing] is an addiction for me, if I stay here [on land] I get uneasy to go to the sea. I just feel like going. I go [fishing] to make a living, but also, because if I stay here, I feel I need to go [laugh]. I always want to go to the sea. I want to go fishing. It is a good thing, a good addiction, not a bad one.”

“To fish is a profession, but it is also a pleasure, it is doing what I like. If I am frustrated, I go to the sea and all changes. I feel good at the sea, fishing. There is no other job that I would rather have.”



Figure 6.22. The “Job satisfaction” area classified due to its order of importance (F=female, M=male).

Perhaps not coincidentally, the only woman that cited “job satisfaction” (or in her words: “to work with what I love”) as one of the five most important areas for wellbeing was a fisherwoman. Attachment to fishing is also reflected by the high satisfaction levels in the “job satisfaction” area (Figure 6.23.). Trawler fishers were the only ones that rated levels of satisfaction as “Ok”.

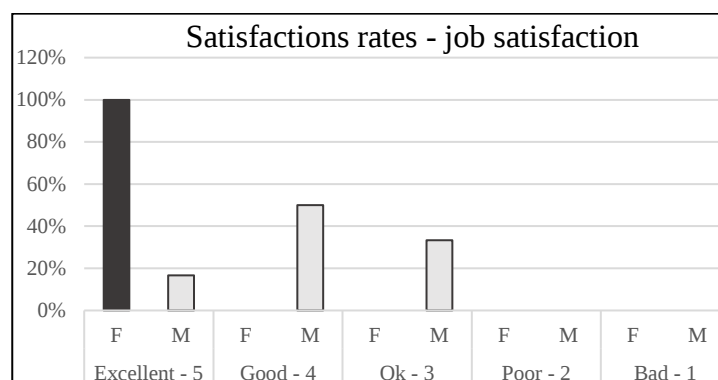


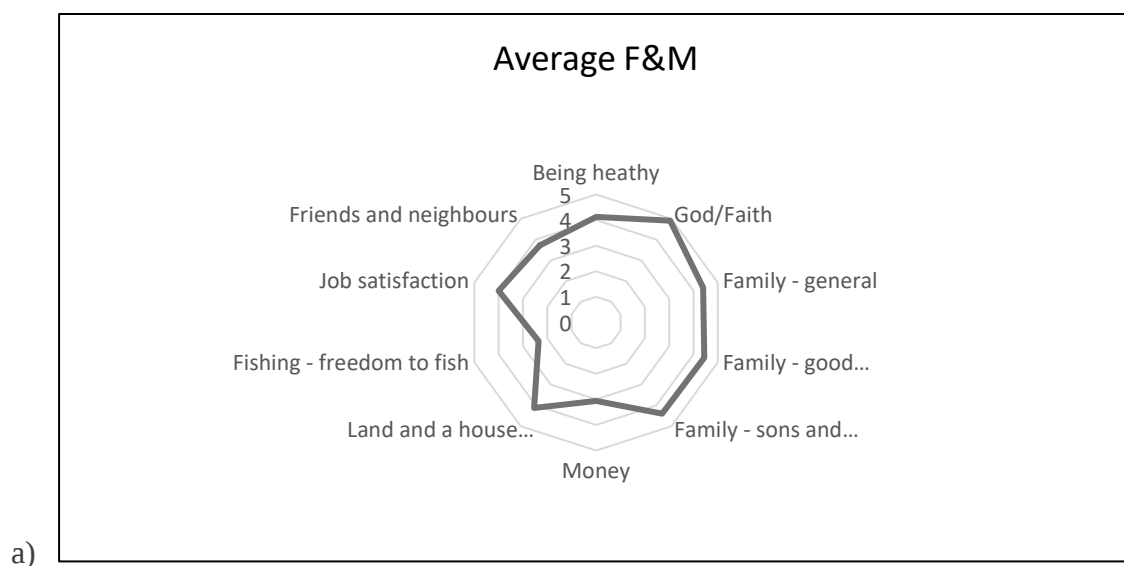
Figure 6.23. Levels of satisfaction among participants that cited “Job satisfaction” as one of the five most important areas for their wellbeing (F=female, M=male).

### **X) Overview of prioritized wellbeing areas and average levels of satisfaction**

Finally, presented here is an overview of the ten main areas cited as important for participants' wellbeing and the average levels of satisfactions compiled in the same graphics, as a way of summarizing this section (Figure 6.24). The data is presented by general levels of satisfaction (men and women together) and contrasted by gender.

Generally, "Family" related areas and "God/Faith" show high levels of satisfaction, while "Money" and "Freedom to fish" show lower satisfaction levels. The gender analyses pointed to men being more satisfied with the different elected wellbeing areas, except satisfaction levels with the domain "God and Faith" and "Job satisfaction." The area job satisfaction, however, was cited by only one (fisher) woman, who rated it as "Excellent" and therefore, this number is not necessarily representative of much of the women in the study area, and this data is an outlier.

Finally, the GPGI method allows participants to expand points they considered significant regarding their individually selected wellbeing areas. In this research, I chose to focus particularly on perceptions of how wellbeing satisfaction levels could be improved, by asking participants "How your rating of [selected area] could improve?" Table 6.3. presents participants main suggestions.



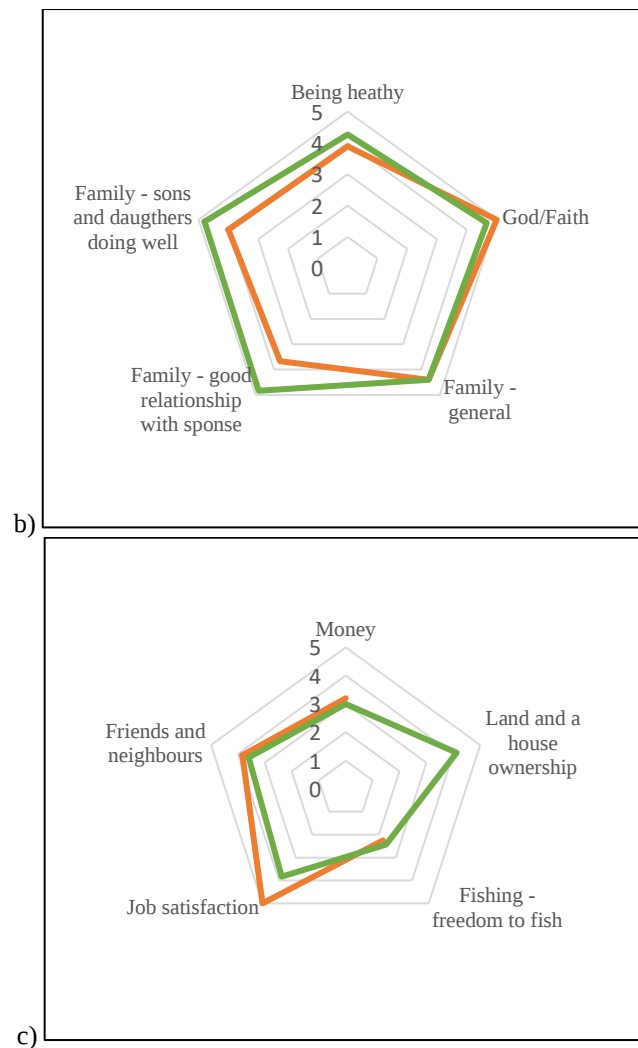


Figure 6.24. a) The 10 most cited areas described by fishers and their wives as important for wellbeing (N=30, 12 women and 18 men); b) and c) Most cited areas by gender, green=men and orange=women. The area 'Land and house ownership' was only cited by men.

The remaining areas declared as important for wellbeing were not approached individually due to its lower levels of citation (less than 20% of participants' citations). Still, many of these areas reflect important values shared among Caiçara fishers from the study area. The next section will attempt to cover many of these areas, as well as those areas approached above, by presenting central aspects of Caiçara fishers' cultures and identities.

Table 6.3. Participants' suggestions for improvement in wellbeing related to specific, selected areas.

| Wellbeing areas improvement as suggested by participants                                                       |
|----------------------------------------------------------------------------------------------------------------|
| <b>Being healthy</b>                                                                                           |
| Better health system (at the municipal level)                                                                  |
| Not having health problems (e.g. high pressure, diabetes, arthritis, among others)                             |
| Having money for health insurance (and therefore not relying on the public health system)                      |
| <b>Money</b>                                                                                                   |
| Having money to buy land and a second house to rent                                                            |
| Consistent rent from family's second house in the high season (as presented in Chapter 5 renting is uncertain) |
| Not being in debt                                                                                              |
| <b>Religion/faith</b>                                                                                          |
| Evangelical people being more accepting of others' religions                                                   |
| <b>Family – General</b>                                                                                        |
| Absence of drug issues within the family                                                                       |
| Not having the presence of drug dealers in the community                                                       |
| The construction of community and sports center for youth                                                      |
| <b>Family - good relationship with spouse</b>                                                                  |
| Wife accepting the fact that husband is not religious                                                          |
| Husband drinking less and spending more time with family                                                       |
| Husband joining the church                                                                                     |
| <b>Family - sons and daughters doing well</b>                                                                  |
| Better jobs opportunities for the new generation                                                               |
| Better public education system                                                                                 |
| Not having sons and daughters involved with illicit drugs                                                      |
| <b>Freedom to fish</b>                                                                                         |
| Being able to fish in the Anchieta Island                                                                      |
| Freedom to fish different resources and use various gears                                                      |
| Having a stronger Fishing Association and a legitimate leader                                                  |
| <b>Job Satisfaction</b>                                                                                        |
| Better catches                                                                                                 |
| Less restrictive fishing policies                                                                              |
| Receiving better unemployment insurance payments during the shrimp closed seasons                              |
| <b>Relationship with neighbours</b>                                                                            |
| Feeling more included in the community (cited by non-Caiçara fishing households)                               |

As noted in Table 6.3, regarding health, the public municipal system does not necessarily offer the best option for locals in need of specialized care or more demanding treatment regimes such as surgeries, and therefore, improvements in the public health system emerged as important for locals. In addition, gaining access to health insurance so as to avoid the public system altogether in favour of private health care were common sentiments among participants.

Money was viewed as important for accessing land and owning or constructing a second house for renting, reinforcing the investment priorities identified and presented previously in section 6.2.1. Under the religious theme, some participants, typically of non-evangelic communities, noted a desire for strengthening respect of their views, particularly so as not to feel excluded for not sharing the same religious values. More broadly, non-Caiçaras also mentioned their wellbeing would improve if they felt more included by traditional Caiçara families. Substance abuse was also reinforced as a subject decreasing wellbeing for families, both for Caiçaras and non-Caiçaras. Better education and job opportunities were viewed as essential for youth enjoying improved quality of life. And finally, in terms of freedom and job satisfaction, areas of improvement were largely confined to removing fishing restrictions coupled with the growing concerns of fish scarcity, both of which threaten the future of fishing livelihoods in the area.

### **6.2.3. Relational dimension: Identity and Culture**

While the GPGI assisted in identifying essential aspects of wellbeing for participants, more directed methods and questions were required to access, in greater depth, wellbeing's relational dimension. For this purpose, the Relational Landscape method (Figure 6.25) and questions conducted during the semi-structured interviews such as "What does it mean to you to be a Caiçara?" and "What does it mean to you to be a fisher or the wife of a fisher?" were more effective. The most recurrent themes that emerged were classified into categories in the NVivo software, and further interpreted as central aspects of Caiçara and Caiçara fishers' cultural identity. Table 6.4 summarizes these themes, and presents quotes illustrating participants' perceptions. Some of the elements presented in Table 6.4. will be approached in the following discussion section, while others are explored in the next thesis chapter (Chapter 7).

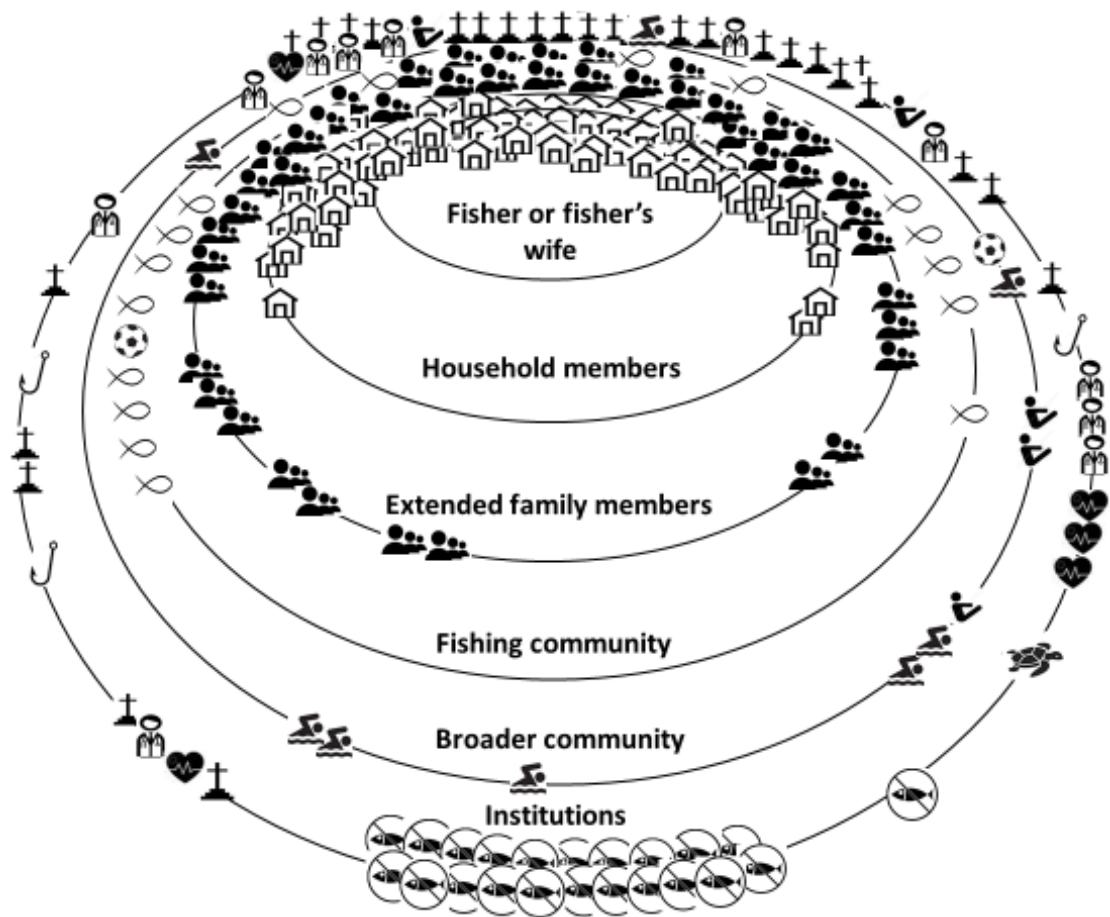
Figure 6.25 presents the outcomes of the Relational Landscape method. The method was applied to participants individually during the semi-structured interviews phase (18 men and 12 women). Individual findings were then compiled in Figure 6.25. to construct a collective map of the Relational Landscape as a whole. In other words, the figure represents an overview of the relationships of all semi-structured interview participants.

In Figure 6.25, the circles represent different levels of relationships. The inner-most circle represents the fisher, or the fisher's wife interviewed. The next circle (from inside moving out) refers to their relationship with other household members, the third circle represents their relationships with extended family members, followed by the relationships with the fishing community, the broader community and finally, the most external circle refers to relationships with Governmental Institutions.

During the interview, participants could choose to place specific relationships as close to or as far from the circles as they desired, depending on the degree of proximity they wanted expressed for each relationship. For example, a female participant could choose to place a daughter very close to the inner circle (which represents herself), while placing the husband in the far end of the household member's circle, meaning that her relationship with her daughter was a very close one, while she felt she was not as close to her husband. The figure does not aim to detail different degrees of relationships within each level approached; rather, it aims to give an overview of relationships more generally, and among the six levels addressed.

Table 6.4. Caiçara and fisher's identity as described by fishers and their wives.

| Caiçara identity                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Self Identity                                                    | Quotes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| The people born on the coast                                     | <p>"Everyone born on the coast is a Caiçara, but many Caiçaras live like people from the city now."</p> <p>My daughter is the fifth generation born here. If she marries someone from outside, and they leave our place [the community], she will be different. Still, she will be a Caiçara, but not living a Caiçara lifestyle, you know?"</p>                                                                                                                                       |
| Modest people<br>Embrace a simple life                           | <p>"We are simple; we enjoy the simple things of life."</p> <p>"I would not exchange this life that I have for all the money in the world. People from São Paulo wanted to buy my house. They offered me a ton of money. I said: No thanks! This is my place, and here I will stay!"</p>                                                                                                                                                                                               |
| Laid back and relaxed                                            | "I prefer to work less, and live my life in an easy way. Money makes people stressed, have you noticed?"                                                                                                                                                                                                                                                                                                                                                                               |
| Humble people                                                    | "A Caiçara is a humble person. How can I explain to you? The Caiçaras are the Indians that live by the sea. That is the true Caiçara culture."                                                                                                                                                                                                                                                                                                                                         |
| Welcoming of outsiders                                           | "We welcome tourists; we depend upon them. If they do not show up, we struggle to pay our bills. So, we must welcome them always."                                                                                                                                                                                                                                                                                                                                                     |
| Suspicious of strangers                                          | <p>"We Caiçaras take some time to trust people and bring them into our lives."</p> <p>"Once you gain the friendship of a Caiçara family, you have good friends, but it might never happen too [laughs]."</p>                                                                                                                                                                                                                                                                           |
| Caiçara fisher identity                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Live in the present                                              | <p>"Future, for me, is the bills at the end of the month."</p> <p>"Fishers have to be like that [live in the present moment], we never know if we will have fish in the net, so we have to live without worrying too much."</p>                                                                                                                                                                                                                                                        |
| Spiritual and/or religious                                       | "Faith! We need to have faith that a good catch will come soon. If you do not trust that a good catch is coming, you can't be a fisher because you lose hope."                                                                                                                                                                                                                                                                                                                         |
| Freedom                                                          | <p>"In the sea, I am my own boss, in land there is my wife [laughs]."</p> <p>"Fishing is a source of money and pleasure. I do what I love, what makes me happy, and I decide when and how."</p>                                                                                                                                                                                                                                                                                        |
| Sense of humor                                                   | <p>"We [fishers] like to make fun of everything! You must know that by now [laughs]. We make fun of you, as much as we make fun of our wives, kids, friends. We make fun of ourselves too!"</p> <p>"José magnifico [Magnificent Joseph] was the first one [fisher] to have a boat here. They say that one day he went fishing grouper and got the hook stuck in his finger. In the hospital, he said to the doctor "cut my finger out, but do not break my hook! [Lots of laughs]"</p> |
| Holders of local/fishing knowledge                               | "A true fisher is the one that knows the sea, the wind, the weather and how and when to kill fish."                                                                                                                                                                                                                                                                                                                                                                                    |
| Adventurous/courageous                                           | "When you leave to the sea you are never sure of how it will go. It is a new adventure every day."                                                                                                                                                                                                                                                                                                                                                                                     |
| Apolitical                                                       | "Fishers are the most relaxed and disunited people that exists. Others fight for their rights, but our fishers, we stay quiet."                                                                                                                                                                                                                                                                                                                                                        |
| Caiçaras fishers as seen by non-Caiçaras living in the community |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Outsiders' view                                                  | Quotes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Friendly                                                         | "They are normally nice and polite with us."                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Without ambition                                                 | "They have no ambition. They do not care for more comfort, not even for their kids. I am different."                                                                                                                                                                                                                                                                                                                                                                                   |
| Uneducated                                                       | "They lack formal education; they are just like Hicks. They have tradition, and culture, but not much education."                                                                                                                                                                                                                                                                                                                                                                      |
| Too peaceful                                                     | "They are not fighting for their rights. They are too laid back, too peaceful. They will go on just complaining forever."                                                                                                                                                                                                                                                                                                                                                              |
| Naive people                                                     | "Caiçaras lost a lot of land in the past because they are too naive. People from outside took advantage of them."                                                                                                                                                                                                                                                                                                                                                                      |



#### LEGEND:

- Household:** individuals residing under the same roof, either permanently or seasonally.
- Extended family:** family members living in other households, both in the community and outside of it.
- Fishing community:** crew members, fishing peers, middlemen.
- Broader community:**
  - Church and religion
  - Tourists
  - Sports and gym groups
- Institutions:**
  - Fisher Association
  - Local public clinic/doctor
  - Municipal public hospital
  - Marine turtle conservation NGO
  - Fisheries management agency

Figure 6.25. Relational landscape. N=30 (12 women, 18 men).

Figure 6.25 reveals the importance of family (including household and extended family members) for Caiçara fishers and their wives. Moreover, the youth focus group confirmed that also among the younger generation, strong ties remain centered on the family

unit. For the younger generation, siblings and cousins were commonly referred to as the closest relationships, followed by sports groups (see below).

At the “fishing community” level, fishing peers were shown to be primary relationships for fishers. Fishing together, and sharing boats and gear were common customs for small-scale fishers in the study area. When fishers shared resources, the catch was divided depending on the type of arrangement made, often between two, but up to three fishers. In some instances, an agreement was made to fish with one fisher’s boat and share the costs of fuel. In this case, each fisher brought his or her own net, and the fish caught in each net belongs to the net owner. In other instances, fishers agreed upon sharing the boat, fuel costs, and gear; in which case, the entire catch was shared equally. Finally, in a case where one fisher has a freezer at home and was able to store the fish caught for sale directly to the consumer, the profit after the sale was shared between the fishing peers. Fishing peers occurred frequently within household, extended families, and between members of traditional extended families in the community. However, there are cases where fishing together transcends family units, particularly for trawler fishers, who frequently rely on the same crew-member and have a more established working regime and agreement.

At the broader community level, relationships were frequently linked to sports (mainly for youth) or gym groups (mainly for women). Adults and elders declared that until the late 1980s and early 1990s locals would meet daily at the beach at the end of the day to play soccer or volleyball. There is still a recognized ‘soccer time’ in the community; however, far fewer people participate, mostly youth and young adults. Many male youth are also involved with a sport called “skim boarding” and with surfing [Figure 6.26]. The Sununga beach, a very short walking distance from the Lázaro Beach, hosts important contests that attract many seasonal tourists to the study area.



Figure 6.26. Youth surfing and skim boarding at the Sununga Beach. Photos: Connor Jandreau and Marta Leite

Relations with tourists also are an important interaction at the broader community level. As previously mentioned, Caiçaras depend largely on tourism for their livelihoods; yet they also attribute loss of land, polluted waters, and crowded beaches to the presence of tourists, which represents the push-pull contradictions of how Caiçaras perceive tourists in their communities.

At the institutional level, within the community, churches demonstrate the most substantial weight for Caiçaras from Lázaro and Saco da Ribeira in terms of relational wellbeing. The local clinic and especially relationships with the clinic doctor were cited as the most important relationship between participants and local public services. The Saco da Ribeira Fisher Association, which was inactive until the end of the fieldwork, was cited by only three fishers (however, at the time of the validation trip, the organization had been

reignited, see Box 1). Last, the “Relational Landscape” reiterates the absence of engagement and collaboration between local fishers and fisheries management institutions, as all participants placed relationships with government agencies responsible for fisheries management in the far end of the institutional circle, reflecting the absence of dialogue between fishers and managers in the area (see Chapter 5, section 5.4).

#### **6.2.4. Vulnerabilities as barriers to the achievement of a fulfilling life.**

While economic development has brought perceived benefits for Caiçara coastal communities (e.g. food security, health care, and education), it has also introduced new vulnerabilities, with further consequences for the three dimensions of wellbeing. In addition to costs for community cohesion and social stratification (see Chapter 5), pollution inside the bay, increased violence, substance abuse, and conflicts over resource rights-of-access are downsides of economic development and intensified tourism in the area. I approach these individually in the following headings.

##### ***I) Pollution inside the bay***

Residents of Lázaro and Saco da Ribeira do not have access to public sewage services, and instead manage waste with individual septic systems. The SABESP (Cia de Saneamento Básico de São Paulo) is the state public institution responsible for services related to water supply and waste management in the municipality of Ubatuba. According to data from the City of Ubatuba (2016), while 87.2% of dwellings within the municipality have access to treated water; the public sewage system infrastructure only supplies 33.5% of those same homes (mostly concentrated in central and downtown neighborhoods of Ubatuba). Although implementation of a sewage network had begun in Lázaro in 2012, with local government turnover, efforts have stopped for the foreseeable future.

The utilization of septic tanks is problematic for several reasons: 1) the water table is quite shallow (around one-meter-deep), resulting in rampant groundwater contamination, 2) maintenance of the tanks is often deferred or poorly executed, 3) the population can increase by as much as seven times in the municipality during the high season, overstraining the systems, and 4) Ubatuba receives strong and constant rains which further saturates the ground and raises an already shallow water table. For these reasons, both fresh and sea water quality are compromised during the high tourism season, commonly resulting unsuitable waters for recreational uses.

The CETESB (Company of Environmental Sanitation Technology, which is linked to the Department of Environment for São Paulo State) has been responsible for monitoring the water quality on beaches within the municipality (and broader State of São Paulo) since the early 1970s. On Lázaro, a red flag is commonly found on the beach around New Years and Carnival seasons, indicating the quality of water is unfit for bathing (Figure 6.27). Despite these safety warnings, the beaches are always crowded in the high season. Numerous diseases are related to poor water quality, including cholera, typhoid and paratyphoid fevers, shigellosis, amebiasis, diarrhea, and hepatitis, among others. Hepatitis, in particular, was a recurrent problem cited by participants.



Figure 6.27. The CETESB red flag indicating that the water is unfit or “inappropriate” for bathing.

Nevertheless, the challenges related to pollution go beyond concerns for health. During the peak of land speculation and development along Ubatuba's coast (1970s and 1980s), housing developers constructed a high-end gated community on part of Lázaro Beach which attracted many wealthy second-home buyers from São Paulo and other parts of Brazil. Today, many of the houses in this gated community are either for sale or rent. As explained by participants, over the past 25 years, there has been a notable downward trend in the number of wealthy families visiting from São Paulo (and other surrounding cities) to spend long weekends and holidays in the gated community. Instead, the growing tendency has been to sell or rent their houses and move to other areas of the coast. This is in large part due to polluted sea waters, crowded beaches (Figure 6.28), and higher criminality in the community during the high season, leading homeowners (non-locals) to move to the north coast, which tends to be less developed and crowded, and consequently less polluted. These families would frequently buy fresh fish from local fishers, pastries from fishers' wives, and hire locals as housekeepers and gardeners, resulting in significant cash flow into the local economy, all of which is now diminishing.

The number of hotels, hostels, and bed and breakfasts (locally called "*pousadas*") owned by outsiders has also increased in the last two decades, creating stiff competition with locals offering houses for rent; as hotels are often cheaper, and offer better package deals. These factors together have resulted in a shift in tourism and in the economics of the region, now represented by lower middle-class visitors who prefer to stay in hotels, bring food from supermarkets in their home cities and spend shorter periods in the community. This has had a significant impact on the local economy, as locals rely on renting their second homes and engaging in tourism related activities as a fundamental part of their livelihood portfolios:

"Before tourism was better here. Everything was better. The beach was cleaner, the people friendlier. They [homeowners from the gated community] would come for the whole high season, they

knew us. Today the tourists bring everything from São Paulo, they do not spend much money here.”



Figure 6.28. Lázaro beach during the high season on the left, and low season on the right.

## ***II) Higher criminality***

Another reason for the shift in tourism was the increase in crime in the community. During the high season, robbery and drug trafficking has become more prevalent in Lázaro and Saco da Ribeira, as increased tourism offers grounds for criminal activity. Moreover, participants declared feelings of insecurity due to the increasing rates of criminality. According to participants, thieves who originate from neighbor towns and downtown Ubatuba come to the community to sell drugs, break into houses and cars of tourists, and to a lesser extent, targeting locals' places as well. In fact, participants discussed cases where locals would unknowingly rent out their second house to criminal groups, who would then operate crime rings out of these seasonal rentals; the local eventually discovering their tenants stealing from tourists. Quoting two middle age female participants:

“Tourism? There are advantages and disadvantages. It brings more money, but also pollution, traffic, packed beaches and violence. Criminals are all around during the high season. I do not even go to the beach, for me it is sad to see it so busy and dirty. Wealthier tourists do not like it either. There are too many bars on the beach, people drink too much and become rude.”

“The worst is drugs; it is taking our kids from us.”

### ***III) Substance abuse and lack of crew members***

Substance abuse related to alcoholism is not a new trend among local fishers (Figure 6.29). Many male elders suffer or suffered from alcoholism tendencies in the past. Although, illicit drugs did not represent an issue for elder fishers, the younger generations currently face challenges related to illegal drug addiction (marijuana, cocaine and crack), on top of alcoholism. Tourism turned the community into a more attractive area for drug traffickers, as it also provided an easier way for drugs to get inside the community. Key participants declared that there are drug dealers currently living in the community and that they feared to conflict with those individuals or else face reprisal. The higher occurrence of illegal drugs, and users, in the community feeds back into high criminality, again affecting the high-end tourism, constructing a negative feedback loop.



Figure 6.29. A fisherman in his boat at the Saco da Ribeira landing spot. Photo: Connor Jandreau.

Substance abuse also demonstrated to have impacts on the relationships between fishers and crewmembers (mainly cited by trawler fishers, who frequently relied on an extra fisher as a hired crew member). Master fishers reported the difficulties of finding reliable crew members, as the younger generation is either not interested in fishing, or else involved with drugs; while older and perhaps more experienced fishers frequently struggle with

alcoholism. This poses two major problems: 1) fishers frequently do not show up to work at the time of fishing trips, and 2) safety concerns at the sea (if they do show up under the influence of drugs or alcohol). Lack of crew members affects boat owner's capability of maintaining fishing as a livelihood. In Ubatuba, small trawlers were found abandoned along the coastline, as both selling the boat, and keeping the boat operating were not possible for some local fishers (Figure 6.30). As a trawler fisher explains:

"I had no option but to leave my boat in the sea and work in a construction site. My wife is sick, she will not get better, I know... I have to put food on the table for her and our kids, and fishing was not enough. We had more than four months of very bad catches, you understand? The shrimp was not there, but the bills did not disappear with them... I will get back [fishing] if it is God's will. I miss my boat... I miss being out there [at the sea]. I hope to find someone to fish with me then. I cannot do it all alone"

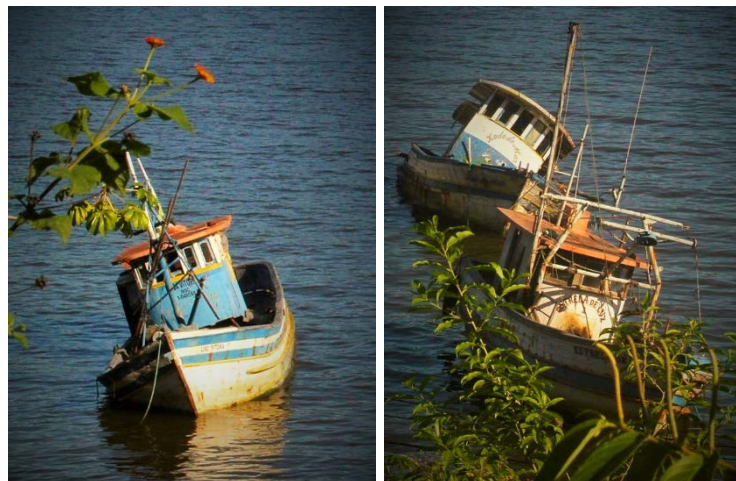


Figure 6.30. Trawler fish boats abandoned in the coast of Ubatuba. Photos: Connor Jandreau

#### ***IV) Job (dis)satisfaction, substance abuse, and domestic violence***

Finally, it is necessary to touch upon the crucial impact of substance abuse and violence inside households. Around 20% of participant women reported experiencing cases of domestic violence (physically, and/or verbal/emotional abuse), currently or in the past. Despite, physical domestic violence being much less common in the community nowadays,

as stated by many participants in the data validation phase; substance abuse still represents a challenge for many families (Figure 6.29). For some female participants, domestic violence was closely linked to both substance abuse and job (dis)satisfaction:

“When my husband comes back from the sea, he wants to drink if the catch was bad, to forget. When he gets home and the reality comes back to him, he gets very angry and insults our kids and me. He used to hit me too, but now I tell him that I will go to the police, as I already did once. It is a sad thing because he is a good man when sober.”

However, alcoholism was not necessarily always related to job dissatisfaction, as it seemed to be a trend between fishers even decades ago, when fishing was a way more productive activity in the area. Yet, domestic violence demonstrated a stricter connection to substance abuse. Many fishers’ wives have reached out to religion to cope with aggression from their husband, and found in the church the strength to pressure their husbands to recover:

“Once I entered the church I felt stronger. One day I took the courage and told him [husband fisher] that he had to choose between the *cachaça* [sugar cane distillate alcoholic beverage] and his bar friends, and me and our kids. It was not easy for me... we have six kids, eh? That day he cried like a baby and asked me if he could go to the church with me in the evening. He wanted to ask for God’s help. He made it. He still gets angry and is rude to me sometimes, but he is never drunk and never hit me again. I thank God.”

Religion assisted fishers’ recovery from alcoholism, as well as to keep youth away from drug circles. The role of religion will be discussed more broadly in the coming discussion section. Religion demonstrated to offer a system of support for many families facing substance abuse issues. However, it is essential to highlight that the root cause of substance abuse lies in the social constraints and marginalization of fishers, which has increased in the area since fish scarcity and fisheries management restrictions pushed small-scale fishers even further to the margins of society.

## **6.3. DISCUSSION:**

### **6.3.1. Wellbeing in fishing cultures**

As found by wellbeing researchers working in developing countries (Fischer, 2014; Narayan et al., 2000) my data demonstrate that material resources, health and family are essential components for living well. On the other hand, lack of voice or “powerlessness” is commonly experienced by poor people as vulnerabilities decreasing wellbeing (Narayan et al., 2000).

In the context of fisheries, while there is a high diversity of small-scale fisheries worldwide, similarities are found among fishing cultures, which are important informants of wellbeing. McGoodwin (1990), for example, points to at least three characteristics found in the literature: 1) fisher’s livelihoods depend [at least partially] on the sea and its resources, 2) they carry essentially local worldviews of the world, and 3) their political and economical sphere is frequently also local. These points need to be questioned, as James R. Goodwin’s influential book “Crisis in the World’s Fisheries: People, Problems and Policies” was first published almost three decades ago, and much have changed since then, most notably in terms of stock availability, management and co-management, and the degree to which stakeholder’s involvement in fisheries governance around the world has evolved. Yet, I found strong parallels between McGoodwin’s points and the Caiçara fishing culture, as reflected by many of the values presented in Table 6.4 (e.g. living a simple and modest life and conflict avoidance).

Since the Second World War, maritime anthropology has emerged as a discipline focused on fishing peoples and human adaptations to the maritime environment. Initially, the discipline was dedicated to ethnographic studies of exotic and subsistence fishing cultures. From the 1980s, maritime anthropology has broadened its scope to study maritime cultures more generally. In the early 1990s themes included territoriality, rights and vulnerabilities of

peoples that have livelihoods dependent among the sea (McGoodwin, 1990). These themes, among others, are still subjects of studies for scholars interested in researching small-scale fisheries.

Further, there are parallel values commonly found among fisher folks, independent of location, belief systems, and/or cultural background. For example, the need for independence, pride, and high levels of job satisfaction are frequently described as features of fishing people (Johnson et al., 2018; Pollnac and Poggie, 2006; Pollnac et al., 2001). Additionally, the risky nature of fishing activities, being adventurous and courageous contribute to high levels of job satisfaction observed amongst fishers (Pollnac and Poggie, 2008). These commonalities point to the existence of a somehow shared identity reflected by a way of life (Trimble and Johnson, 2013), which I found to also hold truth for Caiçara fishers.

Social challenges, such as substance abuse and marginalization are reported by fisheries researchers around the world for decades (Pollnac and Poggie, 2008; Tumwesigye et al., 2012). For example, Chinnkali et al. (2016) points to the high prevalence of alcohol consumption among fishers in South India, and the early ages that fishers engage in alcohol use. Yet, as also pointed in the literature, alcohol consumption frequently is an important part of fisher's social life (see Peace, 1991 for a study in Ireland). McGoowin (1990:27) explores the consequences of alcohol use and fishers image among the broader society: "[c]ertainly an important factor contributing to the low opinion of fishers is their relatively high incidence of alcoholism and disruptive influence in community life when they are home". Importantly, as much as fishers around the world tend to share common cultures and values, there are singular features of Caiçara culture that influence their perceptions of what it means to live well, and consequently their behaviours and choices. Alcoholism, in the context of this study, showed to be frequently associated to other undesirable social behaviours, such as domestic violence and absenteeism.

### **6.3.2. Caiçara identities, values and wellbeing perceptions**

“Whenever a people share a common means of living, honor the same or similar traditions and beliefs, are centered around a community, or inhabit a region comprising a set of communities [...] they presumably share a common and distinct culture” (McGoodwin, 1990:22). Caiçara people are no exception. While there are some differences between individuals and households, such as found in the case of religious beliefs and material welfare, Caiçara fishers and families share a common identity and very similar lifestyles. Indeed, I found cultural identity to be a central element to subjective and relational aspects of wellbeing for Caiçara fishers in the community studied.

Identity is a core constituent of different approaches that have influenced the emergence of the social wellbeing concept, including the economics of happiness and gendered studies (Weeratunge et al., 2013). “Identity in its social, political and cultural sense, including scope for personal and collective action and influence is considered a determinant of relational wellbeing. At the same time, identity, in terms of the concept of self and personality, hopes, fears and aspirations as well as meaning attributed to experiences falls within the dimension of subjective wellbeing. These relational and subjective dimensions of identity are, of course, necessarily interlinked” (Weeratunge et al., 2013:15).

Values are intrinsic to wellbeing understandings and cultural identities. Different cultures hold sets of values that will deeply influence shared identities, and what it means to live well. Johnson et al. (2018) argues that values and wellbeing are “deeply, indeed inextricably, related.” I share the same argument and see values as important constituents of both identities and wellbeing. Further, the authors argue, as do I, that both values and wellbeing are embedded in social relations. Cultural identities, as well, are undoubtedly relational.

Based on the results found for wellbeing in this research (including data presented in chapter 5, especially in relation to psychological resilience) Figure 6.31 attempts to organize the central findings along the three Social Wellbeing dimensions. In this figure, core values of Caiçara fishers' identity are presented at the center, and overlap all three dimensions of social wellbeing. Note that this summary is indeed specifically useful for this research context. Other fishing communities are likely to hold different sets of values. Nevertheless, the figure can be used to compare values among other Caiçara communities or fishing communities at large.

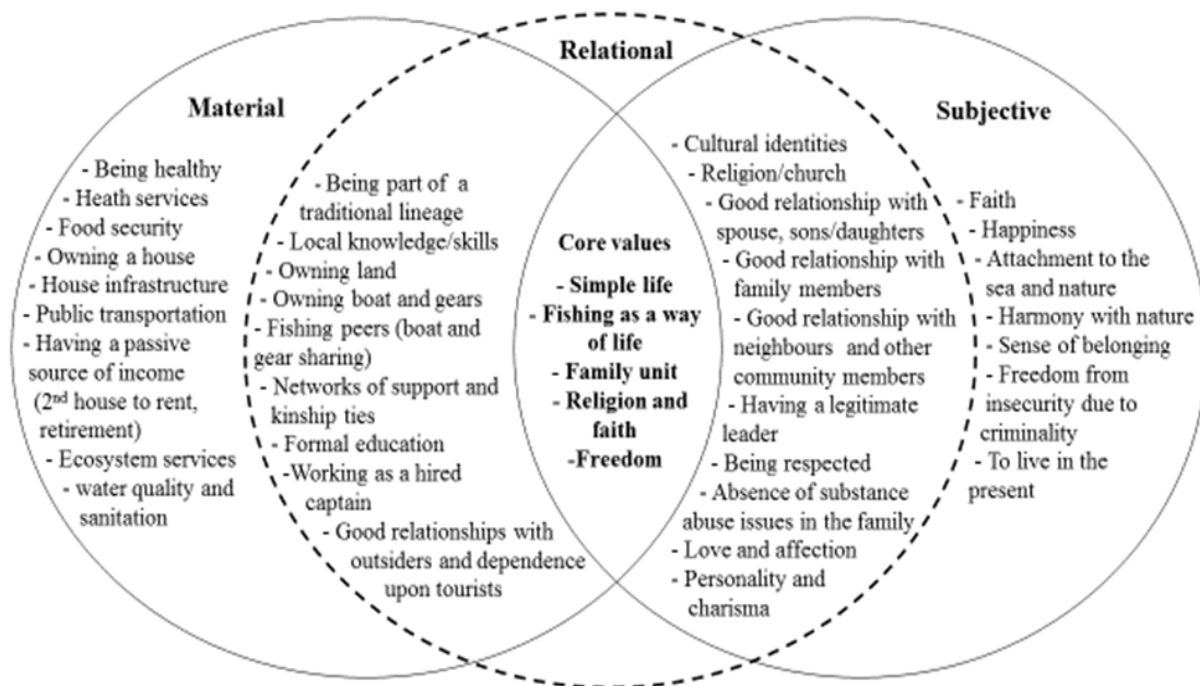


Figure 6.31. A heuristic representation of participant's most relevant wellbeing areas divided into the three analytical dimensions of the Social Wellbeing approach.

In the figure, instead of each characteristic being conclusively positioned in each wellbeing dimension, I emphasize tendencies of different wellbeing areas to fit in each segment, while recognizing that many aspects have clear connections to other wellbeing dimensions. The interactions between dimensions of wellbeing illustrated here aims to reinforce this point. Material can't be seen as just material, "things are not just things"

(Fischer, 2014:67). Material needs are influenced by relations, as relations are also subject to material welfare (Fischer, 2014). Moreover, subjective understandings of wellbeing are closely related to relational aspects, such as identity and sense of belonging. In the following sections I will elaborate on the relevance of religion and family togetherness as core values for Caiçara fishing families, while the "simple life" concept, and freedom, are approached in the next chapter.

Following Social Wellbeing scholars (Coulthard et al., 2015, Johnson et al, 2018; Weeratunge et al., 2013; White, 2008) I found that relations are a central element of wellbeing. In the figure, I stress its significance by placing the relations circle at the center and representing its domain with a dashed line. This implies that relations are crucial in defining what wellbeing means for Caiçara fishers, especially through core values, such as fishing as a way of life (Trimble and Johnson, 2013), the embracement of what is locally called a "Simple life" (see Chapter 7), the focus on the family unit, faith and religion and finally, freedom.

Weeratunge et al. (2013) have previously investigated the potential use of the Social Wellbeing lens as an analytical tool to advance the understanding of small-scale fisheries dynamics, with a focus on governance (Figure 6.32). The figure illustrates aspects of wellbeing attributed to small-scale fisheries, and divides them into three analytical scales: 1) micro: which includes individual and households' levels, 2) meso: refereeing to community and fisheries levels, and 3) macro: social-ecological systems, or human-ecological systems.

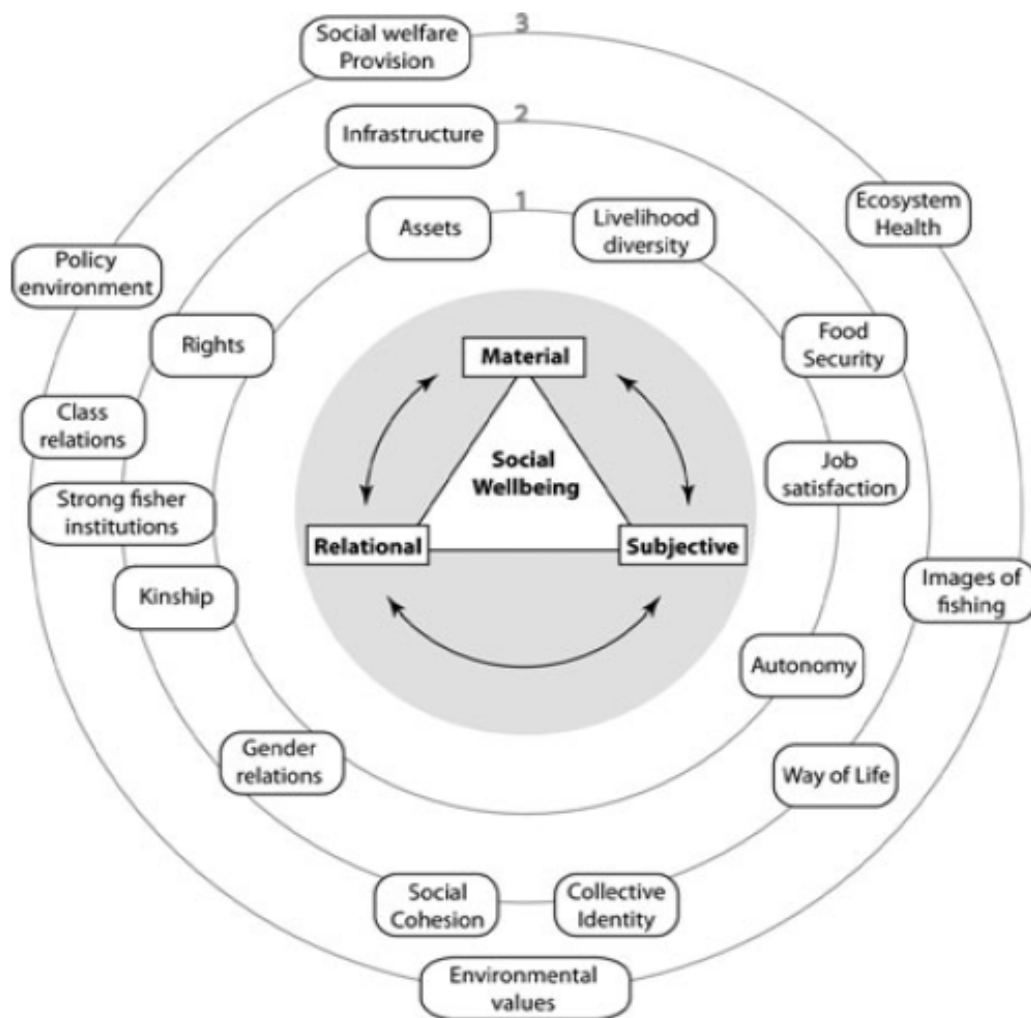


Figure 6.32. Facets of social wellbeing in small-scale fisheries. Source: Weeratunge et al. 2013:13, used with permission.

My research supports the Weeratunge et al. (2013) proposal that the different attributes of wellbeing are located within different dimensions (material, subjective and relational) in non-fixed and many times overlapping ways, and vary depending on specific small-scale fisheries contexts. However, while the Weeratunge et al. (2013) figure does not demonstrate situations where the three dimensions of wellbeing are relevant, I do so by highlighting the core values of Caiçara fishers' culture and argue that these values are influenced by material, subjective and relational dimensions simultaneously. Nevertheless, the authors do emphasize different scales in their figure, offering an additional level of analysis compared with the figure I present.

While the Weeratunge et al. (2013) offer a more general assessment of wellbeing in fisheries context, my figure focus specifically on Caiçara fishers from the community studied. Still, several elements are common to both analytical figures, examples being cultural and collective identities, ecosystem health or services, kinship ties, autonomy and freedom, cohesion or relationships with community members and food security. Other aspects are broken down in my figure, and presented in more general ways in the Weeratunge et al. (2013) figure, as in the case of infrastructure, which I divide into household infrastructure and community infrastructure. Some attributes, such as local knowledge and leadership were only pointed out as important facets of wellbeing in my figure. Images of fishing, as in how fishers are perceived by society more broadly, is also included in their figure, and has parallels to findings of my research, where fishers are seen as lazy or too laid back by non-Caiçaras (see Table 6.3), which also is reported in the literature: “In many fishing communities, practically the only activity that nonfishers see fishers engage in are those associated with relaxation, leisure, play, and recreation – not work” (McGoodwin, 1990:27).

Finally, for Caiçara fishers, as for other fishing communities worldwide, faith and religion are important aspects to be considered for both subjective and relational wellbeing. For example, Lokuge and Munas (2018) research in Sri Lanka points to diverse religious values influence in fishers’ behaviour and decision making, and how religious discourses and ethnic tensions play an important role in the dynamics around economic rivalry over fishing resources. In Ubatuba, religion did not demonstrate to influence access to resources, but rather to create divisions between fishing families that have an impact on fishing peers and more generally on community cohesion.

In the section below, I will explore faith, spirituality and religion as a core value to Caiçaras’ wellbeing. Further, I offer an elaboration on family and gender relations; and a

discussion on barriers to strengthening wellbeing, including vulnerabilities and “freedoms from” fear and insecurity.

### **6.3.3. Religion, spirituality and subjective wellbeing**

There is substantial research that supports the association of spirituality and religion with mental health and psychological and subjective wellbeing (Ivtzan et al., 2009; Hill and Pargament, 2003). Indeed, as also found in this study, religion is presumed to have an impact on networks of support (Ivtzan et al., 2009; Hill and Pargament, 2003), not only during negative life events, such as death and illness, but also as a protection against substance misuse (Moreira-Almeida et al., 2006). Religion, in that sense, plays an important role in relational aspects of wellbeing as well. As cited by my participants, the evangelical church helps to keep youth out of illicit drugs and criminal circles, as well as offering a vehicle for many fishers on the road to recover from alcoholism. Additionally, as presented previously (see Chapter 5) religion is also relevant for individual psychological resilience (Brown and Westaway, 2011).

Regardless of the existence of a large scientific literature on religion and spirituality, the two terms and their distinction are still not well defined, and the lack of consensus represents a challenge to the field (Hill et al., 2000). Here I use the definitions by Bowen (2002:5) who describes religion as “ideas and practices that postulate reality beyond that which is immediately available to the senses”, and by Ellens (2008:1) who defines spirituality as a subjective experience associated with “a strong interest in understanding the meaning of things in life.” Spirituality, therefore, relates to the motivations in seeking religious and non-religious meanings in life. It relates to ‘grander’ purposes, faith and compassion (Hill et al., 2000), as well as feelings of contentment. Religion, on the other hand, has a narrower definition, as it includes engagement in a social organization or community represented by a

system of belief that is devoted to explicit symbols, practices and rituals (Ellens, 2008, Ivtzan et al., 2009, Hill et al., 2000). Religion, therefore, involves beliefs and actions. Spirituality, when linked to religiosity, can be described as the “subjective side of religious experience” (Hill and Pargament, 2003:64).

In the case of Caiçara fishers and their families, I found both religion and spirituality of great relevance for subjective wellbeing. While religion seemed to play a larger role for women, fishers have also declared a robust faith and deep subjective experiences related to fishing and being at the sea. In particular, I found that the sea can be considered a source of spirituality for fishers, as it evokes this grander purpose, such as a deep connection with nature; and gives meaning to their lives, as fishing is their job and joy. Participants referred to fishing also as a source of relief for day-to-day problems, and therefore a source of psychological resilience, besides subjective wellbeing, pointing to another interplay between the two strands of literature.

Broadening the scope of attachment to nature more generally, the literature on restorative environments emphasizes the importance of nature as a source of relief for individuals attached, in some way, to a specific landscape (Davenport and Anderson, 2005; Frumkin, 2003; Hartig, 2007). Kaplan and Kaplan (1989), in the book ‘The Experience of Nature: a Psychological Perspective’ describe four characteristics of restorative environments: 1) it offers people a detachment from their day-to-day lives and problems, 2) it attracts people’s effortless attention, 3) it is dynamic, and allows for a constant flow of new discoveries [for fishers, frequently related to previous local/traditional knowledge], and 4) is compatible with users’ interests, and intentions [for fishers being at the sea is simultaneously pleasure and work].

Different individuals will perceive different landscapes depending on the meanings they attribute to these specific environments, their attachment to them, and their life

trajectories in it (Abraham et al, 2010). As described by the research participants, the sea, and fishing, represents more than an income source. In addition to contact with nature, being physically active and meeting the constant challenges of the sea and the catch, important subjective and relational aspects of fishing activities reported were: stress reduction, positive emotions, social integration, feelings of freedom, and the proudness of being a fisher. All of which makes for a strong case that the sea acts as a restorative environment for Caiçara fishers.

In the case of Caiçara fishers, I would argue fishing and being at the sea also plays a deep role in their individual notions of spirituality. Fishers related faith and trust in God, to both being at the sea and fishing, as a source of protection against the risk and dangers of the activity, and unpredictability of catches. Further, fishing was associated with greater purposes in life, bringing other elements of spirituality into their relationships with their activities and nature:

“At sea, I can talk to God.”

“Out there it is just me and my faith. I trust God is always with me when I am fishing.”

Greater life purposes and spirituality are, as well, related to subjective wellbeing, as “the possession of and progression toward important life goals are intimately tied to long-term well-being [...]” (Emmons et al., 1998:393). This relates to what Fischer (2014) refers to as eudaimonic happiness: the contentment of having a fulfilling life and a sense of life satisfaction, including, of course, the job satisfaction fishers find in their activities. Spirituality, as well, provides a source of eudaimonic happiness and bigger life purposes. Hedonic happiness refers to everyday contentment (Fischer, 2014), as for example the pleasure fisher’s find on being at the sea in their day-to-day fishing activities. Fisheries demonstrated, in this research, to provide small-scale fishers with both eudaimonic and hedonic happiness. However, as also noted, one type of happiness may come at the price of

the other, as fishers need to deal with disappointments with low catches or even the frustrations and challenges of fisheries restrictions (therefore compromising their hedonic happiness) in order to maintain their identities as fishers and in that sense continue being the sort of person they find value in being (with speaks to eudaimonic happiness).

#### **6.3.4. Religion and relational wellbeing**

The relevance of spirituality and religion for subjective wellbeing, in the context of Caiçara communities, is evident, as presented above. However, there are implications for the relational dimension of wellbeing that require acknowledgment. There is, in this sense, a perceived tension between subjective aspects of religion and relational dimensions, both at the broader community and at families and household levels.

In fact, the literature on religion and wellbeing also stresses negative impacts of religion, which can lead to poor mental health states for individuals, or religious groups, that behave in “judgmental, alienating and exclusive” ways (Williams and Sternthal, 2007:48). Religion, as experienced historically, can be used to justify exclusion, hatred, and aggression (Williams and Sternthal, 2007). Currently, one just needs to access the media to make such conclusions. Further, there is evidence that mentally ill individuals experiencing religious doubts are more prompt to detrimental behaviours, such as suicide and violence (Williams and Sternthal, 2007).

In this study, despite being a support network for those taking part in church cycles, religion played a significant role in weakening relationships at the community level. Despite all belief systems being part of Christian denominations (Evangelism and Catholicism), and no evidence of extremist, conflictive behaviours such as physical confrontation or violence, the local evangelic church has very rigid rules, and many of the local traditional festivities (typically related to Catholicism) are not allowed for evangelical church members. Thus, non-

evangelical and evangelical followers have been, in many ways, divided. At the women's focus group, where women were both evangelical, catholic, and non-religious, religion was agreed to frequently negatively affect relationships at the community, extended families and even household levels.

Religion, in this research, has therefore shown to act in multi-faceted ways. In terms of social capital and community cohesion, religions have influenced relationships in a negative way, by creating separations. This represents implications for the resilience of Caiçara small-scale fishers as a group, as their capacity for self-organizing and engaging in governance becomes more challenging when critical networks of support are not at the fishing community level, but rather within church circles, which has, in fact, resulted in divisions among fishing families. On the other hand, it has strengthened smaller religious groups' systems for support and increased individual's subjective wellbeing (e.g. faith and sense of belonging). Even within the same household, I could identify situations where religion represented a trade-off between subjective and relational wellbeing, by increasing women's meaning in life, while compromising relationships with their fisher husbands.

### **6.3.5. Family and gender relations in fishing societies**

Women's stronger attachment to religion is possibly related to their important role as mainstays of community social life (McGoodwin, 1990). While fishers are at sea, women are in the community, and therefore quite frequently build stronger ties with nonfisher community members. Perhaps, not coincidentally, women reported the category "Neighbours and friends" as a more relevant aspect for their relational wellbeing when compared to men. Women are often the backbone of fishers and household social life (McGoodwin, 1990). Whereas the participation of women in fishing related activities, such as pre- and post-fishing activities are widely reported worldwide (see Bennett, 2005; FAO, 2007; Frangoudes, 2011;

Kawarazuka and Béné, 2010), the social roles of women in fishing communities' life are far less understood, and need be identified as a gap in fishing literature, as some have noted (McGoodwin, 1990).

On the other hand, the fact that men, and especially elders, declared "Relationship with Spouse" as an important wellbeing area, while on the other hand, women prioritized the area "Sons and Daughters doing well" illustrates another characteristic of many fishing societies. As explored previously, lack of job satisfaction and self-esteem can affect the wellbeing of the whole household as it may generate social problems such as family violence, alcoholism and absenteeism (Pollnac and Poggie, 2006). In my research, elder fishers showed regrets and guilt about both violence and absence from family life in the past. In this sense, the fact that many Caiçara fishers first began their fishing careers as crew members on large-scale vessels (Leite, 2011; Prado et al., 2015) and therefore experienced extended periods of absence from their families and community lives, also may explain their current appreciation for strong and close relationships with their wives.

Women, in contrast, are more connected to their families' day-to-day routines, as in fishing communities they are frequently responsible for domestic work and care work (provided for children and elders) (Carpenter, 2011; Harper et al., 2013), which explains their prioritization of the theme "Sons and Daughters doing well". Still, women's simultaneous responsibilities for domestic work, pre- and post-fishing related activities and (in many cases) financial contribution to the household income (by engaging in paid jobs) translated into costs for their own wellbeing for the sake of the wellbeing of the family unit, a trade-off common also in small agriculture communities (Alston, 2006). Farm women, like fisher's wives, frequently engage in paid jobs to ensure that their husbands can continue farming, or fishing, characterizing a relationship where women's subordination to their husbands and family needs frequently reinforce and shape man domination and women's disempowerment.

Trade-offs are the exchange of one thing in return for another, and it is normally a situation that involves losing one quality or aspect of something in return for gaining another quality or aspect. Trade-offs take place when negotiating wellbeing at different scales and dimensions, as found in my research with Caiçara small-scale fishers. Women's personal wellbeing coming at the cost of their families is a good example of a trade-off between individual and collective wellbeing in fishing contexts. Religion, as presented above, also represents a trade-off between aspects of subjective and relational wellbeing, both at the household and community levels. Here, however, women seemed to prioritize their own subjective wellbeing, instead of their relations with their nonreligious husbands, extended families, or with other community members. This finding points to a question needing further exploration in fishing literature: what are the sacrifices that women are willing to make, and which relationships do they prioritize when negotiating these decisions?

More broadly, there were also many trade-offs that resulted from economic development in the area, such as improved material wellbeing, including food security, access to the health system, formal education and increase income, at the cost of diminished relational wellbeing, as weakened community cohesion and loss of social capital as consequence of more individualized lifestyles characteristic of modern societies (see Chapter 5).

#### **6.4. Concluding remarks and policy implications**

The social wellbeing framework, with its three-dimensional approach, proved to be a powerful tool for expanding and deepening the analysis of Caiçara fishing families' quality of life. Beyond material dimensions of wellbeing (i.e. income), and institutional levels of relations (i.e. relation with the State), it included central aspects of subjective and relational wellbeing normally neglected in livelihood studies, especially at smaller scales such as the

individual and household levels (Weeratunge et al., 2003). Whether options exist to fulfill material needs (i.e. access to resources), other important aspects of wellbeing such as values, beliefs, social networks, job satisfaction, identity, etcetera (informants of social wellbeing) can strengthen our understanding of fishers' behaviour and choices (Armitage et al., 2012). In this sense, wellbeing is perceived as more than a desirable state of being, it also offers a framework for analysis of fishers' motivations, world and worldviews (Britton and Coulthard, 2012).

In this research household surveys offered a relevant method to access material dimensions of wellbeing, while indicating that other more subjective and relational aspects of wellbeing played important roles for small-scale fishers and their families. For accessing these aspects, the GPGI method, coupled with semi-structured interviews, and supplemented with innumerable hours of participant observation, allowed for a deep comprehension of satisfaction levels with various wellbeing domains. Unfortunately, subjective measures of quality of life are still rarely accessible in developing countries, which is a challenge for understanding the interface of economic development and wellbeing (Camfield and Ruta, 2007).

The GPGI method provided a methodologically rigorous method and offered a opportunity to generate quantitative data on subjective wellbeing. Rounding out these modes of inquiry, the adapted Relational Landscape method (Coulthard et al., 2015) provided a valuable triangulation method for the relational data gathered through the GPGI technique. Yet, important to acknowledge, there are a number of limitations with the GPGI method. First, it constrains the participant who is allowed but five wellbeing areas, potentially excluding important aspects of wellbeing that would have surfaced if participants had been allowed to identify more areas; and 2) the method allows participants to explore and rank in greater detail only those areas first identified as their 'five key areas' of wellbeing. For

instance, if a participant did not identify money as an important wellbeing area, she was therefore not allowed to rank her level of satisfaction with it, making it difficult to search for generalizations in the data. I suggest that expanding the identified areas to ten (instead of 5) could potentially allow for greater overlap, and therefore an increased number of ‘points of commonality’ among participants’ wellbeing priorities.

Camfield and Ruta (2007) also found great advantages in using the GPGI coupled with “qualitative validation methods”, in Thailand, Bangladesh and Ethiopia. In a fishing context, the GPGI method was also shown useful in accessing subjective wellbeing, the gaps between ideal and actual satisfaction realities, and wellbeing domains’ desirable improvements, by Britton and Coulthard (2013) in a study conducted in Northern Ireland. The authors finding overlapped with the ones from this thesis in many ways, as both studies approached gender differences and found several common wellbeing domains referred as essential for fishers and their wives. Family and health, for example, were identified as the most important wellbeing areas in both studies. Additionally, job satisfaction, material security and basic needs, freedom and faith were identified as central elements of wellbeing in Ubatuba and Northern Ireland. Another similarity was that community relations (expressed as ‘community spirit’ in Britton And Coulthard, 2013 study) was identified as more relevant to women than men in both contexts, reinforcing the previously mentioned central role of women in community life. However, in Ireland women tended to demonstrate higher levels of job satisfaction than men, while in this study, job satisfaction was mainly cited by men. Yet, the authors identified that “job satisfaction” was the domain men would mostly like to change in Ireland due to the impacts of restrictive policies on their fishing activities. The same finding was reflected by Caiçara fishers’ low levels of satisfaction with the “freedom to fish” elected area.

Nevertheless, in my research, fishers tended to associate “job satisfaction” with attachment to fishing activities, which was rated high, besides all the challenges imposed by policies. This difference might be explained by the fact that most fishers did not have fishing as their main source of income in Lázaro and Saco da Ribeira, while most fishers in the Northern Ireland community context relayed primarily on fishing for their livelihoods (Britton and Coulthard, 2013). In fact, the fishers that demonstrated lower satisfaction levels (“Ok”) with the “job satisfaction” area in my case study where, just like fishers in Northern Ireland, the ones that relied mostly in fisheries for income. These findings contribute to filling an important area for research pointed by Britton and Coulthard: understanding wellbeing aspects common to fishers across the north and south contexts. This analysis illustrates overlapping wellbeing priorities, and most importantly, how fisheries management arrangement continually ignores fisher’s needs around the world.

Following this reasoning, besides identifying wellbeing priorities and perceptions, it is essential to approach the elements that *decrease* wellbeing, or the capacity of fishers and their families to live a fulfilling life, free of fear and anxiety. While “freedom to” addresses the capabilities and freedoms of choice to act effectively in the pursuit of wellbeing (Sen, 1985; Nussbaum, 2000); a “freedom from” lens refers to one being free from present and future insecurity, including both “objective insecurity” (e.g. food insecurity, violence, lack of health) and “subjective insecurity” (e.g. anxiety, fear of what the future will bring) (Narayan, 2000). Wood (2007) incorporates vulnerability and livelihoods literature in his wellbeing analyzes, and argues that human security is an essential element of quality of life. I share his view.

As put forth by Weeratunge et al. (2013:11), “Vulnerability is often considered a precondition of illbeing and one that limits goals and aspirations of individuals in the present as well as in the future.” Livelihoods and vulnerabilities are an important component of any

wellbeing analysis for natural resource dependent communities, as demonstrated in this research, by revealing aspects acting as a barrier for the achievement of a fulfilling life for small-scale fishers. These considerations are fundamental for policies focused not only on conservation interests, but also in granting small-scale fishers a dignified, free from marginalization, life.

Fishers' lack of control over choices and decisions on where, when and how to fish, as imposed by fishing restrictions, and their lack of participation in decision making, are but one aspect of a "freedom from" analysis. Additionally, abusive power relations between fisheries management institutions and fishers, as pointed out in this thesis, are a constant source of fear, insecurity and anxiety, and therefore of illbeing among small-scale fishers.

The next chapter will explore the interplay of resilience and wellbeing, Caiçara values and their implications for governance. It further identifies the barriers that exist for small-scale Caiçara fishers in their attempts, or lack thereof, in engaging with fisheries management. For it has become clear through my explorations with wellbeing, that fishers' responses to unequal power relations and lack of voice in fisheries management has as much to do with values and interpretations of what a good life is, as whether they have been asked to join the table.

## **CHAPTER 7. DISCUSSION: THE INTEPLAY OF MULTI-LEVEL RESILIENCE AND SOCIAL WELLBEING WITH EMPHASIS ON POLICY IMPLICATIONS**

### **7.1. Introduction**

Understanding fishers' motivations and behaviours is fundamental to managing long-term sustainability in small-scale fisheries, both in social and ecological terms, as human action impacts the natural environment, while environmental change informs natural resources-dependent livelihoods (Berkes, 2011). Nevertheless, fishers' behaviours and choices are typically complex and comprise a set of economic, social and cultural considerations (Coulthard, 2012). Factors such as job satisfaction, reputation, the need for independence and freedom, cultural identities and gender dynamics, as well as social and institutional structures are some of the considerations that can play important roles in defining the range of options fishers have, or perceive as feasible, when facing change (Jones et al., 2016; Johnson et al., 2018; Weeratunge et al., 2013).

Following such reasoning, this chapter aims to bridge the main findings regarding resilience (Chapter 5) and wellbeing (Chapter 6) to better understand Caiçara small-scale fisher responses and adjustments to change. The chapter corresponds to the broader thesis objective 5 which aims to explore the interplay of multi-level resilience and wellbeing among Caiçara fishers, with a focus on policy implications. The chapter does not present new data, but examines novel concepts in an effort to support central arguments to this thesis discussion. The first argument being that the core value of "Vida Simples" ("simple life" or "modest life") plays a significant role in defining Caiçara fishers' behaviours in the face of changes and challenges posed by development, including fishers' engagement (or disengagement) with fisheries management initiatives. The second argument is that illegal fishing represents more than a coping mechanism, it also refers to an expression of agency

and resistance among small-scale fishers as they build livelihood resilience, search for wellbeing, and react to power imbalances imposed by restrictive fishing policies.

The chapter is organized first by summarizing the main overlapping facets between the levels of resilience and wellbeing dimensions found in this research (Section 7.2.). The chapter moves on to explore one particularly important nexus between wellbeing and resilience to Caiçaras, the concept of “Vida Simples” to showcase how such a core value influences fishers’ responses to development and motivations to engage with fisheries governance (Sections 7.3. and 7.4.). In expanding the consequences of fisher’s behaviours into a policy realm, the chapter then presents illegal fishing as a form of resistance and agency expression (Section 7.4.). Finally, section 7.5. presents concluding remarks and policy implications.

## **7.2. The interplay of multi-level resilience and social wellbeing**

The interplay between the three levels of resilience and the three dimensions of wellbeing approached in this thesis were both prominent and myriad. Indeed, links were found between all resilience levels (individual, household and community) and wellbeing dimensions (material, subjective and relational), reinforcing the relevance of integrating both strands of literature to approach small-scale fisher responses and adjustments to change. In what follows, I will discuss the most relevant links found in this thesis.

Beginning with resilience at the individual level, fishing and ‘being-at-sea’ demonstrated significant relief of day-to-day stresses for fishers. Consequently, the sea represents what is referred in psychology, in the context of human-nature relationships, as a restorative environment (see section 6.3.3). Fishing and its contributions to stress reduction can also be interpreted as a source of psychological resilience for small-scale Caiçara fishers, as it often offers the fisher reprieve and a healthier state of mind, aiding recovery from

traumas and adversities. Yet, as far as my knowledge goes, the two concepts have not been integrated in small-scale fisheries literature in such a way. In fact, most of the literature on restorative environments approaches natural environments as recreational settings providing stress recovery and attention restoration (Berto, 2005; Hartig, 2007; Herzog et al., 1997; Kaplan, 1995), and is not directed to livelihoods dependent on natural resources.

Furthermore, fishing and being-at-sea was related to everyday contentment, or hedonic happiness, a subjective aspect of wellbeing (Fischer, 2014). Therefore, fishing represents at once a source of stress reduction and of everyday contentment, contributing to both individual resilience and subjective wellbeing. Along the same line, the concept of “living in the present” often functions as a psychological mechanism contributing to individual resilience, as it helps to reduce the anxieties generated by the uncertain and unpredictable nature of fishing activities; while at the same time, “living in the present” is also an important aspect of relational wellbeing, acting as a constituent component of the set of values intrinsic to the local Caiçara cultural identity. Equally important is the role that family and church circles demonstrated to have as support systems for individual resilience and as central components of relational wellbeing. Still more prominent an overlap, food security, health and education were plainly essential for both individual resilience (Brown and Westaway, 2011; Luthar and Cicchetti, 2000) and material wellbeing (White, 2008), as individuals lacking basic needs are less equipped to respond to life challenges in a positive way, and thus to live a fulfilling life.

At a household level, important features for both resilience and subjective wellbeing included the sense of inclusion in the broader Caiçara community (e.g. a sense of ‘fitting in’), especially mentioned by non-Caiçara fishing families that felt somehow excluded from community systems of support; as well as the existence of shared values inside the household unit, illustrated when divergent religious beliefs between husband and wife created tensions

within the household which ultimately diminished the whole family's wellbeing. Both inclusion and shared values, as mentioned above, are also closely linked to relational aspects of wellbeing, highlighting the argument presented in the previous chapter (See figure 6.31.) that wellbeing dimensions overlap consistently and therefore can't be represented in fixed ways (Weeratunge et al., 2013). Additionally, livelihood diversification contributed to both household resilience and material wellbeing, for obvious reasons; but also to subjective wellbeing, as diversification provides individuals and households a stronger sense of security.

At the community level, sense of belonging, cultural identities, shared values, and attachment to place were identified as elements essential for both resilience and subjective wellbeing. These points are, of course, also elements of relational wellbeing (including relations between people and between people and the environment). Particularly at the community level, separating subjective and relational wellbeing dimensions occasionally proved counter-productive, as the concept of community itself implies groups and their relationships. Additionally, the lack of some aspects central to community resilience, such as stronger cohesion, collective action and legitimate leadership (Berkes and Ross, 2013; Gutierrez and Holborn, 2010; Magis, 2010) had shown to have a negative impact on relational wellbeing, as networks of support, scope for community action, and relations with the State will inevitably influence the wellbeing of the broader fishing community. Community infrastructure and quality of public services, such as educational and medical services, public transportation and sanitation were identified as features necessary for both community resilience and material wellbeing.

Finally, social stratification was recognised as a barrier for both community resilience and relational wellbeing, by creating differentiation and increasing disparities among Caiçara fishers and their families. On one hand, development introduced a new tourism market and associated job opportunities, while on the other, increased competition over resources and

stronger social stratification among fishers. This process has benefited some while excluding others in the community. As presented in Chapter 5, a more individualized, neoliberal way of life has weakened important social networks. I argue, in this sense, that both resilience and relational wellbeing, at the community level, were negatively impacted by development, while individual and household resilience, and material wellbeing, increased or decreased depending on which actor being referring to.

Figure 7.1 attempts to summarize upon the points made above, highlighting these important exchanges between resilience and wellbeing. Readers should interpret the figure heuristically, in the sense that it tries to provide a clear and concise 'map' of the relationships among key areas of overlap between resilience and wellbeing, but should not be read a blueprint of participants lives. Rather, the figure reminds us that these areas of overlap are complex and interconnected proving difficult to capture in simple terms.

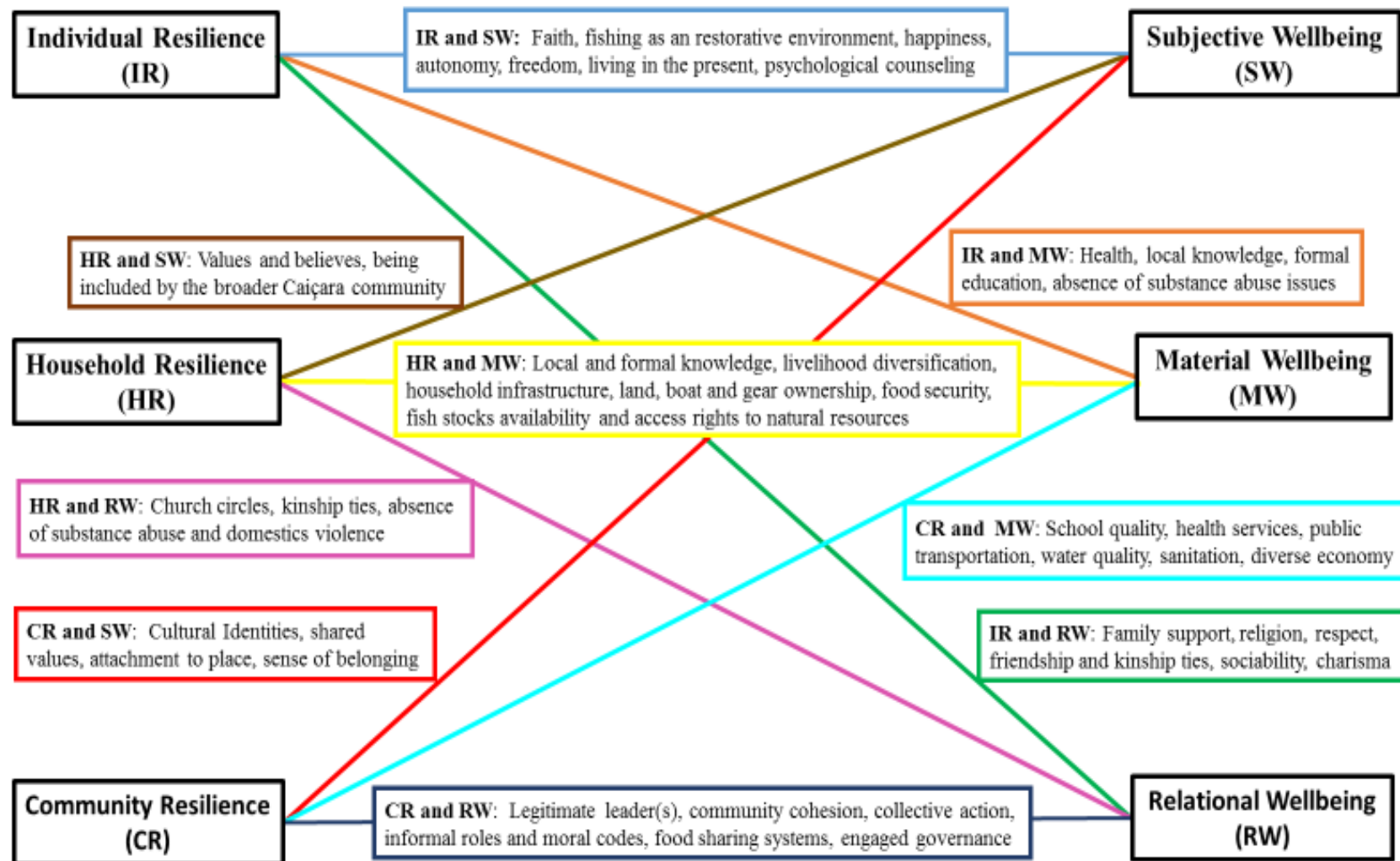


Figure 7.1. The interplay of multiple-level resilience and social wellbeing for Caiçara fisher's and their families. The colors connect different levels of resilience and wellbeing dimensions with boxes repressing the main areas of overla indentified in this thesis.

Even while social differentiation and variation in terms of access to material assets existed in the study context, a shared sense among the fishing community surveyed surfaced showing that nearly everyone enjoyed high overall wellbeing satisfaction levels (see section 6.2.1 and 6.2.2). In fact, Caiçara fishers rarely, if ever, differentiated themselves in terms of wellbeing status, introducing a central aspect of the Caiçara cultural identity, represented by the idea of “Vida Simples” (“simple life”).

### 7.3. The Caiçara concept of “Vida Simples”

“I love my life, this ‘simple life’! It is the best life, you know? People from the city pay to have a little taste of our life. They want to rent our house, to go fishing in our boat, buy our fish, isn’t that funny?”

“They have money [tourists], but they are always worrying to much, because when you have money, people want what is yours. We say that in the sea the big fish is after the small ones [predator and prey], but here, in land, it is the small fish [bandits] going after the big fish [rich tourists]. When tourists are here [high season] bandits come after them. Is having lots of money that good in the end? You have money, but you are not free. I’d rather our ‘simple life’!”

The quotes above reflect some of the important features of the Caiçaras’ so called “Vida Simples” (simple life)<sup>2</sup>. It is an expression of Caiçara small-scale fishers’ embrace of a life that is both modest and humble. Several research findings reinforce this idea. First, regardless of the presence of potentially more lucrative and secure job options available in the area (e.g., working on construction sites, in commerce, as housekeepers or gardeners) most fishers choose to forgo these opportunities in lieu of fishing activities. Second, despite fishing composing the primary source of income for less than one-third of fishers’

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<sup>2</sup> “Vida Simples” appeared as a recurring concept during participant observations and “to live a simple life” was cited as an important area for wellbeing at the GPGI method (See Figure 6.5). Yet, “to live a simple life” had low levels of citation. These concepts, while related, should not be confused as equating to the same thing. “Vida Simples” represents a way of being, whereas “to live a simple life” relates to a specific wellbeing goal. The low levels of citation in the GPGI method explain this fact, reminding us that “Vida Simples” represents more than a wellbeing area, it is part of the local culture and Caiçara identity, and therefore incorporates several areas valued for wellbeing, such as family, freedom and faith (see Figure 7.2).

households, the vast majority of participants still dedicated most of their time to this activity. Typical alternative sources of revenue included working with tourism in the high season (e.g. taking tourists on fishing trips or working as a hired capitan) or engaging in passive sources of income (e.g. renting a second house to tourists or leaning on retirement salaries). These alternative sources of revenue were considered the most desirable options, as they do not require great time investments, and thus grant more freedom to fish. Additionally, and importantly, women's engagement in paid jobs frequently allowed fishers to invest in fishing activities, even in lean catch seasons. Third, as mentioned above, despite the evident existence of wealth differentiation among participants, most fishers viewed their overall household wellbeing as equal in condition to other fishing families living in the community.

Faith in God, family 'togetherness', freedom to fish, autonomy and independence and ties with friends and neighbours compose some of the central elements of what locals call "Vida Simples" (Figure 7.2), as identified by the GPGI method and the semi-structure interviews (See Chapter 6).

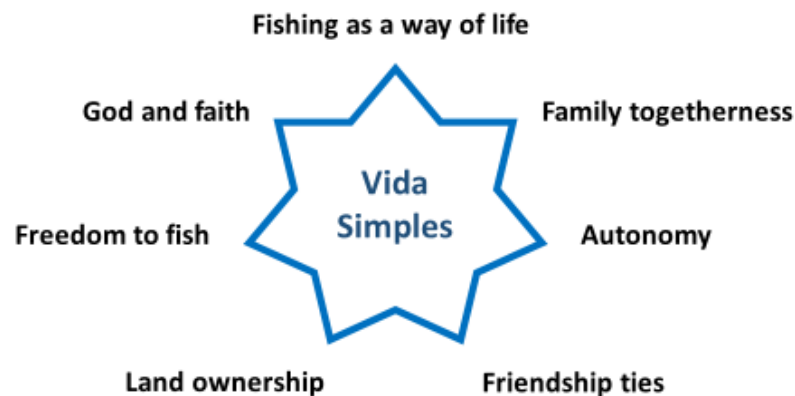


Figure 7.2. Central values attributed to the Caiçara concept of "Vida Simples".

Moreover, humility, the Caiçaras' unique and ubiquitous sense of humour, and an aptitude to living life in the present were all described as important components of what it meant, for participants, to live the Caiçara "Vida Simples". The embodiment of this lifestyle captures a major piece of small-scale Caiçara fisher's cultural identity, independent of social

class and/or status. These points demonstrate that Caiçara fishers do not operate under a simple profit rationale, and maintaining a “simple life” is more valued and intrinsic to Caiçara small-scale fishers’ wellbeing than many classic economic development studies would assume.

These points reinforce that development, in a Caiçara context, can not be approached with a narrow income or basic-needs lens, but rather should include the freedoms of individuals and groups to make choices based on their own understandings of wellbeing and their ability to pursue valued life trajectories. This argument is central to Economist Amartya Sen's expanding idea of economic development to human development (Sen, 1985). Sen argues that income is only a means for people to pursue what really matters to achieve their life aspirations. Consequently, the focus should shift from income to “the extent of people’s freedom to live the kind of life which they have reason to value” (Gough, 2006:6). People’s life aspirations are intrinsically connected to their held values. Held values, or “[...] the ideals of what is desirable [...], how things ought to be, and how one should interact with the world” (Jones et al., 2016) are connected with the freedoms individuals and groups experience in their pursue of wellbeing.

As suggested by Derek Jonhson (in press), it is essential to recognize “small-scale fisheries as repositories of value”. Understanding how these values inform fishers’ wellbeing perceptions is therefore essential for human development. Johnson (2018) questions to what degree these values are overlooked [or worse, ignored] in order to make the fisheries sector more manageable by neo-liberal policies focused on economic, rather than human, development.

Following this reasoning, I found consistency between the Caiçara idea of “simple life” and the concept of “Buen Vivir”, shared among many Latin American indigenous groups. Eduardo Gudynas (2011) offers a broad review of the concept as an alternative to

conventional approaches of development, and argues that “Buen Vivir” is a social philosophy, and therefore should be rooted in the cosmovisions of indigenous people. The author argues that the richness of the concept goes beyond the western idea of wellbeing, for it comprises the notions of living in a community, and for most indigenous groups, community refers to more than people, but also nature and non-human beings. While the concept of “Buen Vivir” has diverse interpretations depending on cultural and ecological contexts, Gudynas points to commonalities across this spectrum: “it is a plural concept with two main entry points. On the one hand, it includes critical reactions to classical Western development theory. On the other hand, it refers to alternatives to development emerging from indigenous traditions, and in this sense the concept explores possibilities beyond the modern Eurocentric tradition” (Gudynas, 2011:441). Indeed, the “Buen vivir” term and concept has been incorporated in the constitutions of Bolivia and Ecuador as an alternative to limited economic approaches to development (See Gudynas, 2011 for a more detailed synthesis).

An approach to development that is centered on indigenous and traditional peoples’ values provide relevant insights for addressing the impacts of development in Brazil, including on Caiçara coastal communities (Bockstael, 2017). Integrating held values, community relations and relations with nature are essential elements to small-scale fishers’ lives and livelihoods as they navigate changes imposed by economic development. The connection between “Buen Vivir” and “Vida Simples” may provide relevant insights for institutions committed to ensuring a more integrated embrace of development on the Brazilian coast, including fisheries management and conservation initiatives.

#### **7.4. “Vida simples” as a barrier for engaged governance**

In the context of rapid economic development and challenges related to fisheries management, the topics of participation, co-management, and adaptive management becomes a trend in fisheries governance (Trimble, 2013). In this chapter, I argue that a more holistic understanding of fishers’ way of life, cultures and values is needed to ensure more sustainable and integrated approaches to fisheries management. Additionally, this understanding can assist in unpacking the reactions and behaviours of fishing people towards fishing and conservation policies, increasing chances of fisheries management success. With this in mind, I highlight fundamental aspects of Caiçara fishers’ culture, captured by the idea of “Vida Simples”, that can act as barriers to small-scale fishers’ engagement in fisheries governance, even though the discourse of inclusion is part of more recent policy makers’ discourses in fisheries management institutions (Trimble et al., 2014).

For Caiçara people, in large part due to an extensive history of subversive loss of land and natural resource access restrictions, a clear and persistent distrust in government institutions remains, creating significant challenges for fishers’ engagement in participation with government initiatives of inclusion. This lack of trust is partly due to decision-makers’ deficiency in understanding the extent to which non-economic aspects of fisheries influence fishers’ actions and behaviours (e.g. subjective and relational aspects of wellbeing), including their persistence in fisheries despite fish scarcity and restrictive fishing policies. Another aspect is the prevalence of policies representing conservation interests in the area, both on land and at sea (e.g. creation of parks and conversion of important fishing grounds into fishing no-take areas) and the lack of a truly integrated vision of small-scale fisheries as social-ecological systems, where humans and nature can not be approached separately. The consequence is a tendency of resistance by Caiçara fishers in engaging with fisheries

governance, as observed in this research and demonstrated by other studies in the area (Leite, 2011; Trimble, 2013, Trimble et al., 2014).

Trimble et al. (2014) provides a detailed review of Caiçara fishers' reasons for non-participation in government-sponsored meetings, based on a study conducted in Paraty, Rio de Janeiro, Brazil, just north of this research study area. The authors grouped the reasons into three main categories: 1) hierarchical governance (including legislation and relationships between fishers and government), 2) fisher-related barriers (fishers' perceptions towards meetings, meetings' incompatibility with their way of life and matters of representativeness), and 3) process inefficiency (prior to meetings, during meetings, and regarding meetings' outcomes). I found most of these reasons to also apply to Caiçara fishers of Ubatuba, in São Paulo, reinforcing the potential for a broader generalization of Caiçara's disengagement in fisheries governance. However, let me expand upon the category "Fishers-related barriers" identified by Trimble et al. (2014). In Table 7.1 I offer a complementary explanation, based on the concept of "Vida Simples", from the perspective of the fishing community I have studied.

Trimble et al. (2014) divide the "Fishers-related barriers" category into three subcategories: a) Fishers feelings/emotions or perceptions toward meetings, b) incompatibility between fishers' way of life and meetings, and c) representativeness (Table 7.1). In the table, I expand on the reasons for non-participation identified by the authors, based on my findings regarding Caiçara fisher core values, by adding a third column to the original Trimble et al. (2014) table.

Table 7.1. A complementary explanation for Trimble et al. (2014) fishers-related reasons for non-participation in meetings with government. Adapted from Trimble et al. (2014: 13).

| Fishers-related barriers for participation in meetings with government |                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Subcategories identified by Trimble et al. (2014)                      | Fisher's reasons as pointed by Trimble et al. (2014)                                                                                                                                                                                                                      | Related aspects of "Vida Simples" reflecting core Caiçara fisher values                                                                                                                                                                                                                                                                                                                                                                                                           |
| - Fisher's feelings/emotions or perceptions towards meetings           | - Fishers dislike meetings<br>- Fishers' lack interest<br>- Fisher's lack of concern                                                                                                                                                                                      | - Fishers are suspicious of government and its intentions.<br>- Fishers avoid conflict.<br>- Fishers embrace a 'laidback' persona.                                                                                                                                                                                                                                                                                                                                                |
| - Incompatibility between fisher's way of life and meetings            | - Fishers are always fishing<br>- There is no need for meetings<br>- Fishers have other commitments<br>- Fishers are moving out from the fishery or complementing it with tourism-related activities                                                                      | - Fishers value autonomy and independence.<br>- Freedom from regimentation is central to their wellbeing.<br>- Fishers live in the moment and meetings usually are meant for planning for the future.<br>- Fishers communicate in humorous ways and do not use formal and technical languages.                                                                                                                                                                                    |
| - Representativeness                                                   | - Lack of fisher association organization<br>- Fishers are informed by those that attend the meetings<br>- Young fishers should participate (according to elder ones) *<br>- A city councilman represents fishers<br>- The president of the Colônia represents fishers ** | - It is challenging to find a willing leader because again fishers value being free from regimentation.<br>- To be a leader implies one need to share decision making, negotiate, self-organize and think in the future, ideas that conflict with values of "Vida Simples"<br>- Being a leader requires dealing with conflicts.<br>- Bureaucracies and paper work are not part of fishers' day-to-day routines (perhaps a reason why women normally deal with household budgets). |

\* The young fishers in Lázaro and Saco da Ribeira are the ones engaged in the recently reactivated Fisher Association (see Box 1).

\*\*Very few fishers from Lázaro and Saco da Ribeira mentioned being active participants in the Municipal Fish Association (Colônia de Pesca). Indeed, it did not surface as an important relationship in the relational landscape method (see Figure 6.25). The ones that mentioned it said they would just use it for assistance with paperwork (e.g. fishing licences).

The table argues that in addition to the history of imposed restrictions upon their livelihoods, Caiçaras also mediate their participation in government-driven initiatives based on deeply-rooted cultural tendencies, which is an important additive to the Trimble et al. (2014) argument on "Fishers-related barriers" for non-participation in meetings with government. This cultural analysis has potential to contribute to better understanding the challenges of participation in the study area.

Finally, as also identified by Trimble et al. (2014) most meetings have a consultative, instead of deliberative nature. Therefore, fishers perceive it as a waste of time (and money,

since they must cover their own travel costs to attend, and at the same time miss out on a day of fishing), reinforcing fishers' motivations and behaviours towards not engaging with government initiatives of dialogue. This idea is also explored on Chapter 5 (see section 5.4).

### **7.5. The will and the way: levels of human agency, frustrated freedoms and illegal fishing as “invisible” power**

While Caiçara fishers from Lázaro and Saco da Ribeira generally choose to not engage with meetings with government, they do find alternative and more “silent” ways of responding to their lack of voice in defining their own freedoms. In this sense, they perceive themselves as powerless, or voiceless with regard to policy-making; and yet, they express their agency by electing not to cooperate with imposed restrictions and to resist the power imbalances they are subject to. While this takes several forms, one of the most prominent, I argue, is through the practice of illegal fishing <sup>3</sup>. In this section, I bridge concepts relating freedoms, human agency, and wellbeing to present the idea of illegal fishing as a power expression among Caiçara small-scale fishers.

Let us start with Amartya Sen's fundamental contributions to the discussion around human development and poverty. Sen's capability approach (1985) makes a plea for human agency as intrinsic to wellbeing, by highlighting wellbeing as susceptible not only to wealth, but also to agency deficits. Freedom too, he argues, is central to wellbeing, as it allows accessing and achieving valued opportunities. Moreover, as sharply posed by Sabina Alkire in her reference to Sen's approach to freedom: “the opportunities that matters for an assessment of freedom are those that people value and have reason to value [...]”.

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<sup>3</sup> Here, illegal fishing refers mainly to fishing in forbidden areas, closed seasons, and targeting banned species, rather than illegal fishing practices or gear (as for example illegal practices such as dynamite fishing, also known as blast fishing, common in Southeast Asia and Africa coasts).

Opportunities that people might consider horrid are not to be expanded; nor should an assessment of freedom be formulated by considering all opportunities without taking note of whether or not these opportunities are strongly valued, mildly valued or objectionable” (Alkire, 2007:95).

Low levels of human agency challenge the attainment of valued opportunities, often translating into ‘unfreedoms’, or lack of freedom, and ill-being; as it is through the exercise of human agency that individuals convert available resources into desired wellbeing outcomes (Sen, 1985). Following this reasoning, **opportunity freedoms** denote the extent to which a decision maker can translate a set of options into real opportunities (Alkire, 2007).

For Caiçara fishers, ‘freedom to fish’ presented the lowest levels of satisfaction among all cited wellbeing areas. Indeed, participants expressed a shared feeling of strong constraints to their human agencies in regards to fishing activities. While fishers perceive themselves as capable of fishing, once they possess the material resources (e.g. boat and gears), the knowledge (e.g. local ecological knowledge) and skills needed to decide when, where and how to fish, their capacity to convert *capabilities* (what people are supposedly able to be and do) into *functionings* (the actual achievements of a person) (Sen, 1985) are limited by outside influences; more specifically, by restrictive policies.

Freedoms are therefore also subject to the social-political scaffolding, including formal and informal institutions, and social support, that influence the level of agency of different individuals and groups, also referred as **opportunity structures** (Fischer, 2014). Opportunity freedoms and opportunity structures, together, ultimately define the level of agency enjoyed by individuals or groups (Fischer, 2014). In short, Caiçara fishers’ opportunity freedoms are limited by opportunity structures. However, they still have the autonomy to decide for themselves whether or not to follow the structures they are coercively subject to. This represents another form of exercised agency.

Fischer (2014) deepens the concept of human agency, or “the capacity of individuals to act independently to make their own free choices” (Brown and Westaway, 2011:322), by pointing to the differences between **subjective agency** and **realized agency**: the will and the way. Subjective agency refers to individuals’ or groups perceived ability to achieve what one has reason to value. Subjective agency is related to Sen’s capabilities; however, subjective agency explicitly takes into account peoples’ own perceptions regarding the range of options they have and their ability to access these options. In the case of Caiçara fishers, they perceive themselves as equipped to fish in terms of material, financial and human resources, yet, they lack the capacity of fully converting these assets into action (unless fishing illegally). Realized agency, or what an individual in fact achieves through the exercise of his or her agency, is closer to Sen’s *functionings*, and can refer to Caiçara fishers’ informed decisions to fish illegally, independent of the existence of fishing restrictions.

When opportunities (including opportunity freedoms and opportunities structures) do not allow for realized agency despite the existence of subjective agency, a common outcome is **frustrated freedoms** (Victor et al., 2013): when “individuals possess the subjective agency to achieve more than their material resources and opportunity structures can enable” (Fischer, 2014:156). Despite the existence of material resources, knowledge and skills, fishers are constrained by top-down policies, leading to frustrated freedoms. Frustrated freedoms can lead to coping mechanisms, if actors accept the structural constraints they are subject to. However, it can also lead to resistance. Several quotes from Caiçara fishers point to experiences of frustrated freedoms, and further, resistance to accepting and collaborating with restrictive policies:

“If they [IBAMA] do not let us fish, we will steal the fish. I have my boat, my net; I know where the fish are. I am a fisher. I have the right to fish! They [policymakers] will not change that while they sit in their office with air conditioning in São Paulo or Brasília, not having any idea of what is going on here”.

“They [IBAMA] say our fishing is illegal. I say that they saying our fishing is illegal should be illegal.”

“We became criminals for being workers. Does it make sense?”

Clegg (1989:17) argues, “agency is something which is achieved by virtue of organization”, which has demonstrated to be weak at a community level in the study area (see Chapter 5, section 5.2.4). Scott (1985) offers an alternative perspective in his influential book *The Weapons of the Weak: Everyday Forms of Peasant Resistance*, where he focuses on the “invisible” power of peasants’ everyday ways of resisting the oppression imposed by dominant classes. Here, contrary to organized rebellions or explicit collective action; everyday forms of resistance are subtler in their resistance of power imposition, but still pose as significant responses to the oppression experienced by the poorest. The weapons of the weak include non-cooperation, non-communication, false compliance, feigned ignorance, sabotage and so on (Scott, 1985). Therefore, The Weapons of the Weak represent the working-class resistance or subaltern resistance, which I believe accurately applies to matters of illegal fishing among Caiçara fishers. I agree that while illegal fishing is primarily an individual decision that might also relate to coping mechanisms, when interpreted across space and time, it represents a collective reaction to power imbalances:

“We have to choose if we want to take the risk of going [fishing], even against their [IBAMA] laws. Many of us just go, because we need to fish, it is our right! Fishers are like that, we are always taking risks, it is part of being a fisher. Others just find other ways of making money and prefer to not take risks. I respect everyone’s choices.”

The perceptions of illegal fishing as acceptable practice can perhaps also be interpreted as a new justifiable practice among small-scale Caiçara fishers. As Johnson (2018) points out, “values are constructed through human action while they also motivate human action. There is thus a relationality, or dialectics, to values that links human agency and change as we try to live consistently with our values yet we also adjust our values to lived experiences” (Johnson, 2008: 6). While in the past illegal fishing may have had its

origins as a coping mechanism, the discourse around it today among fishers is that of an explicit response to the blatant disconnect between fisher needs and fishing policy. What was once a behaviour in the shadows, has now also become a form of resistance.

Illegal fishing is, in this sense, a form of expressing power that is positioned somewhere between fishers' acknowledgement of the existence of (top-down) fishing restrictions, and their agency to simply not comply with such policies and defend their interests as best as they can. As posed by Scott (1985:xvii): “just as millions of anthozoan polyps create, willy-nilly; a coral reef, so do the multiple acts of peasant insubordination and evasion create political and economic barrier reefs of their own. It is largely in this faction that the peasantry makes its political presence felt”. By engaging in illegal fishing fishers are sending a clear message:

“If they [IBAMA] do not let us fish, we will steal the fish [fish illegally]. [...] I am a fisher. I have the right to fish!”

Illegal fishing becomes, therefore, an expression of agency among small-scale Caiçara fishers as they build livelihood resilience and react to power imbalances imposed by restrictive fishing policies. Choosing not to follow imposed restrictions helps fishers deal with their frustrated freedoms and to convert their subjective agency into realized agencies. However, by doing so, they risk being treated like criminals, a difficult trade-off with significant impacts on wellbeing, including dignity, feelings of fairness and being treated with respect (Fischer, 2014). Illegal fishing also increases the vulnerability of fishers and their households' members, as they became susceptible to conflicts with enforcement agents (including being threatened and physically harmed), seizure of fishing gear and catch, fines, and in many cases arrestment.

In this thesis, I focus my analysis on fishing activities, yet, many of the same principles of resisting power imbalances can be applied to hunting activities among Caiçaras. As with other natural resource exploits, traditional hunting practices were deemed illegal in

the 1970s due to conservation concerns, but remain an important part of sustenance and practice for many Caicara families (Idrobo, 2014). Figure 7.3. attempts to summarize the argument built above, by connecting opportunity freedoms and structures, levels of agency, frustrated freedoms, resistance as invisible power, and the above-mentioned outcomes for resilience and wellbeing. Box 2 presents a summary of the definitions presented in this section.

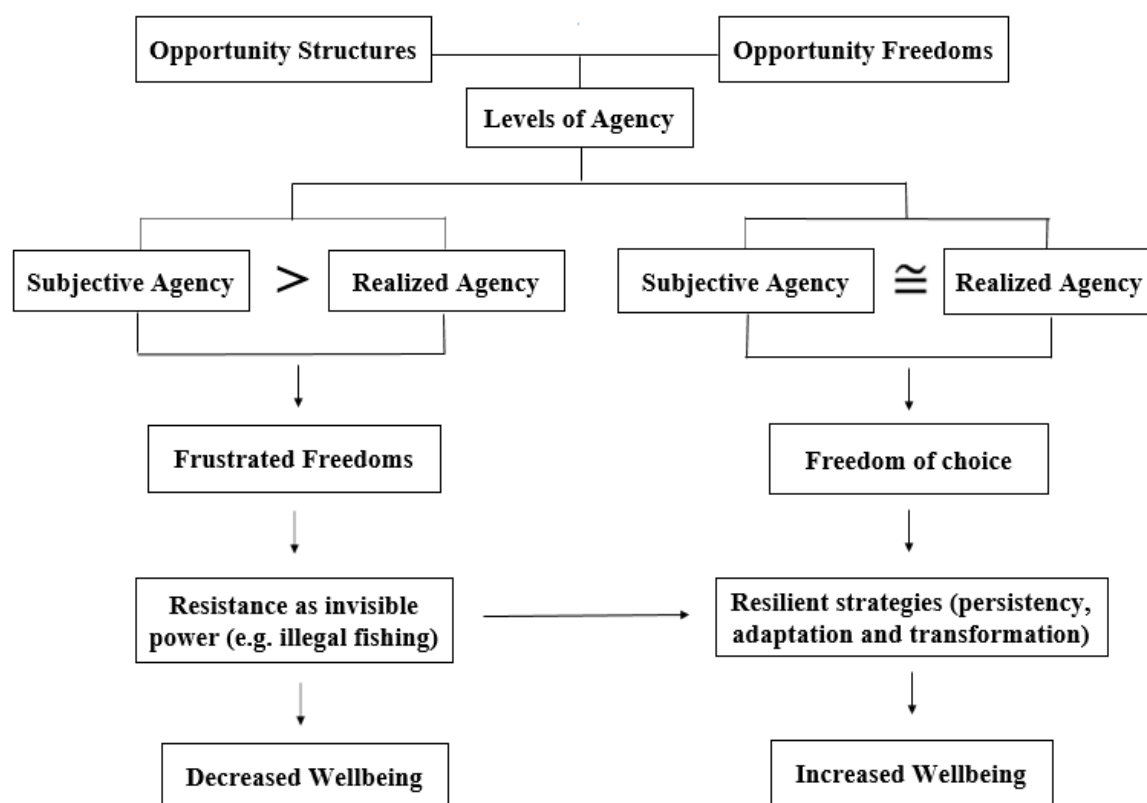


Figure 7.3. Connections between opportunity structures, opportunity freedoms, levels of agency, frustrated freedoms, resilience and wellbeing among small-scale fisher from Lázaro and Saco da Ribeira, Brazil.

**BOX 2. Definitions of the terms used in Figure 7.3.**

**Opportunity Structures:** relates to the social-political structures, including formal and informal institutions, that determine the level of agency of different individuals and groups.

**Opportunity Freedoms:** the extend to which a decision maker can translate a set of options into real opportunities. Sen's functionings, or "achievement of a person" (Sen, 1985:12) .

**Levels of Agency:** the degree to which an individual is able to achieve his, or hers, aspirations and objectives.

**Subjective Agency:** the perceived ability to achieve what one has reason to value. - capabilities

**Realized agency:** what an individual in fact achieves through the exercise of his, or hers, agency – functionings

**Frustrated Freedoms:** when opportunities (including opportunities structures) and resource deficit do not allow for realized agency, despite the existence of subjective agency (Victor et al., 2013).

**Weapons of the Weak:** everyday forms of resistance (or of cultural resistance) to domination or power misbalances, such as non-cooperation, sabotage and feigned ignorance (Scott, 1985).

References: Fischer, 2013; Foster, 2011; Ibrahim and Alkire, 2007; Victor et al., 2013; Scott, 1985; Sen, 1985)

The figure makes the point that both opportunity freedoms and opportunity structures will influence the levels of agency of individuals and groups. When individuals (or groups of individuals) have a high subjective agency, but are not able to translate it into realized agencies, a common outcome is the experience of frustrated freedoms. Frustrated freedoms, in turn, can lead to resistance, or in Scott's (1985) words, everyday forms of resistance (the "weapon of the weak"). In the case of this study, fishers' frustrations with their restricted degrees of freedom to define where, when and how to fish, leads to illegal fishing, not just as a coping mechanism, but also as a form of resisting and responding to the constraints on freedom they are forcefully subject to. Disobeying fishing policies, and fishing illegally in some ways represents a resilient strategy to deal with change, but at the same time can lead to severe consequences for fishing households, such as arrestment and loss of fishing gear, impacting directly the overall wellbeing of the fisher and his or her family.

## **CHAPTER 8. CONCLUSIONS**

### **8.1. Introduction**

Resilience thinking calls for the linkage of human and natural systems, positioning SESs as the unit of analysis (Gunderson and Holling, 2002). Yet, applying ecosystems resilience concepts to social systems risks missing essential differences in behaviours and structures unique to each system. Given this dilemma, scholars have called for strengthening applied research connecting SES resilience to social sciences driven concepts and theories (Béné, 2012; Béné et al., 2014; Brown, 2016; Leach, 2008).

One promising approach to incorporating social aspects into SES resilience is to explore the interplay between resilience and wellbeing (Armitage et al., 2012; Coulthard et al., 2015; Johnson et al., 2018; Weeratunge et al., 2013). Inroads have been made in systems such as fisheries, where the Social Wellbeing approach has been employed to improve our understanding of social dynamics of small-scale fisheries (Armitage et al., 2012; Coulthard et al., 2015; Johnson et al., 2018; Weeratunge et al., 2013). Even so, case studies and applied research remain scarce (see Britton and Coulthard, 2013, for a case study in Northern Ireland).

In response to the gap in knowledge, this thesis has attempted to merge concepts from diverse strands of literature, including individual resilience, community resilience, sustainable livelihoods, the resources profile framework, and more thoroughly the Social Wellbeing Approach, with the aim of making sense of important social aspects for accessing small-scale fishers' resilience strategies in times of change. This final thesis chapter summarizes the main research findings (Section 8.2), study limitations (8.3), theoretical and methodological contributions (Sections 8.4 and 8.5), practical and policy-oriented contributions (Section 8.5), as well as promising areas for future research (8.6).

## 8.2. Main research findings

The five objectives of this research were designed to investigate important aspects regarding resilience and wellbeing amongst Caiçara fishers from Lázaro and Saco da Ribeira Community. In what follows, the main findings arising from each thesis objective are summarized:

*Objectives: 1) To identify small-scale fisher responses to social-ecological changes, including shocks, stresses and new opportunities that arose with economic development; and 2) To investigate resilience processes at the individual, household and community levels, and how resilience at these different levels relate to one another.*

Objectives 1 and 2 were addressed in Chapter 5, which presented the main social-ecological changes experienced by small-scale fishers since the 1970s. The shocks and stresses related to this changes were multiple, ranging from loss of land, and hunting, agriculture and fishing rights, to fish scarcity and increased rates of crime within the community (for a complete view of shocks and stresses see Figure 5.2). At the same time, opportunities related to intensified tourism activities created new options for livelihood diversification. Nevertheless, these opportunities were not available in the same way to all, being mainly subject to financial, material and social assets.

The responses to such stresses and shocks were approached at individual, household, and community levels. Depending on the level, resilience capacity was subject to a diverse set of features, strengths, and limitations. Revisiting the levels approached in this research, I will provide an overview of the main findings regarding individual, household, and community resilience, and the links between these different levels.

In general, family support, attachment to the sea and fishing activities, religion, psychological counseling, formal education and local knowledge, and community infrastructure were protective factors central to individual resilience. Family support was

relevant since individuals without extended family components in the community tended to be less capable of recovering from life adversities, as well as in taking advantage of new opportunities that arose with economic development and intensified tourism in the area. For example, substance abuse issues were more common among individuals that did not have family in the community.

Fishing and being at-the-sea also contributed to individual psychological resilience, as it represented a restorative environment and source of day-to-day contentment for fishers. Psychological counseling was mentioned as relevant by several participants recovering from adversities related to both fishing activities (e.g. conflicts with environmental agents) and other life adversities (e.g. higher criminality and sense of insecurity). Particularly for women, in addition to psychological counseling, religion contributed to individual resilience, as women connected to the church were more capable of dealing with challenges such as domestic violence and substance abuse in the family. Finally, participants with higher knowledge (both formal and local) were more equipped to find alternative sources of revenue related to tourism activities, increasing individual, and household resilience.

At the household level, livelihood diversification and flexibility in livelihood strategies, as well as women's contributions to household income, were key elements for families whom were capable of maintaining fishing as part of their livelihood portfolio, whilst simultaneously taking advantage of new opportunities that arose with economic development and tourism in the area. On the other hand, households that had fishing as the primary source of income were, for the most, those most struggling to adapt to social-ecological changes, as was the case for many trawler fishers. Indeed, trawler fishers were the most vulnerable group amongst participants, as they were facing more challenges with restrictive fishing policies, resource scarcity, and substance abuse.

At the community level, social stratification had increased due to fishers and their households' varying capacities for taking advantages of opportunities related to tourism activities. This ability was highly dependent on available material and financial assets, as well as formal education levels. Another outcome of development was the emergence of more individualized lifestyles, leading to decreases in community cohesion. My findings suggest that economic development led community members to be less dependent on community networks of support and that networks have, in fact, shifted from the community to family levels, weakening community resilience (as in the ability to mobilize community resources for a common goal). Furthermore, different belief systems and churches in the study area also had an impact on decreased community resilience, as I will revisit further in this section.

Regarding the links between resilience at different levels, my findings point out that the connections are not entirely straight forward. In fact, approaching resilience at multiple social levels revealed the complexities of dealing with social-ecological systems resilience more broadly, as resilience does not occur for all in the same way, even within a small fishing community. Indeed, resilience was not homogeneous within levels, and equally dissimilar between levels. For example, lack of individual resilience did not necessarily translate into lower household resilience, and increased household resilience did not translate into increased community resilience. This again adds stress to the notion of “resilience for whom, to what?” and the risks of approaching systems resilience without unraveling the particularities of specific social levels and actors (e.g. specific groups and stakeholders).

Another important finding, which supports a new trend in the social-ecological resilience literature, is that resilience and transformation should not be considered separately. As demonstrated in this research where the fishing community participated in rapid conversion from a more subsistence-based economy to a tourism-orientated one, fishers and

their families responded by persisting (e.g. in fisheries), adapting (e.g. diversifying livelihoods) and transforming (e.g. women engaging in paid jobs and contributing to the household income). Therefore, this data reinforces the need to have a broader approach to resilience, where transformation is considered as part of the abilities needed for the resilience of livelihoods navigating change.

Finally, it is fundamental to acknowledge that resilience, independent of the levels considered, is dependent on time, the kind of shock or stress, and on the various actors and groups within a SES. Indeed, life adversities, shocks, stresses and opportunities, as well as ecological and political contexts are all dynamic processes, and as these change, resilience capacity across all social levels are also likely to change.

*Objectives: 3) To identify participants' aspirations, priorities, and satisfaction levels in terms of material, subjective and relational wellbeing, and 4) To understand how wellbeing understandings are shaped by cultural identities and values.*

Objectives 3 and 4 were addressed in Chapter 6. The chapter presented participants' overall wellbeing perceptions generally and regarding specific self-elected wellbeing areas. A core finding showed that despite evidence of wealth differentiation, most fishers and their wives rated their overall household wellbeing as high ("Good" or "Very Good") and in equal condition ("Average") to other fishing-dependent families. These findings reflect the existence of a shared lifestyle, which I will explore further on this section when I present the main findings for objective 5.

However, a comprehensive research on participants' wellbeing satisfaction rates within self-elected wellbeing areas revealed more nuances, both regarding gender differences and wellbeing satisfaction levels. For example, for both women and men, "Being healthy" was described as fundamental for wellbeing. Nevertheless, while men prioritized "Money",

“Land and house ownership”, “Freedom to fish”, “Relationship with spouse” and “Job satisfaction”, women prioritized “Faith and God”, “Friends and neighbours”, “Family (in general)” and “Sons and daughters doing well”.

These areas of preference are likely influenced by gender roles. Despite the growing contributions of women for household income in the area, there is still a perception that the husband should provide material and financial security for the family. Therefore, “Money” and “Land and house ownership” represented significant areas for men’s wellbeing, as well as “Freedom to fish”, which is directly related to fisher’s ability to provide income for the household. On the other hand, the relevance of both religion (“Faith and God”) and community (“Friends and neighbours”) for women’s wellbeing are likely related to their role as mainstays of community social life; and the areas “Family (in general)” and “Sons and daughters doing well” related to women’s focus on the family unit. Yet, religion was found to be two-sided, as much as it contributed to individuals’ subjective wellbeing and individual resilience, it also played a significant role in decreasing community cohesion by creating divisions between members of different churches and belief systems.

Lastly, while the levels of satisfaction within most wellbeing areas were high, the area “Freedom to fish” presented the lowest satisfaction levels among most participants. The reasons for such lies in the history of top-down management and exclusion of fisher’s needs in fishing policies in the study area, as well as on aspects of the Caiçara culture, which will be addressed in the following summary of objective 5.

*Objective: 5) To explore the interplay of multi-level resilience and social wellbeing, with a focus on policy implications.*

Chapter 7 addressed objective 5. The chapter first discussed the interplay between multi-level resilience and tri-dimensional wellbeing, as found in this research. Exchanges

were found between all resilience levels and wellbeing dimensions, reinforcing the notion that integrating these strands of literature assists in broadening our understanding of social dynamics and processes of fishing-dependent people as they navigate change.

Further, the chapter focused on aspects of relational wellbeing central to the local Caiçara fishing culture, and how Caiçara culture and values influence fishers' engagement with fisheries governance. One of the main findings was that the similarities among overall wellbeing rates found among participants reflect the existence of a shared identity and lifestyle, represented by the concept of "Vida Simples" ("simple life").

The embodiment of values attributed to "Vida Simples", such as fishers' avoidance of conflict, embrace of a 'laidback' persona, appreciation of independence and being free from regimentation, act as a barrier for fishers' engagement with fisheries governance. This research highlights that a continued lack of attention to fishers' cultures will further result in fisheries management initiatives which, on one hand, marginalizes fishing communities, and on the other, fails to achieve its management objectives.

Additionally, matters of power inequality, including abuses by enforcement agents, reinforce on a daily basis the continuous circle of distrust and conflict between fishers and governmental officials. Yet, Caiçara fishers, who hold strong attachments to their activities, will continue to pursue their ways of living, regardless of the constraints that pose significant challenges and increased vulnerabilities for themselves and their families. The widespread practice of illegal fishing and fishers' intentional non-cooperation with management initiatives in Ubatuba reflects fishers' resistance to policies that ignore their needs and wellbeing, while simultaneously representing an expression of power and agency among fishers and a resilience strategy that conflicts with conservation interests and ecological resilience.

### **8.3. Limitations of the study**

The broad scope of this study plays both as its strength and its weakness. The fact that various aspects related to both resilience and wellbeing were researched in this study allowed for a broad understanding of the local context. However, it also limited the analysis in matters that could be approached more deeply. For example, at an institutional level, this research brings contributions for the incorporation of power inequality and freedoms into fisheries policy. At the household level, as well, power discrepancies were represented by gender dynamics, such as domestic violence. However, the data gathered did not highlight explicit power dynamics within the fishing community, a perceived gap in this research.

Moreover, this study offers a limited 'window' in time and therefore refers to a political context that is likely change over time. Indeed, the fact that the Fisher Association was reactivated at the time of the validation trip signals the possibility of new inroads for fishers' engagement with governance (see Box 1). In this sense, as values typically change slowly, as does culture and identity, a long-term study offers the potential to illustrate more clearly how economic development, conservation initiatives, and fishing policies affect fishing people over time and across generations. As stated before, political, social and ecological systems are dynamic, and as these change, understandings of wellbeing may also change. Finally, notably absent from this study are data concerning the local and regional resources, such as current and historic stock status, catches, and yields. Aside from this kind of data simply falling outside the scope of the research objectives, these matters are essential for the resilience of fishing communities, as well as for their wellbeing in the long term. Other limitations regarding some of the methods used in this study are presented in section 8.2 where I present methodological contributions.

#### **8.4. Theoretical contributions**

Before identifying the theoretical contributions of this thesis, it shall be emphasized that a degree of novelty was introduced simply through the marriage of diverse concepts from interdisciplinary strands of literature, in an attempt to garner access to new transdisciplinary angles when exploring resilience and wellbeing. The merger of traditionally disparate strands of literature as a means of strengthening our understanding of resilience and wellbeing among small-scale fishers has the potential to contribute to future research in a Caiçara fishing context, as well as in fishing and natural resource dependent communities more broadly.

While the Panarchy concept and the Social Wellbeing Approach fashioned the framework of this study, other bodies of literature were essential to accessing the complexities of Caiçara fishers' responses to social, ecological and political changes. These bodies of literature included psychological resilience, community resilience, and livelihoods approaches. Figure 8.1 presents the various concepts, from these different bodies of literature that provided important insights for this study. The figure aims to present a summary of relevant concepts found to be essential in this research, for a more detailed review of each concept contribution, refer to Chapters 5 for multi-level resilience, and Chapter 6 for wellbeing. Individually these bodies of literature did not garner new territory in our pursuit of understanding complexity; but in synthesizing the recipe as outline in Figure 8.1, a contribution to the study of social-ecological systems has arguable been made.

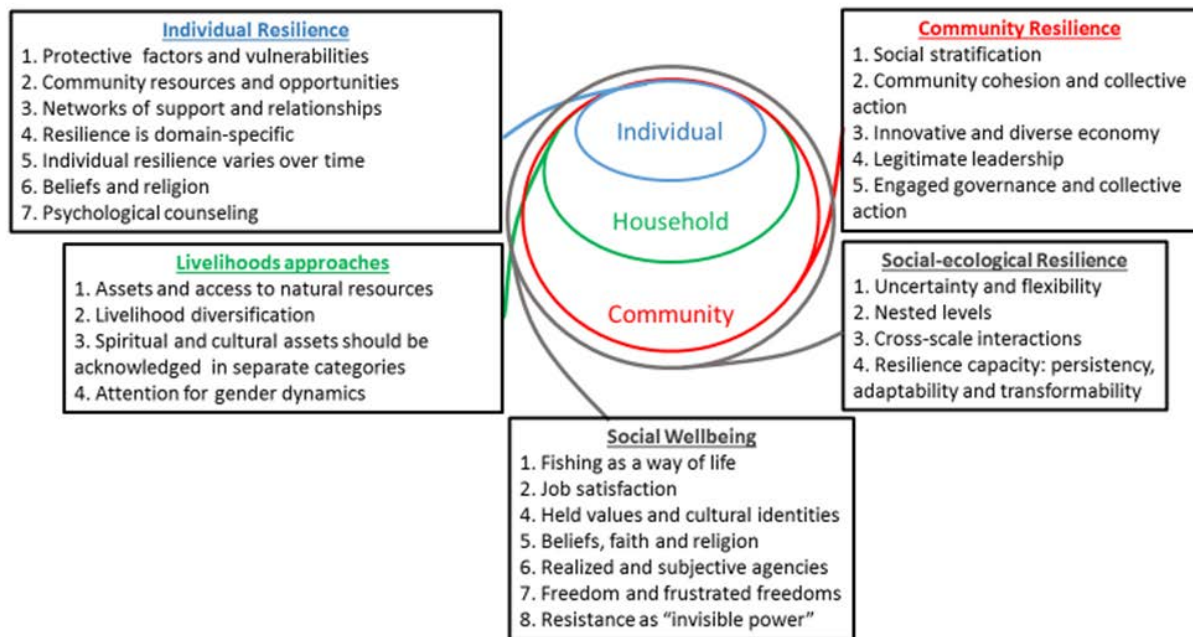


Figure 8.1. Concepts identified as relevant to the study of the interplay of resilience and wellbeing in a small-scale fishing context. The different colors connect the levels approached (individual, household and community) to the strands of literature that provide most significant contributions. The grey circle, involving all three levels, signalizes the literatures on Social-Ecological Systems Resilience and on Social Wellbeing as contributing to all levels of resilience approached.

Continuing further, I offer four main theoretical contributions from this thesis for the integration of relevant social aspects related to SES resilience and wellbeing in the context of small-scale fisheries:

- 1) In order to access the complexities of process occurring for different groups and actors within small-scale fisheries SES, resilience should be approached at multiple levels. Inquiring of resilience processes at various levels and exploring how they relate to one another allows for accessing important aspects of resilience (or lack thereof) that would simply not surface if just one level is explored. A broader systemic approach for resilience (as is often the case in social-ecological resilience studies) risks ignoring power imbalances, matters of voice, and cultural aspect of fishing communities, and therefore intensifying

fishing communities' marginalization, especially for less resilient fishers and their families;

- 2) Resilience, in the context of small-scale fisheries, should simultaneously incorporate adaptation, persistence and transformation. This thesis demonstrated that approaching resilience and transformation as conflicting processes is counterproductive when exploring fishers and their communities' responses to change. As demonstrated in this research, all three processes may occur simultaneously, as fishers, their families and communities respond to social-ecological changes (see Chapter 5, section 5.3.2).
- 3) A more comprehensive view of small-scale fishers' and their family members' wellbeing perceptions and priorities assists in unfolding local cultures and identities, which are central to understanding fishers' behaviours and strategies in times of change. The Social Wellbeing approach provides a lens to explore fishers' *deep* connections to their way of life, as well as to explore fishing communities' needs and shared values. This understanding is essential for successful management of fisheries, whether the objectives are based on ecological or social goals, as fishers' behaviours and actions will inexorably interface with conservation goals.
- 4) Illegal fishing may characterize a form of resistance to power imbalances between fishers and management institutions. In this context, illegal fishing represents an expression of power and human agency among small-scale fishers. Illegal fishing should therefore be read as more than a coping mechanism; rather, it represents a form of

protest to the lack of voice fishers experience in defining their own freedoms, as well as a way of building resilience, while ensuring their needs and wellbeing priorities are met.

## **8.2. Methodological contributions**

Approaching resilience and wellbeing at multiple levels and dimensions not only require adopting concepts from interdisciplinary strands of literature; it inevitably demands the use of multiple methods. Indeed, in this study a thorough gaze into Caiçaras' worlds and worldviews, as necessary to respond to my thesis objectives, was only possible due to the engagement of several research methods. Thus, in order to explore social aspects of fisheries, I strongly recommend the use of a diverse set of research methods. In this study, the employment of diverse research methods helped to fill data gaps, enabled cross-validation and deepened specific research topics. Table 8.1. summarizes the kind of data that was found to be accessed by different research methods, and aims to provide insights for future research.

Table 8.1. A summary of data gathered by different research methods.

| Wellbeing data by method                                                             |                                                                                                                                                                                                                       |                                                                                                     |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Methods                                                                              | Wellbeing data gathered                                                                                                                                                                                               | Number of individuals                                                                               |
| Participant observation (including fishing trips and informal conversations)         | Values, local culture and cultural identities, community members' relationships and dynamics.                                                                                                                         | 115 individuals (including seven youth)                                                             |
| Household surveys                                                                    | Contextual information: participant demographics, livelihood portfolios and livelihood diversification, food security, data on fisheries (resources, fishing gear, and boat size), household general wellbeing rates. | Information on 109 individuals from 41 households                                                   |
| Open-ended interviews with key informants                                            | Participants experienced challenges (shocks and stresses) and opportunities related to social-ecological changes. Participants' life histories.                                                                       | 16 individuals (10 men and 6 women)                                                                 |
| Semi-structured interviews (including the GPGI and the relational landscapes method) | In-depth data on multi-level resilience and the three dimensions of wellbeing, with primary focus on subjective and relational wellbeing dimensions. Data on Caiçara and fisher identity.                             | 30 individuals (12 women and 18 men)                                                                |
| Focus groups                                                                         | Community relations, power dynamics, agency and voice, engaged governance.                                                                                                                                            | Three focus groups:<br>Fishers: 11 (all men)<br>Women: 5 (1 fisherwoman)<br>Youth: (5 men, 2 women) |

Further, living in the community studied was central to the richness of data gathered in this research, as it allowed for a full-immersion in the local day-to-day life. Participant observation is essential, I suggest, to gathering data on both resilience and wellbeing, as many topics related to both concepts are sensitive and dependent on a certain level of trust between participants and the researcher. Particularly to this research, renting a house from a Caiçara fisher, on a central street known locally as “The Caiçara Village” (where most houses were owned and dwelled-in by Caiçaras), enrolling my daughter in the community daycare, engaging in regular informal conversations, going on fishing and tourist trips with local fishers, participating in birthday parties and local festivities and providing English classes for youth; all were part of a thorough and rich participant observation method, which contributed for building trust with community members.

Finally, in offering refinement to the methods developed in this research, I suggest expanding the five areas of importance for wellbeing as customary in the current GPGI method to a more unstructured exploration of wellbeing areas as defined by participants, particularly for studies with small sample sizes. In this way, the potential areas of overlap among participants would be greater and thus garner a stronger case for generalization. With the limitations of five core wellbeing areas, studies in small communities simply result in smaller chances to speaking at the core facets of wellbeing, making it challenging to identify common areas among different participants.

Furthermore, the GPGI method allows participants to explore and rank in greater detail only those areas first identified as their ‘five key areas’ of wellbeing. Therefore, if a participant did not identify a wellbeing area as important, he or she was not further allowed to rank the level of satisfaction with it, again making it difficult to search for generalizations in the data. This too reinforces my suggestion to broaden the allowable range of self-elected areas, as a way of increasing the number of possible ‘points of commonality’ among participants’ wellbeing priorities.

#### **8.4. Governance and policy oriented contributions**

In this thesis, I argue that a better understanding of fishers’ motivations and behaviours is essential to managing long-term sustainability in small-scale fisheries. More specifically, in approaching a holistic view of the interchange of resilience at multiple social levels (individual, household and community) with the three wellbeing dimensions (material, subjective and relational) a complex and informed understanding of Caiçara’s worlds and worldviews was offered. With the understanding of values, identities and cultures, more informed policies that foster human development, poverty alleviation and small-scale fisheries sustainability can be achieved (Jentoft and Chuenpagdee, 2018).

Yet, as observed in the study area, the lack of participation and engagement by small-scale fishers, and many fishers' alternative choices to resist instead of cooperate with fisheries policies points to a disconnect that challenges the viability of social-ecological systems resilience more broadly. In this context, lack of trust and cooperation, in this sense, makes fisheries management objectives hard to accomplish, in economic, social and ecological terms.

Indeed, fisheries governance is frequently challenged by problems that are hard to define, that lack a single root-case, or for that matter, a simple solution. These “wicked” problems also have a tendency to reappear (Jentoft and Chuenpagdee, 2009). In this sense, offering policy recommendations, in a complex context like the one found in this research, can be a risky, if not presumptuous task. Nevertheless, general conclusions can be made as to what it takes for a successful governance model. The key concern is the commitment of various actors, including local organizations and non-state actors, the private sector, market parties, state institutions and other stakeholders involved, to some degree, in the fisheries sector.

Here I argue that there are three fundamental steps to improve chances of more successful fisheries governance in the study area. These steps are closely related to aspects of both community resilience (e.g. community cohesion) and relational wellbeing (e.g. relationships between fishers and state management institutions). The proposed steps are intrinsically dependent upon healthier relationships, and the acknowledgement of power relations and the role of social structures in constraining or creating platforms for small-scale fishers resilience processes. These steps imply social, cultural, institutional and political changes.

First, there is a need for changes at the fishing community level. This will likely include the younger generation of fishers re-evaluating some values related to the Caiçara

identity, for example the concept of freedom. The distinction between short-term individual freedoms (e.g. fishers needs for freedom from regimentation, as presented in Chapter 7) and collective freedoms (the freedom of rights to fish legally for small-scale fishers) seem particularly important. As current fishery policies are often overlooking fishers' wellbeing and needs, and frequently pushing fishers to the margins of society, a compromise of short-term individual freedoms, as well as some values related to it (e.g. avoiding conflicts and challenges related to leadership commitments) might be necessary in order to allow for small-scale fishers' long-term freedoms to access important fishing resources and fishing grounds. For this to be possible, fishers need to organize, develop a capacity for collective action, and claim their rights as a group.

Second, institutional worldviews, particularly within fishery management institutions, must be reformed. While the discourse of participation has gained significant space within these institutions (e.g. IBAMA), the worldviews of much of the staff is still one of top-down management and 'conservation-above-all' priorities. Moreover, governments tend to benefit the industrialized fishing sector due to its presumed "sizable income and export earnings" (Jentoft and Chuenpagdee, 2010: 296), and overlook the rights of small-scale fishers. Even when policy planning requires participation by stakeholders, such as fishers, these occurrences mainly surface in the form of consultations, and do not have a deliberative nature (fishers do not have final decision making power). Therefore, a true commitment to inclusive decision-making is a fundamental step improving fisheries governance (Pomeroy and Berkes, 1997).

Third, reconciliation between local fishers and fisheries management institutions will have to take place before building trust. As demonstrated in this research, the long history of top-down management, abuses of power by enforcement agents, and the marginalization of small-scale fishers have led to significant conflicts, translating into a relationship of mistrust

between fishers and management institutions. To reverse this reality, there is a need to direct financial and human resources towards a (potentially very slow) process of building trust and partnership among fishers and policy makers.

Importantly, rather than simply assuming that there is a need for capacity development for fishers, there is also a need to strengthen the capacity for managers and decision makers to better understand local realities, cultures and wellbeing priorities. In natural resource management, we often tend to look for improvement from the user, and fail to see inadequacies at the institutional level (Bockstael, 2017). Perhaps, by focusing on capacity building at the management level, we have an opportunity to create a model catered to the local context, one that is functional and is culturally sensitive, and therefore assists the discourse of inclusion and participation (see Bockstael et al., 2016) in gaining traction within the study area and beyond.

### **8.5. Promising areas for future research**

With the assumption that the discourse of inclusion and participation continues to gain strength in fisheries management institutions in Brazil (and that there will be investments in time, resources and effort in this direction), a promising area for future research is how the challenges of fishers' participation are negotiated in the long-term. This thesis and other studies with Caiçara fishers in Brazil (Bockstael et al., 2016; Trimble et al. 2014), found that fishers resist participating in meetings with government. Issues of trust in government institutions, due to the long history of top-down management and disregard of local cultures, are at the core of this resistance.

Yet, formal and informal institutions are dynamic and constantly changing; as well, values are constructed and deconstructed over time. At the same time, there is a change in the discourse around stakeholder participation in natural resources management in Brazil,

providing a possibility, given some evidence in this study, that the younger generation of fishers could be more open to engaging in fisheries governance (see box 1 in Chapter 5), signaling the possibility of a new direction in fisheries governance in the study area. Therefore, a related topic of research involves the outcomes of recent reactivation of the local Saco da Ribeira Fisher Association and its potential to bring small-scale fishers together in a forum for a united voice.

Finally, research on gender matters, as the trade-offs that take place when women negotiate the balance between their personal wellbeing with that of their families is a field in need of more research. What are the sacrifices that women are willing to make, and which relationships do they prioritize when negotiating these decisions? Another topic of research related to gender in fisheries is exploring the role women play as pillars of community life. Despite the growing literature on the participation of women in fisheries, including pre- and post- fishing activities, women's roles in community cohesion is still not well understood in small-scale fisheries.

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## APPENDICES

### Appendix 1

#### Questionário para Unidades Familiares sobre meios de subsistência (Projeto Paraty 2010)

##### 1. INFORMAÇÕES SOBRE A UNIDADE FAMILIAR

1.1. Por quanto tempo sua família vive nesta comunidade? ( ) anos

**Tabela 1 - Informações detalhadas sobre os membros da Unidade Familiar e atividades desenvolvidas.**

| 1.2. Indivíduo/<br>parentesco | 1.3.<br>Idade | 1.4.<br>Sexo   | 1.5.<br>Escolaridade | 1.6. Atividades e ocupações ao<br>longo do último ano | 1.7.<br>Gera<br>renda? |
|-------------------------------|---------------|----------------|----------------------|-------------------------------------------------------|------------------------|
| 1                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |
| 2                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |
| 3                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |
| 4                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |
| 5                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |
| 6                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |
| 7                             |               | ( ) M<br>( ) F |                      |                                                       | ( ) Sim                |

1.8. Que outras atividades são praticadas pela sua família?

1 Pesca

2 Embarcado

3 Agricultura

4 Turismo (e.g. dono de hotel, locação de barco, empregado)

5 Proprietário de Peixaria

6 Outros tipos de comércio (excluindo turismo opções

4 e 5; e.g. bares, mercadinhos)

7 Funcionário público

8 Funcionário do setor privado (excluindo opções 4, 5 e 6)

9 Trabalha em ONG

10 Diarista (faz bicos, trabalha por pagamento diário)

11 Fica em casa: aposentado

12 Fica em casa: doente ou cuida de crianças

13 Coleta produtos do mar

14 Aquicultura

15 Artesanato

16 Extração de produtos florestais

17 Outros: \_\_\_\_\_

##### 2. DETALHAMENTO SOBRE AS ATIVIDADES DE PESCA

**Tabela 2 – Caracterização das atividades de pesca (para no máximo 3 pescadores na unidade familiar)**

|                                                                                                                                                                                                                                                                                                |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| 2.1. Quem são os principais pescadores na sua família? (resgatar a informação da Tabela 1)                                                                                                                                                                                                     |  |  |  |
| 2.2. Desde quantos anos cada pessoa pesca?                                                                                                                                                                                                                                                     |  |  |  |
| 2.3. Atualmente, quando você pesca? (1) Raramente; (2) Algumas estações do ano; (3) Todas as semanas; (4) Todos os dias; (5) Outra resposta – Especificar: .....                                                                                                                               |  |  |  |
| 2.4. Você considera que é um pescador (1) em tempo integral ou (2) em tempo parcial?                                                                                                                                                                                                           |  |  |  |
| 2.5. Você se considera um pescador: (1) Artesanal; (2) Industrial; (3) Embarcado                                                                                                                                                                                                               |  |  |  |
| 2.6. Com base em quê você decide onde e por quê pescar? (1) Tradição familiar; (2) Sazonalidade; (3) Dicas ou avisos de amigos/parentes; (4) Experiência pessoal e conhecimento sobre o peixe ou sobre correntes; (5) Demandas de mercado/rentabilidade; (6) Facilidade de captura; (7) Outro: |  |  |  |

2.7. Na sua unidade familiar, vocês possuem embarcação?

( ) Não ( ) Sim (especificar quantas, tamanho e

material): \_\_\_\_\_

2.8. Vocês possuem motor?

☐ Não ☐ 1 Sim (especificar quantos e potência): \_\_\_\_\_

2.9. O que vocês fazem com a captura da pesca, considerando o ano todo? (assinalar aquelas que forem citadas)

☐ 1 Consumida pela família

☐ 5 Vende para restaurante

☐ 2 Divide com parentes

☐ 6 Vende a alguém da comunidade

☐ 3 Divide c/vizinhos e amigos

☐ 7 Outro: \_\_\_\_\_

☐ 4 Vende para peixaria

### 3. SEGURANÇA ALIMENTAR

**Tabela 3 – Produção de alimentos na unidade familiar**

| 3.1. Que alimentos a sua família produz ou coleta? (Ler itens abaixo)       | 3.2. Destino da produção  |
|-----------------------------------------------------------------------------|---------------------------|
| <input type="checkbox"/> 1 Pescado                                          | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 2 Mariscos, ostras, outros produtos de aquicultura | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 3 Criação (galinha e porco) - inclui ovos          | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 4 Mandioca brava/farinha                           | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 5 Mandioca doce                                    | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 6 Verduras e legumes                               | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 7 Banana                                           | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 8 Outras frutas                                    | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 9 Plantas medicinais                               | 1 Consome 2 Vende 3 Ambos |
| <input type="checkbox"/> 10 Outro:                                          | 1 Consome 2 Vende 3 Ambos |

3.3. Quando não há esses alimentos produzidos na comunidade ou em comunidades vizinhas, o que a sua família consome no lugar?

☐ 0 Nada, pois nunca podemos comprar outros alimentos

☐ 1 Alimentos ganhos de vizinhos ou parentes

☐ 2 Às vezes podemos comprar outros alimentos

☐ 3 Sempre podemos comprar outros alimentos

3.4. Se tem roça ou sítio, quantas e qual a área de cada uma? \_\_\_\_\_

(m<sup>2</sup>, ha, alqueire- área/farinha, tarefa, outra unidade local – especificar unidade comparativa)

3.5. Com que frequência a sua família consome peixe?

☐ 0 Não consome

☐ 1 Uma vez por semana

☐ 2 Quase todos os dias

☐ 3 Todos os dias

3.6. Quando você não come peixe, o que você come no lugar?

☐ 0 Nada

☐ 1 Outros animais de criação local ou coletados pela própria família (e.g. galinha, marisco)

☐ 2 Alguma carne, frango ou enlatados comprados

☐ 3 Outros

3.7. Nos últimos 12 meses, a sua família teve alguma escassez dos alimentos a seguir?

☐ 0 Não

☐ 4 Verduras e frutas

☐ 1 Arroz

☐ 5 Peixe e pescado

☐ 2 Feijão

☐ 6 Frango, ovos ou carne

☐ 3 Farinha de mandioca

☐ 7 Outro alimento: \_\_\_\_\_

3.8. Considerando o último mês, você acha que o consumo de alimentos da sua família é:

☐ 1 Ruim

☐ 2 Regular

☐ 3 Bom

☐ 4 Ótimo

3.9. No último mês você recebeu alimentos de amigos ou parentes?  
☐ 0 Não ☐ 1 Sim. Algumas vezes ☐ 2 Sim. Frequentemente

3.10. No último mês você deu alimentos para amigos ou parentes?  
☐ 0 Não ☐ 1 Sim. Algumas vezes ☐ 2 Sim. Frequentemente

#### 4. PERSPECTIVAS PARA O FUTURO - QUALIDADE DE VIDA

4.1. No geral, pensando na sua família, a qualidade de vida é:

- ☐ 0 ruim
- ☐ 1 Mais ou menos
- ☐ 2 Boa
- ☐ 3 Muito boa

4.1b. Em comparação ao passado:

- ☐ 2 Melhorou
- ☐ 2 piorou

Questão adicionada ao questionário original:

4.2. Com relação às outras famílias da comunidade, você considera que a qualidade de vida de sua família é:

- ☐ 0 A melhor da comunidade
  - ☐ 1 Entre as melhores da comunidade
  - ☐ 2 Na média da comunidade
  - ☐ 3 Entre as piores da comunidade
  - ☐ 4 A pior da comunidade
- Por que?

4.3. Pensando na sua família, quais questões você gostaria de melhorar?

- |                                                     |                                        |
|-----------------------------------------------------|----------------------------------------|
| <input type="radio"/> 0 Nada, não há o que melhorar | <input type="radio"/> 5 Educação       |
| <input type="radio"/> 1 Dinheiro                    | <input type="radio"/> 6 Moradia        |
| <input type="radio"/> 2 Comida                      | <input type="radio"/> 7 Diversão/lazer |
| <input type="radio"/> 3 Trabalho                    | <input type="radio"/> 8 Outros.        |
| <input type="radio"/> 4 Saúde                       | Quais? _____                           |

4.4. Se você tivesse mais dinheiro, quais seriam as três principais prioridades para você? (Assinalar apenas 3)

- ☐ 1 Comprar comida
- ☐ 2 Melhorar a estrutura da casa.

Como? \_\_\_\_\_

- ☐ 3 Investir nas atividades de pesca
- ☐ 4 Investir na aquicultura
- ☐ 5 Investir na agricultura
- ☐ 6 Educação
- ☐ 7 Pagar empréstimos
- ☐ 8 Economizar. Algum plano futuro? \_\_\_\_\_
- ☐ 9 Mudar-se. Para onde? \_\_\_\_\_
- ☐ 10 Não sei
- ☐ 11 Outros: \_\_\_\_\_

4.5. Se a pesca não é uma prioridade da pergunta anterior, por quê você não investiria na pesca?

- ☐ 1 Não é rentável
- ☐ 2 Não tem tradição na pesca
- ☐ 3 Quer mudar de atividade
- ☐ 4 Tem limitação (e.g. doença, condição física)
- ☐ 5 Outro: \_\_\_\_\_

4.6. Você fez algum empréstimo de dinheiro nos últimos 2 anos?

- ☐ 0 Não (*pule a próxima questão, vá para 4.8*)
- ☐ 1 Sim. Com familiares

- ( ) 2 Sim. Com intermediários  
 ( ) 3 Sim. Com peixarias  
 ( ) 4 Sim. Com Banco do Brasil (Programa BB Aquicultura e Pesca – PRONAF)  
 ( ) 5 Sim. Com outros bancos  
 ( ) 6 Sim. Com outras pessoas (excluindo intermediários, peixarias e familiares)  
 ( ) 7 Sim.

Outros: \_\_\_\_\_

4.7. Você tem alguma dívida atualmente?

- ( ) 0 Não  
 ( ) 1 Sim. Menor que R\$ 1.000,00 Com intermediários  
 ( ) 2 Sim. Entre R\$ 1.000,01 e R\$ 5.000,00  
 ( ) 3 Sim. Entre R\$ 5.000,01 e R\$ 15.000,00  
 ( ) 4 Sim. Maior que R\$ 15.000,01

**Tabela 4 – Pensando no futuro**

| <i>(Anotar todas as opções que se aplicam; questão 4.9 apenas para aqueles que têm filhos que vivem na mesma unidade familiar)</i> | 4.8. Que atividades você gostaria de estar fazendo nos próximos anos? | 4.9. O que você gostaria que seus filhos fizessem no futuro? |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------|
| 1 Pesca                                                                                                                            | Sim Não                                                               | Sim Não                                                      |
| 2 Trabalho como embarcado                                                                                                          | Sim Não                                                               | Sim Não                                                      |
| 3 Agricultura                                                                                                                      | Sim Não                                                               | Sim Não                                                      |
| 4 Turismo (e.g. dono de hotel, locação de barco, empregado)                                                                        | Sim Não                                                               | Sim Não                                                      |
| 5 Proprietário de Peixaria                                                                                                         | Sim Não                                                               | Sim Não                                                      |
| 6 Outros tipos de comércio (excluindo opções 4 e 5; e.g. bares, mercadinhos)                                                       | Sim Não                                                               | Sim Não                                                      |
| 7 Funcionário público                                                                                                              | Sim Não                                                               | Sim Não                                                      |
| 8 Funcionário do setor privado (excluindo opções 4 a 6)                                                                            | Sim Não                                                               | Sim Não                                                      |
| 9 Trabalhar em ONG                                                                                                                 | Sim Não                                                               | Sim Não                                                      |
| 10 Diarista (faz bicos, trabalha por pagamento diário)                                                                             | Sim Não                                                               | Sim Não                                                      |
| 11 Ficar em casa: aposentado ou cuidar de crianças                                                                                 | Sim Não                                                               | Sim Não                                                      |
| 12 Coletar produtos do mar                                                                                                         | Sim Não                                                               | Sim Não                                                      |
| 13 Aquacultura                                                                                                                     | Sim Não                                                               | Sim Não                                                      |
| 14 Artesanato                                                                                                                      | Sim Não                                                               | Sim Não                                                      |
| 15 Extração de produtos florestais.                                                                                                | Sim Não                                                               | Sim Não                                                      |
| 16 Mudar-se para a cidade                                                                                                          | Sim Não                                                               | Sim Não                                                      |
| 17 Outros                                                                                                                          |                                                                       |                                                              |

4.10. O que impediria seus filhos de realizar esse futuro? *(Apenas para aqueles que responderam a questão 4.9)*

- |                                                |                               |
|------------------------------------------------|-------------------------------|
| ( ) 0 nada impede                              | ( ) 5 Falta de boa educação   |
| ( ) 1 Falta de peixe para pescar               | ( ) 6 Perda de tradição       |
| ( ) 2 Unidades de conservação restritivas      | ( ) 7 Perda de biodiversidade |
| ( ) 3 Muitas pessoas praticando esta atividade | ( ) 8 Poluição                |
| ( ) 4 Falta de emprego local                   | ( ) 9 Outros: _____           |

**Household surveys: livelihood - translation to English**  
Paraty Project 2010

1. Household data

1.1. For how long have you lived in this community? ( ) years

**Table 1 – Detailed information about household members and their activities.**

| 1.2. Interviewee/<br>Relationship with<br>interviewee | 1.3.<br>Age | 1.4.<br>Sex                                              | 1.5. Level<br>of education | 1.6. Activities during the last year | 1.7.<br>Paid<br>job? |
|-------------------------------------------------------|-------------|----------------------------------------------------------|----------------------------|--------------------------------------|----------------------|
| 1                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |
| 2                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |
| 3                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |
| 4                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |
| 5                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |
| 6                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |
| 7                                                     |             | <input type="checkbox"/> M<br><input type="checkbox"/> F |                            |                                      | Yes                  |

1.8. Other household members' activities?

- |                                                    |                                                           |
|----------------------------------------------------|-----------------------------------------------------------|
| <input type="checkbox"/> 1 Fishing                 | <input type="checkbox"/> 10 Maid and housekeeping         |
| <input type="checkbox"/> 2 Crew member             | <input type="checkbox"/> 11 Retired                       |
| <input type="checkbox"/> 3 Agriculture             | <input type="checkbox"/> 12 Looks after kids              |
| <input type="checkbox"/> 4 Tourism                 | <input type="checkbox"/> 13 Sea food gathering            |
| <input type="checkbox"/> 5 Fish Market owner       | <input type="checkbox"/> 14 Aquiculture                   |
| <input type="checkbox"/> 6 Other business owner    | <input type="checkbox"/> 15 Arts and crafts               |
| <input type="checkbox"/> 7 Public servant          | <input type="checkbox"/> 16 Extraction of forest products |
| <input type="checkbox"/> 8 Private sector employee | <input type="checkbox"/> 17 Other: _____                  |
| <input type="checkbox"/> 9 Works for NGO           |                                                           |

2. FISHING ACTIVITIES DETAILS

**Table 2 – Fishing activities details**

|                                                                                                                                                                                                                                       |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| 2.1. Who are the main fishers in the household                                                                                                                                                                                        |  |  |  |
| 2.2. Age that they started fishing                                                                                                                                                                                                    |  |  |  |
| 2.3. How often do you fish currently? (1) Rarely; (2) Seasonally; (3) Weekly; (4) Daily; (5) Other – specify: .....                                                                                                                   |  |  |  |
| 2.4. You consider yourself a: (1) full-time fisher or (2) part-time fisher?                                                                                                                                                           |  |  |  |
| 2.5. You consider yourself a: (1) Artisanal fisher; (2) Industrial fisher; (3) Crew member                                                                                                                                            |  |  |  |
| 2.6. How do you decide where and when to fish? (1) Family tradition; (2) Season; (3) Tips from friends and relatives; (4) personal experience regarding fish and sea currents; (5) Market demands; (6) Easy capture; (7) Other: ..... |  |  |  |

2.7. Does the household have a boat?

- ☐ 0 No      ☐ 1 Yes (how many, size and material): \_\_\_\_\_

2.8. Does the boat have an engine?

- ☐ 0 No      ☐ 1 Yes (how many and horse power): \_\_\_\_\_

2.9. What do you do with the catch (consider the whole year)?

- ☐ 1 Household consumption  
☐ 2 Share with relatives  
☐ 3 Share with friends and neighbours  
☐ 4 Sell to fish markets  
☐ 5 Sell to restaurants  
☐ 6 Sell to community members  
☐ 7 Other: \_\_\_\_\_

### 3. FOOD SECURITY

**Table 3 – Household food production**

| 3.1. What food your household produces or gather                                  | 3.2. production destination                                                                       |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1 Fish                                                   | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 2 shellfish, mussel, oysters, other aquiculture products | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 3 Chicken, pigs, eggs                                    | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 4 Manioc                                                 | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 5 Sweet manioc                                           | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 6 Vegetables and greens                                  | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 7 Banana                                                 | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 8 Other fruits                                           | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 9 Medicinal plants                                       | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |
| <input type="checkbox"/> 10 other:                                                | <input type="checkbox"/> 1Consome <input type="checkbox"/> 2Vende <input type="checkbox"/> 3Ambos |

3.3. When these products are not available in the community, or neighboring communities, what do your household consume instead?

- ☐ 0 We can't afford other foods  
☐ 1 Neighbours and relatives' donations  
☐ 2 Some times we can afford to buy foods  
☐ 3 We always can afford to buy foods

3.4. Do you have land for gardening, what size? \_\_\_\_\_

3.5. How often do your household consume fish?

- ☐ 0 Not at all    ☐ 1 Once a week    ☐ 2 Almost every day    ☐ 3 Every day

3.6. When you do not eat fish, what you eat instead?

- ☐ 0 Nothing  
☐ 1 Local livestock products or wild gathered products  
☐ 2 Bought meats  
☐ 3 Other

3.7. In the last 12 months, did your household have any food shortages?

- ☐ 0 No    ☐ 4 Vegetables and fruits  
☐ 1 Rice    ☐ 5 Fish and sea foods  
☐ 2 Beans    ☐ 6 Chicken, eggs or beef  
☐ 3 Manioc flower    ☐ 7 Other: \_\_\_\_\_

3.8. In last month, you would consider the quality of your household diet:

- ☐ 1Bad    ☐ 2 Regular    ☐ 3 Good  
 Excellent

4 □

3.9. In the last month, did you receive foods from friends or neighbours?

- ☐ 0 No    ☐ 1 Yes. Some times    ☐ 2 Yes. Frequently

3.10. In the last month, did you give foods to friends and relatives?

- ☐ 0 No    ☐ 1 Yes. Some times    ☐ 2 Yes, Frequently

### 4. FUTURE PERSPECTIVES - WELLBEING

4.1. In general, your household wellbeing is:

- ☐ 0 Bad    ☐ 1 More or less    ☐ 2 Good    ☐ 3 Very Good

4.1b. In comparison to the past, it has (question added to the original questionnaire)

- ☐ 2 Improved
- ☐ 2 Worsen

4.2. In comparison with other community fishing households, you consider your household wellbeing:  
Com relação às outras famílias da comunidade, você considera que a qualidade de vida de sua família é:

- ☐ 0 The best in the community
- ☐ 1 Among the best in the community
- ☐ 2 In average
- ☐ 3 Among the worst in the community
- ☐ 4 the worst in the community

4.3. Thinking about your household, which aspects would you like to improve?

- |                                 |                                               |
|---------------------------------|-----------------------------------------------|
| <input type="radio"/> 0 Nothing | <input type="radio"/> 5 Education             |
| <input type="radio"/> 1 Money   | <input type="radio"/> 6 Housing               |
| <input type="radio"/> 2 Food    | <input type="radio"/> 7 Fun and entertainment |
| <input type="radio"/> 3 Work    | <input type="radio"/> 8 Other _____           |
| <input type="radio"/> 4 Health  |                                               |

4.4. If you had more money, what would be your 3 investments priorities?

- ☐ 1 Buy food
- ☐ 2 Household infrastructure.

How? \_\_\_\_\_

- ☐ 3 Fishing activities
- ☐ 4 Investments in aquiculture
- ☐ 5 Investments in agriculture
- ☐ 6 Education
- ☐ 7 pay debts
- ☐ 8 Savings. Any specific future plans? \_\_\_\_\_
- ☐ 9 Move. To where? \_\_\_\_\_
- ☐ 10 I don't know
- ☐ 11 Other: \_\_\_\_\_

4.5. If fishing is not an investment priority: why?

- ☐ 1 It is not profitable
- ☐ 2 No family tradition in fisheries
- ☐ 3 I want to change to other activities
- ☐ 4 Health limitations
- ☐ 5 Other: \_\_\_\_\_

4.6. Did you borrow money in the last year?

- ☐ 0 No
- ☐ 1 Yes. From relatives
- ☐ 2 Yes. From the middleman
- ☐ 3 Yes. From fish market owners
- ☐ 4 Yes. From the bank
- ☐ 6 Yes. From friends or other people
- ☐ 7 Yes. Other: \_\_\_\_\_

4.7. Do you have debts currently?

- ☐ 0 No
- ☐ 1 Yes. Less than R\$ 1.000,00
- ☐ 2 Yes. Between R\$ 1.000,01 and R\$ 5.000,00
- ☐ 3 Yes. Between R\$ 5.000,01 and R\$ 15.000,00
- ☐ 4 Yes. More than R\$ 15.000,00

\*R\$ = Brazilian Reais

**Table 4 – Thinking about the future**

|                                  | 4.8. what activities would you like to be doing in the next years? | 4.9. What activities would you like your kids to be doing in the future? |
|----------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1 Fisheries                      | Yes No                                                             | Yes No                                                                   |
| 2 Crew member                    | Yes No                                                             | Yes No                                                                   |
| 3 Agriculture                    | Yes No                                                             | Yes No                                                                   |
| 4 Tourism                        | Yes No                                                             | Yes No                                                                   |
| 5 Fish market owner              | Yes No                                                             | Yes No                                                                   |
| 6 Other business                 | Yes No                                                             | Yes No                                                                   |
| 7 Public servant                 | Yes No                                                             | Yes No                                                                   |
| 8 Private sector employee        | Yes No                                                             | Yes No                                                                   |
| 9 NGO                            | Yes No                                                             | Yes No                                                                   |
| 10 Maid and housekeeping         | Yes No                                                             | Yes No                                                                   |
| 11 Retired                       | Yes No                                                             | Yes No                                                                   |
| 12 Sea foods gathering           | Yes No                                                             | Yes No                                                                   |
| 13 Aquiculture                   | Yes No                                                             | Yes No                                                                   |
| 14 Arts and crafts               | Yes No                                                             | Yes No                                                                   |
| 15 Extraction of forest products | Yes No                                                             | Yes No                                                                   |
| 16 Move to the city              | Yes No                                                             | Yes No                                                                   |
| 17 Other                         |                                                                    |                                                                          |

4.10. What would prevent your children to achieve this future?

- ☐ 0 Nothing  
☐ 1 Fish scarcity  
☐ 2 Conservation restrictions  
☐ 3 To many people doing the same activities (e.g. tourism)  
☐ 4 Lack of job options  
☐ 5 Lack of education  
☐ 6 Tradition loss  
☐ 7 Biodiversity loss  
☐ 8 Pollution  
☐ 9 Others: \_\_\_\_\_

**Appendix 2**  
**Open-ended interview**

Pergunta:

Você poderia, por favor, me contar sobre sua vida como pescador ou pescadora, e os desafios e oportunidades que você enfrentou?

ou

Você poderia, por favor, me contar sobre sua vida como esposa de um pescador, e os desafios e oportunidades que você enfrentou?

**Translation from Portuguese to English**

Question:

“Could you please tell me about your life as a fisher, and the challenges and opportunities you have faced thought it”?

“Could you please tell me about your life as a wife of a fisher, and the challenges and opportunities you have faced thought it”?

### Appendix 3

#### Entrevista semi-estruturada

##### **Tópico: Diversificação de meios de vida**

- 1) Na nossa última entrevista você me contou que você tem outras fontes de renda além da pesca. Você pode me contar mais sobre quando e porque começou esta(s) atividade(s)?**

Perguntas complementares:

Porque você decidiu iniciar esta nova atividade?

Foi uma resposta a uma nova oportunidade ou a única saída que você encontrou para complementar sua renda?

Esta decisão trouxe mais conforto para sua família? Porque?

Outras pessoas participam desta atividade? Como?

Eles são parentes? Qual parentesco?

Você prefere trabalhar com seus parentes? Eles são pagos?

É um trabalho fixo ou temporário?

Quem te ajudou a tomar a decisão de começar esta atividade?

Alguém te ajudou a conseguir este emprego/bico?

Você chegou a começar outras atividades para complementar sua renda e parou? Porque?

##### **Pergunta alternativa para aqueles que só vivem da pesca**

- 1) Eu observei que vários pescadores têm outras fontes de renda. Porque você se manteve somente na pesca?**

Perguntas complementares:

Você teve outras oportunidades?

Você gostaria de ter outras fontes de renda?

##### **Tópico: Qualidade de vida**

- 2) Você está satisfeito com sua qualidade de vida? Muito insatisfeito, insatisfeito, tudo bem, satisfeito, muito satisfeito? Porque?**

- 3) O que é importante para você viver bem? Usar o “GPGI Method”.**

Perguntas complementares:

O que qualidade de vida significa para você?

O que você precisa para viver bem?

O que te faz feliz no dia-a-dia?

- 4) Quais relacionamentos são importantes para você viver bem? Quais próximas são estas relações para você? Usar o “Relational Landscape Method”.**

Perguntas complementares:

Na sua casa?

Família?

Outras pessoas e famílias na comunidade?

Você pesca com eles (as)?

E na pesca, quais relações são importantes e influenciam sua atividade?

- 5) Quando você tem um problema na sua família/vizinhança com quem você pode contar?**

- 6) Quando você tem um problema na pesca com quem você pode contar?**

- 7) Outras pessoas te procuram pedindo ajuda ou apoio?**

- 8) Você participa de decisões que afetam outras pessoas na comunidade?**

Perguntas complementares:

Como?

- 9) Você participa de algum grupo/atividade/evento na comunidade?**

Perguntas complementares:

Como?

Quem mais participa?  
Outras pessoas de sua família participam? Quem? Como?  
Desde quando?

**10) Você pesca com mais pessoas? Como funciona?**

Perguntas complementares:

Com quem?  
Vocês dividem o barco?  
Gasolina?  
Petrechos?  
Como dividem o peixe?  
São familiares?  
Você prefere pescar com familiares?

**11) Você se preocupa com o futuro?**

Perguntas complementares:

Com que?  
Por que?

**12) Como você vê as igrejas na comunidade?**

Perguntas complementares:

Você é religioso? Ou pessoas de sua família?  
Você prefere se relacionar com pessoas da mesma religião?  
Você prefere pescar com pessoas da mesma religião?

**13) Você pode me contar do momento mais difícil de sua vida como pescador? Como você respondeu?**

Perguntas complementares:

Foi quando?  
Como te impactou?  
Afetou sua família também?  
Afetou outras famílias?  
O que você fez?

**14) Você já foi abordado pela fiscalização? Como foi?**

**15) O que significa para você “ser Caiçara”?**

Perguntas complementares:

O que diferencia o Caiçara de outros povos tradicionais?  
“Ser caiçara” mudou através do tempo na sua opinião?  
Existem características exclusivas dos Caiçaras?

**16) O que significa para você ser um pescador(a)/esposa de pescador?**

**17) Como é sua relação com turistas?**

Perguntas complementares:

Quanto você interage com turistas?  
Como?  
Socialmente ou financeiramente?  
Quais as vantagens e desvantagens do turismo?

**18) Quanto de sua renda vem da pesca?**

( ) menos da metade      ( ) metade      ( ) maior parte      ( ) toda

**19) Você tem licença de pesca? Esta válida?**

**20) Você faz parte da colônia de pesca?**

**Semi-structured interviews translated to English**  
**Topic: Livelihood diversification**

- 1) Do you have other sources of income besides fishing? Can you tell me more about when and why you started this (these) activity (s)?**

Probes:

Why did you decide to start this new activity?  
Was it a response to a new opportunity or the only way you found to supplement your income?  
Has this decision brought more comfort to your family? Why?  
Do other people participate in this activity? How?  
Are they relatives?  
Do you prefer to work with your relatives? Are they paid?  
Is it a permanent or temporary job?  
Who helped you make the decision to start this new activity?  
Has anyone helped you get this job?  
Have you ever started a new activity to supplement your income and stopped? Why?

**Alternative question for those who only live on fishing**

- 1) I noticed that several fishers have alternative sources of income. Why did you keep only fishing as yours?**

Probes:

Have you had other opportunities?  
Would you like to have other sources of income?

**Topic: Wellbeing**

- 2) Are you satisfied with your quality of life? Very dissatisfied, dissatisfied, okay, satisfied, very satisfied? Because?**

- 3) What is important for you to live well? Use "GPGI Method".**

Probes:

What quality of life does it mean to you?  
What do you need to live well?  
What makes you happy on a daily basis?

- 4) What relationships are important for you to live well? How close do you feel to these relationships? Use the "Relational Landscape Method".**

Probes:

In your household?  
Family?  
Other people and families in the community?  
Do you fish with them?  
And in fishing, what relationships are important and influence your activity?

- 5) When do you have a problem in your family / neighborhood with whom you can count?**

- 6) When do you have a fishing problem with whom you can count?**

- 7) Do other people seek you for help or support?**

- 8) Do you participate in decisions that affect others in the community? How?**

- 9) Do you participate in any group / activity / event in the community?**

Probes:

Who else participates?  
Do other people in your family participate?

Since when?  
Church?  
Community festivities?

**10) Do you fish with other people? How does it work?**

Probes:

With who do you fish?  
Do you share the same boat, or gear?  
Do you share the fuel costs?  
Do you share the catch?  
Are they family members?  
Do you rather fish with family members or non-family members?

**11) Do you worry, or have concerns regarding the future?**

Probes:

With what? Why?

**12) How do you see the role of churches in the community?**

Probes:

Are you religious? Are others in your family religious?  
Do you rather relate with people from the same religion? Why?  
Do you rather fish with people from the same religion? Why?

**13) Can you tell me about the hardest moment of your life as a fisher?**

Probes:

How did it impact you? When was it?  
Did it affect your family?  
Did it affect other families?

**14) Have you ever got caught by enforcement?**

**15) What does it mean to you to be a Caiçara?**

Probes:

What differentiates Caiçaras from other traditional communities?  
Did the meaning of being Caiçaras change over time?  
Are there characteristics particular to Caiçaras people?

**16) What does it mean to you to be a fisher, or the spouse, of a fisher?**

**17) How is your relationship with tourists?**

Probes:

Do you interact with tourists? Socially or financially?  
Are there advantages, or disadvantages, of such interaction?

**18) How much of your income originates from fisheries?**

- Classify: ( ) less than half    ( ) half    ( ) most all    ( ) all

**19) Do you have a fishing licence? Is it valid?**

**20) Are you part of the *Colônia de pesca*?**

**Appendix 4**  
**Focus groups: Women, Men and Youth**

**Grupo Focal -Mulheres**

Data: 29 de maio de 2015  
Horário: 17:30hs  
Local: Rua Bela vista, 75, Lázaro

**Introdução:**  
Bem-vindas!

Primeiro quero apresentá-las para a Deborah. A Deborah veio nos ajudar a organizar este encontro. Ela trabalhou com caiçaras e pescadores na Ilha Grande durante o seu trabalho de mestrado e agora esta fazendo o doutorado na UNICAMP.

Bom, até agora eu tenho focado em vocês separadamente ou nas suas famílias. Neste encontro a ideia é focar na comunidade de famílias de pescadores do Lázaro e do Saco da Ribeira.

Eu elaborei perguntas para discutirmos e acredito que 2 horas sejam suficientes. No fim teremos nossa festa de encerramento!

Voltando ao nosso encontro, o método que vamos usar se chama grupo focal. Em grupos focais grupos de pessoas se reúnem para discutir algo em comum, proposto pelo pesquisador. Grupos focais normalmente contam com facilitadores. A regra número um é que todos tenham a oportunidade de exporem suas ideias e opiniões. O facilitador tem esta função, a de garantir que todos falem e se escutem. Outro papel do facilitador é garantir que não fujamos do assunto proposto, ou seja, ele nos ajudar a manter o foco! O Rafael será nosso facilitador hoje.

Este formulário de consentimento (ler o formulário) garante que todas as informações aqui discutidas sejam confidenciais, e que a gravação só será vista por mim. Eu gostaria de ter a assinatura de vocês no final do encontro, se vocês não se importarem, caso prefiram podem apenas me dar seu consentimento oralmente. Isso é uma forma de garantir que todos se comprometem a manter a confidencialidade a cerca do que foi conversado em nosso encontro.

**Perguntas:**

Como o objetivo hoje é falar sobre comunidade. Primeiro é importante a gente conversar sobre o que comunidade significa para todos.

**1) O que é comunidade para vocês?**

Perguntas complementares:

Vocês usam o termo comunidade no dia a dia para referir ao Lázaro e Saco da Ribeira?

O que difere uma comunidade de um bairro?

Como se relacionam pessoas em uma comunidade?

Como pessoas se relacionam em uma comunidade Caiçara?

**2) Vocês consideram o Lázaro e Saco da Ribeira uma comunidade? Porque?**

Perguntas complementares:

As duas comunidades podem ser consideradas como uma só?

Como elas se diferenciam?

Que tipo de coisas as pessoas fazem juntas?

**3) Nas entrevistas muitas de vocês me contaram como o Lázaro e o Saco da Ribeira mudaram através do tempo. Todas concordam que mudou?**

Perguntas complementares:

Se sim, como?

**4) Como estas mudanças afetaram as relações entre famílias Caiçaras?**

Perguntas complementares:

Com o turismo mudou, e como estas mudanças afetaram as relações?

Como as mudanças afetaram como as famílias, e as pessoas, se relacionam?

**5) Vocês se lembram de alguma vez que os Caiçaras daqui se reunirão para discutir algo de interesse de todos ou alguma preocupação em comum?**

Perguntas complementares:

Se não, vocês acham que tem alguma situação que teria sido importante se reunirem?

Se sim, me conte mais sobre esta ocasião.

Quando foi?

Vocês chegaram a um consenso?

O que aconteceu depois?

Pessoas das duas comunidades participaram?

De quem foi a iniciativa? Houve alguma liderança?

Vocês consideram esta comunidade organizada ou não?

Em que circunstâncias são organizadas?

Como lidam com restrições relacionadas a pesca?

**6) Nas entrevistas muitos falaram da questão de união entre pescadores. Os pescadores daqui são unidos?**

Perguntas complementares:

Todos concordam que os pescadores são unidos, ou desunidos?

Qual é a consequência para a comunidade?

Quando, e em que situações são unidos ou não?

Como eram as relações entre pescadores no passado e como são hoje em dia? Mudou?

**7) O que vocês acham que existe de mais precioso entre as relações das famílias daqui?**

**8) Como vocês veem o futuro do Lázaro e Saco da ribeira?**

Perguntas complementares:

Qual seria a situação ideal?

Quais estratégias seriam necessárias para se chegar a este ideal?

Seria importante as pessoas se unirem para alcançar este ideal?

**9) O que vocês gostariam de estar fazendo em 10 anos?**

**Tem algo mais que acham interessante, ou importante de discutirmos? Alguém gostaria de acrescentar algo?**

## Women's focus group translated to English

Introduction (not translated)

The objective today is to talk about Community.

### Questions:

**1) What is community for you?**

Probes:

Do you use the term Community to refer to Lázaro and Saco da Ribeira?

Is a community different from a neighbourhood?

How people in a community relate to each other? How people in a Caiçara community relate to each other?

**2) Do you consider Lázaro e Saco da Ribeira a Community? Why?**

Probes:

The two neighbourhoods can be considered one community? If not, why?

What kind of activities people from both neighbourhoods do together?

**3) During the interviews, many of you told me that Lázaro and Saco da Ribeira has changed over time. Does everyone agree?**

Probes:

If yes, how?

**4) How did these changes impacted relations between Caiçaras families?**

Probes:

How did tourism change? How did these changes influence how families relate?

**5) Do you remember of a time where Caiçaras from here got together to discuss something of interest of all or about a shared concern?**

Probes:

If not, where times you believe this would have been important? If yes, tell us more about it.

What happened after?

People from both Lazaro and Saco da Ribeira were involved?

Was there any leadership?

Do you consider that the community is organized? Why and how?

How does the community deal with imposed fishing restrictions?

**6) During the interviews, many of you talked about matters of union among fishers. Are fishers united here? What are the consequences for the community?**

Probes:

Do all agree fishers are united or not united? When are fishers united, or not united?

How were relations between fishers in the past e how is it today? Did it change?

**7) What do you believe are the most valuable aspects of the relationships among families from Lázaro and Saco da Ribeira?**

**8) How do you see the future of Lázaro and Saco da Ribeira?**

Probes:

What would be the ideal scenario?

What strategies would be necessary to achieve this ideal scenario?

**9) What would you like to be doing in 10 years?**

**Is there anything else you think is interesting, or important, for us to discuss? Would anyone like to add any point to the questions we approached today?**

## **Grupo Focal - Pescadores**

Data: 27 de Maio de 2015

Horário: 17:30

Local: Rua Bela vista, 75, Lázaro

### **Introdução:**

Bem-vindos!

Quero apresentá-los para o Rafael, ele veio nos ajudar com a organização de nosso encontro. O Rafael é aluno de doutorado na UNICAMP e já trabalhou com pescadores também. Obrigada Rafael!

Bom, até agora eu tenho focado na família e conversado individualmente com vocês em minha pesquisa. Neste encontro a ideia é focar na comunidade de pescadores do Lázaro e do Saco da Ribeira, de forma mais geral.

Eu elaborei 7 perguntas para discutirmos e acredito que 2 horas sejam suficientes. No fim teremos comes e bebes. Na sexta-feira, depois do encontro das mulheres, teremos uma festa de encerramento para todos juntos!

Voltando ao nosso encontro, o método que vamos usar se chama grupo focal. Em grupos focais grupos de pessoas se reúnem para discutir algo em comum, proposto pelo pesquisador. Grupos focais normalmente contam com facilitadores. A regra número um é que todos tenham a oportunidade de exporem suas ideias e opiniões. O facilitador tem esta função, a de garantir que todos falem e se escutem. Outro papel do facilitador é garantir que não fujamos muito do assunto proposto, ou seja, ele nos ajudar a manter o foco! O Rafael será nosso facilitador hoje.

Este formulário de consentimento (ler o formulário) garante que todas as informações aqui discutidas sejam confidenciais, e que a gravação só será escutada por mim. Eu gostaria de ter a assinatura de vocês no final do encontro, se vocês não se importarem, caso prefiram podem apenas me dar consentimento oralmente. Isso é uma forma de garantir que todos se comprometem a manter a confidencialidade acerca do que foi conversado em nosso encontro.

### **Perguntas:**

**Perguntas 1 e 2 – mesmas do grupo focal das mulheres.**

- 3) Vocês se lembram de alguma vez que os pescadores Caiçaras daqui se reunirão para discutir algo de interesse de todos ou alguma preocupação em comum?**

Perguntas complementares:

Se não, vocês acham que tem alguma situação que teria sido importante se reunirem?

Se sim, me conte mais sobre esta ocasião.

Quando foi?

Vocês chegaram a um consenso?

O que aconteceu depois?

Pessoas das duas comunidades participaram?

De quem foi a iniciativa? Houve alguma liderança?

Vocês consideram esta comunidade organizada ou não?

Em que circunstâncias são organizadas?

Como vocês lidam com restrições relacionadas a pesca?

- 4) Nas entrevistas muitos falaram da questão de união entre pescadores. Os pescadores daqui são unidos?**

Perguntas complementares:

Todos concordam que os pescadores são unidos, ou desunidos?

Qual é a consequência para a comunidade?

Quando, e em que situações são unidos ou não?

Como eram as relações entre pescadores no passado e como são hoje em dia? Mudou?

- 5) **Vocês ouviram falar de uma possível privatização do Saco da Ribeira? Como isso afetaria os pescadores?**

Perguntas complementares:

Como os pescadores responderiam a isso?

- 6) **Como vocês veem o futuro da pesca no Lázaro e Saco da Ribeira?**

Perguntas complementares:

Qual seria a situação ideal?

Seria sustentável a longo termo? Como torna-la acessível as futuras gerações?

Quais estratégias seriam necessárias para se chegar a este ideal?

Seria importante os pescadores se organizarem enquanto grupo?

- 7) **O que vocês gostariam de estar fazendo em 10 anos?**

### **Men's focus group translated to English**

Introduction (not translated)

Questions 1 and 2 - same as the women's focal group.

- 3) **Do you remember of a time where fishers from here got together to discuss something of interest of all or about a shared concern?**

Probes:

If not, do you think there are any situations that would have been important if you met?

If yes, tell me more about this occasion. When was it?

Did you reach a consensus? What happened next?

People from both communities participated?

Whose initiatives, was it? Was there any leadership?

Do you consider that this community is organized? Why and how?

Under what circumstances is it organized?

How does the community deal with imposed fishing restrictions?

- 4) **During the interviews, many of you talked about matters of union among fishers. Are fishers united here? What are the consequences for the community?**

Probes:

Do all agree fishers are united or not united here? When are fishers united, or not united?

How were relations between fishers in the past e how is it nowadays? Did it change?

- 5) **Have you heard of a possible privatization of Saco da Ribeira landing spot? How would this affect the fishermen?**

Probes:

How would fishers respond to it?

- 6) **How do you see the future of fishing in Lázaro and Saco da Ribeira?**

Probes:

What would be the ideal situation? Is it sustainable in the long run?

What strategies would be needed to achieve this ideal?

Would it be important for fishers to organize as a group to achieve this ideal?

- 7) **What would you like to be doing in 10 years?**

**Grupo focal - Jovens**  
**(pertencentes à famílias de pescadores do Lázaro e Saco da Ribeira)**

**Introdução:**

Bem-vindos!

Primeiro quero apresentá-las para a Deborah. A Deborah veio nos ajudar a organizar este encontro. Ela trabalhou com caixaras e pescadores na Ilha Grande durante o seu mestrado e agora esta fazendo doutorado na UNICAMP.

Eu tenho focado na família e nos indivíduos em minha pesquisa até agora. Entrevistei seus pais e mães, mas faltou conversar mais com vocês. O objetivo deste encontro é conversar sobre o Lázaro e no Saco da Ribeira, a pesca, e o futuro.

Eu elaborei 8 perguntas para discutirmos e acredito que 2 horas sejam suficientes. No fim teremos comes e bebes.

O método que vamos usar se chama grupo focal. Em grupos focais de 4 a 10 pessoas se reúnem para discutir algo proposto pelo pesquisador. Grupos focais normalmente contam com facilitadores. A regra número um é que todos tenham a oportunidade de exporem suas ideias e opiniões. O facilitador tem esta função, a de garantir que todos falem e se escutem. Outro papel do facilitador é garantir que não fuçamos do assunto proposto, ou seja, ele (a) nos ajudar a manter o foco! A Deborah será nossa facilitadora neste grupo focal.

Este formulário de consentimento (ler o formulário) garante que todas as informações aqui discutidas sejam confidenciais, e que a gravação deste encontro só será vista por mim. Eu gostaria de ter a assinatura de vocês no final do encontro, se vocês não se importarem, caso prefiram podem apenas me dar seu consentimento oralmente. Isso é uma forma de garantir que todos se comprometem a manter confidencialidade sobre do que foi conversado neste encontro.

**Perguntas:**

**Perguntas 1 e 2 mesmas dos grupos focais das mulheres e pescadores.**

**3) Vocês tem muitos amigos (as) no Lázaro e Saco da Ribeira?**

Perguntas complementares:

Vocês fazem parte de algum grupo de jovens?

Eles têm pescadores na família?

Como estes grupos interagem com a sua vida?

Como vocês acham que as amizades e relações mudaram em relação aos pais de vocês? Os laços estão mais fracos ou fortes?

**4) Como vocês veem a profissão de seus pais pescadores?**

**5) Vocês aprenderam, ou apreendem, sobre a pesca com seus pais?**

Perguntas complementares:

Se não, porque?

Foi por falta de interesse seu em aprender, ou de seus pais em ensinarem/incentivarem?

Você considera estes conhecimentos importantes?

Se sim, o que aprenderam?

**6) Vocês já consideraram ser pescadores ou trabalhar em atividades relacionadas a pesca? Por que?**

Perguntas complementares:

Se não, porque?

Se sim, em quais atividades?

Se a pesca voltasse a ser uma atividade lucrativa, vocês considerariam começar a pescar?

Vocês gostariam que seu marido/esposa fossem pescadores, ou trabalhassem em atividades relacionadas à pesca?

**7) Como vocês veem o futuro da pesca no Lázaro e Saco da Ribeira?**

**8) O que vocês gostariam de estar fazendo no futuro próximo? E no futuro distante?**

## **Youth focus group translated to English**

Introduction (not translated)

**Questions 1 and 2 - same as other focal groups (women and men).**

**3) Do you have many friends in Lázaro and Saco da Ribeira?**

Probes:

Are you part of any community youth group?

Do they have fishers in the family?

How do these groups interact with your life?

How do you think friendships and relationships have changed in relation to your parents' time as youth?

Are the friendship ties weaker or stronger?

**4) How do you see your father's, or mother's, fishing profession?**

**5) Did you, or do you, learn about fishing with your parents?**

Probes:

If yes, tell us more.

If not, why?

Was it because of your lack of interest in learning or of your parents' in teaching/incentivizing?

**6) Have you ever considered being a fisher or working in activities related to fisheries? Why?**

Probes:

If not, why?

If yes, tell us more?

What activities?

If fisheries became a more lucrative activity, would you consider being a fisher?

Would you like for you husband, or wife, to be a fisher, or work in fishing related activities?

**7) How do you see the future of fishing in Lázaro and Saco da Ribeira?**

Probes:

What would be the ideal situation?

Is it sustainable in the long run?

What strategies would be needed to achieve this ideal?

Would it be important for fishers to organize as a group to achieve this ideal?

**8) What would you like to be doing in the short and long-term future?**

## Appendix 5 Validation Material



### **Principais mudanças nos meios de vida de famílias de pescadores do Lázaro e Saco da Ribeira nos últimos 50 anos**

#### Principais oportunidades:

- ❖ Mais empregos.
- ❖ Maior segurança alimentar (acesso à maior variedade de alimentos).
- ❖ Mais educação.
- ❖ Maior renda devido à atividades relacionadas ao turismo (aluguel de casas, aluguel de stand ups e caiaques, passeios e pescarias com turistas, etc).
- ❖ Marinaria.
- ❖ Venda e revenda de peixe.

#### Principais desafios:

- ❖ Perda de terras para turistas e pessoas de fora.
- ❖ Criação do parque e proibição das roças e caça.
- ❖ Restrições à pesca (áreas proibidas e defesos).
- ❖ Burocracias para obtenção de licenças de pesca.
- ❖ Poluição na temporada.
- ❖ Turistas com menor poder aquisitivo.
- ❖ Drogas e alcoolismo.
- ❖ Maior criminalidade (assaltos e roubos).

#### Principais Consequências:

- ❖ Emigração para o centro e outras cidades.
- ❖ Conflitos e falta de confiança em órgãos do governo.
- ❖ Investimento em outras atividades e fontes de renda.
- ❖ Pescado e petrechos de pesca aprendidos pela polícia ambiental
- ❖ Insegurança.
- ❖ Laços entre caixas enfraquecidos (menos união, meios de vida mais individualizados).
- ❖ Pescadores de camarão estão enfrentando muitos obstáculos, muitos mencionaram estarem considerando vender seus barcos.



**Appendix 6**  
**Ethics Approval Certificate**



UNIVERSITY  
OF MANITOBA

**Research Ethics and Compliance**  
Office of the Vice-President (Research and International)

Human Ethics  
208-194 Dafoe Road  
Winnipeg, MB  
Canada R3T 2N2  
Phone +204-474-7122  
Fax +204-269-7173

**APPROVAL CERTIFICATE**

**July 25, 2014**

(Advisor – F. Berkes)

**TO: Marta Collier Ferreira Leite**  
Principal Investigator

**FROM: Susan Frohlick, Chair** [REDACTED]  
Joint-Faculty Research Ethics Board (JFREB)

**Re: Protocol #J2014:112**  
**"Resilience, Social Well-being and Gendered Knowledge Among**  
**Fishing-Dependent Households in Southeastern Brazil"**

Please be advised that your above-referenced protocol has received human ethics approval by the **Joint-Faculty Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement (2). **This approval is valid for one year only.**

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

**Please note:**

- If you have funds pending human ethics approval, please mail/e-mail/fax (261-0325) a copy of this Approval (identifying the related UM Project Number) to the Research Grants Officer in ORS in order to initiate fund setup. (How to find your UM Project Number: <http://umanitoba.ca/research/ors/mrt-faq.html#pr0>)
- if you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.

The Research Quality Management Office may request to review research documentation from this project to demonstrate compliance with this approved protocol and the University of Manitoba *Ethics of Research Involving Humans*.

**The Research Ethics Board requests a final report for your study (available at: [http://umanitoba.ca/research/orec/ethics/human\\_ethics\\_REB\\_forms\\_guidelines.html](http://umanitoba.ca/research/orec/ethics/human_ethics_REB_forms_guidelines.html)) in order to be in compliance with Tri-Council Guidelines.**

Appendix 7  
Consent form

Formulário de consentimento



**Natural Resources Institute**

70 Dysart Rd,

Winnipeg, Manitoba  
Canada R3T 2N2

General Office (204) 474-7170

Fax: (204) 261-0038

**Projeto de pesquisa: Adaptação, bem-estar social e qualidade de vida entre famílias dependentes da pesca em Ubatuba e Paraty, Brasil.**

Pesquisadora principal e contatos: Marta Collier Ferreira Leite [REDACTED]

Orientador: Prof. Fikret Berkes  
University of Manitoba

Bolsa de estudos e custeios de pesquisa de campo:

- 1) Canada Research Chair em manejo comunitário de recursos naturais; Centro internacional de desenvolvimento (International Development Research Centre)
- 2) Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)

Este formulário de consentimento tem a função de lhe dar uma ideia básica sobre a minha pesquisa e de seu envolvimento na mesma. Se você quiser obter um maior detalhamento sobre qualquer informação aqui apresentada, ou quaisquer informações adicionais, por favor sinta-se à vontade para me perguntar.

Eu estou realizando minha pesquisa de doutorado, em uma universidade do Canada (endereço e contatos acima). O propósito da minha pesquisa é entender como as famílias que dependem (em algum grau) da pesca se adaptam às mudanças e quais as consequências para seu bem-estar, qualidade de vida, satisfação no trabalho e felicidade. Minha pesquisa também tem o objetivo de estudar os diferentes conhecimentos e habilidades que homens e mulheres empregam para se adaptarem a mudanças em suas vidas.

As entrevistas terão a duração média de 1 a 2 horas dependendo da sua disponibilidade (onde você me contará, em suas palavras, as mudanças pelas quais sua família passou, e como se adaptaram a estas mudanças) e, posteriormente (em outro dia e horários a combinar), uma nova entrevista de 1 a 3 horas (onde farei perguntas mais específicas sobre adaptação e o que é importante para o bem-estar e qualidade de vida sua e de sua família). Você pode escolher participar de todas estas fases, somente de uma, ou nenhuma destas. Com sua permissão, irei

gravar nossas conversas, caso não se sinta a vontade, eu apenas tomarei nota.

Benefícios: a pesquisa tem como objetivo identificar as qualidades e condições necessárias que você e seus familiares têm, ou precisariam ter, para se adaptarem a mudanças e terem qualidade de vida. Esta pesquisa pode auxiliar você, seus familiares e a comunidade a reivindicarem por ações que melhorem sua qualidade de vida. Adicionalmente, a pesquisa e os resultados encontrados podem auxiliar outras famílias dependentes da pesca que encontram os mesmos desafios, assim como disponibilizar um melhor entendimento de importantes fatores para o bem-estar de famílias dependentes da pesca no futuro.

Os dados e resultados finais desta pesquisa serão entregues a agências do governo responsáveis pelo manejo da pesca, e assim tem como objetivo informá-los das condições e oportunidades necessárias para famílias dependentes da pesca e suas comunidades melhor lidarem com mudanças sociais, econômicas e ambientais, e melhorarem suas qualidades de vida.

Sua identidade, e de seus familiares, serão mantidas em sigilo durante toda a pesquisa, e nenhuma informação será diretamente associada a seu nome, ao menos que você solicite o contrário. As informações coletadas serão armazenadas em meu computador pessoal, protegido por senha, e somente acessíveis por mim.

Após o término da pesquisa, eu me comprometo a apresentar para você, e todos participantes da pesquisa, de forma oral e escrita, os resultados encontrados durante este trabalho. Os resultados finais serão utilizados em relatórios, em minha tese de doutorado, publicados em revistas científicas e apresentados em congressos e conferências.

A sua participação nesta pesquisa é voluntária e não remunerada. Você está totalmente livre para sair da pesquisa a qualquer momento, assim como “pular” qualquer pergunta que não se sinta a vontade em responder. Se você assim fizer não haverá qualquer consequência negativa. Caso eu não tenha explicado de forma clara minha pesquisa, por favor me faça qualquer pergunta que julgar necessária ao longo de sua participação.

Sua assinatura, ou consentimento oral, neste formulário indica que você obteve as informações necessárias em respeito a sua participação neste projeto de pesquisa e concordou em participar do mesmo.

Esta pesquisa foi aprovada pelo Comitê de Ética de Pesquisa da Universidade de Manitoba. Se você tiver quaisquer dúvida ou reclamação você poderá contatar quaisquer dos contatos apresentados a cima, ou diretamente o coordenador de ética humana no e-mail: [margaret.bowmen@umanitoba.ca](mailto:margaret.bowmen@umanitoba.ca).

Assinatura do participante:\_\_\_\_\_ Data:\_\_\_\_\_

Assinatura da pesquisadora:\_\_\_\_\_ Data:\_\_\_\_\_