Who owns the fish?

Participatory Approaches in Puerto Rico’s Fisheries

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Abstract of Thesis submitted by Miguel H. Del Pozo for the Degree of Doctor of Philosophy and entitled:

Who Owns the Fish? Participatory Approaches in Puerto Rico’s Fisheries

This dissertation explores why Puerto Rico’s primary stakeholders’ participation in fisheries management is tokenistic at best. While participation discourses are present in Puerto Rico’s fisheries management, a parallel discourse about ‘overfishing’ and the ‘tragedy of the commons’ has created an irreconcilable gap between primary stakeholders and the management institutions. As part of this study I collected data in an arena where various key actors (commercial fishermen, recreational fishermen and agency experts) face each other in the consultation processes, i.e. scoping meetings and public hearings. These encounters proved to occur on an (un)common ground where participation in fisheries policy-making was nearly impossible due to: 1) knowledge conflicts between users and institutional experts/scientists, where each party claimed to possess a more reliable body of knowledge about the marine resource, and 2) a generalised distrust based on different conceptualisations about marine resources and different views of whom, how and why it should (or should not) be managed. I argue that the tensions between the actors involved have led to at least two mechanisms to give the fisheries management apparatus an appearance of stability: 1) the institutionalisation of ignorance and 2) the use of fisheries regulations as a ‘boundary object’ to align the actors, and to fix their identities and responsibilities. In short, participation praxis has been reduced to a minimum given the fissures between scientific knowledge and the primary stakeholders’ knowledge and between marine resource conservation and fishing activity. But above all, participation has been restricted because primary stakeholders distrust institutions that restrict small-scale/artisanal fishing while at the same endorsing construction development in vital
coastal habitats. Such development, as understood by the fishermen, is against sound environmental management, given that it impacts negatively on essential ecosystems that are crucial to the fisheries well-being.

The majority of the ethnographic research was done in a fishing community in Fajardo, Puerto Rico, over an eleven-month period. I collected qualitative data about commercial fishermen’s views on the marine resource and its management. I also documented how these fishermen negotiated ‘space to manoeuvre’ in the non-participatory environmental management scenario outlined above. The ‘greening’ of commercial fishermen’s discourses is a formidable example.

Three months of ethnographic research were also conducted on nearby Culebra Island in an attempt to understand the Marine Protected Area (MPA) of El Canal Luis Peña (CLP) that is ‘marketed’ as a community-based natural reserve and a no-take zone. Although the MPA does not necessarily fulfil all the requirements to be considered a community-based environmental management programme, its creation was definitely a breakthrough in marine resource management participation processes when compared to the main island. Culebra’s MPA is an interesting and challenging case-study that not only contributes to the understanding of how environmental management and policy-making is done and transformed, but also contributes to the question of how, if at all, to put together the pieces when informants disagree.
Declaration

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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done this. Zilkia believed in me at times when I do not. Thanks for the support, the love and
understanding.
List of Abbreviations

CE – Comunidad Especial
CV – Cuerpo de Vigilantes
CEN – Corredor Ecológico del Noreste
CFC – Caribbean Fishery Council
CCDA – Culebra’s Conservation and Development Authority
CTDC – Commission for the Touristic Development of Culebra
DA – Department of Agriculture
DNER – Department of Natural and Environmental Resources of Puerto Rico
FAC – Fishermen Association of Culebra
FKP – Fishers’ Knowledge and Practices
FSA – Fish Stock Assessment
FWS – Fish and Wildlife Service
FEPDEMAR – Federación de Pescadores y Defensores del Mar
HFD – Hunting and Fishing Division
HMS – Highly Migratory Species
LFR – Laboratory of Fisheries Research
MEM – Marine Ecological Management
MPA – Marine Protected Area
MRD – Marine Resources Division
MSA – Magnuson-Stevens Fishery Conservation and Management Act
MRSS – Marine Recreational Statistical Service
NMFS – National Marine Fisheries Service
NOAA – National Oceanographic and Atmospheric Administration

NIMBY – not in my backyard

TEK – Traditional Ecological Knowledge

USVI – United States Virgin Islands
Chapter 1

Introduction

“The government should manage to protect us; the fisherman is the true endangered species”

This dissertation revolves around the encounters and avoidances in Puerto Rico’s fisheries management. The research is an exploration of why Puerto Rico’s primary stakeholders’ participation in fisheries management is tokenistic at best. While participation discourses are present in Puerto Rico’s fisheries management, a parallel discourse about ‘overfishing’ and the ‘tragedy of the commons’ has created an irreconcilable gap between primary stakeholders and the management institutions.

I argue that the tensions between the actors involved have led to at least two mechanisms that give the fisheries management apparatus an appearance of stability: 1) the institutionalisation of ignorance and 2) the use of fisheries regulations as a ‘boundary object’ to align the actors and to fix their identities and responsibilities. As a result of such mechanisms, participation praxis has been reduced to a minimum. Fissures between scientific knowledge and the primary stakeholders’ knowledge, and between marine resource conservation and fishing activity, have also contributed to a fictional participation. But above all, participation has been restrained because primary stakeholders distrust institutions that restrict small-scale/artisanal fishing while endorsing construction development in vital coastal habitats. Such development, as understood by the fishermen, is against sound environmental management, since it impacts negatively on essential ecosystems that are crucial to the fisheries’ well-being.

It is my contention that discontinuities in fisheries management are a result of the intersection of divergent social worlds. The epigraph above exemplifies the discontinuity between the state’s views of marine management and those of commercial fishermen. State agencies’ views about marine conservation are totally disconnected from its social implications. Actually, the energy spent on understanding the social aspects of Puerto Rico’s fisheries has been minimal, while most efforts have been expended in disentangling the biological aspects. The weak attempts to incorporate the ‘users’ into marine management are a reflection of the
state’s standpoint. Puerto Rico has timidly entered into an era in which participatory and empowerment discourses are globalised and seen in a positive light. Puerto Rico’s discourses about marine primary stakeholder’s participation in fisheries management are shy and its practice is tokenistic. This thesis addresses the possible reasons that explain why Puerto Rico’s fisheries management is still to date an expert-led, top-down approach. However, based on the insufficiency of studies attempting to understand the island’s fisheries, the scope of the study needed to open up to broader subjects that were in serious need of problematisation. This lack of knowledge regarding the dynamics of Puerto Rico’s fishing industry is the rationale for the following chapters: 1) chapter 2 provides a broad description of the fishing community and the fishermen; 2) chapter 3 continues with an analysis of fishermen and fishing community identities; 3) chapter 4 follows with the roles of fisheries management state’s institutions, fisheries scientific knowledge and the experts; 4) chapter 5 explores the interconnections between the actors and coastal development and between discourses regarding marine conservation and coastal development 5) chapter 6 then explores the fishermen’s views regarding the resource and its management; 6) chapter 7 explores the ‘rare’ case of a community-based Marine Protected Area (MPA). This chapter arrangement aims to provide the reader with an understanding of how fisheries management is a powerful artefact that, through explicit and tacit actions and discourses, fixes identities and advances certain projects, while demoting others. In this scenario, fisheries management and stakeholder participation perform as “boundary objects” in which the actors are aligned (freely and coercively) for the legitimisation of the fisheries management apparatus. This analysis then helps in the understanding of how environmental management institutions serve as a state tool advance coastal development plans.

**Participation and environmental management**

In recent times, the rhetoric of participation has been a constant in the theory and practice of development. Although it has lost some of its initial impetus, the discourse of participation still survives today and appears to be an obligatory appendage of development practice. Thirty years on, the benefits of shifting from top-down to participatory approaches are yet to be realised, but
despite this, the discourse seems as strong as ever, often appearing to be an intrinsic element within development practice. Similarly, participation discourses have found a solid foothold in environmental management. Interestingly, while participatory rhetoric has found fertile soil in environmental management, the supremacy of the experts and scientific-led institutionalised approaches have also consolidated themselves in a privileged position. Now the question is: can these two approaches coexist? I propose not only that they can, but that centralisation is intrinsic to participatory approaches; for participatory approaches are less about participation and more about alignment. Different actors are represented through spokespersons in such a way that the management institution becomes an ‘obligatory passage point’ (Callon 1986). True participation, in which every stakeholder at the decision-making table is endowed with equal amount of power, is utopian to say the least. In fact, it can be argued that true and comprehensive participation may not even be desired. If the whole plethora of possible stakeholders is included in the environmental management process, the needs and demands of those true primary stakeholders may well get diluted.

The existence and persistence of the phenomena just described (i.e. coexistence of participation and centralised approaches, management institutions as ‘obligatory passage points’, and the alignment of the actors) in the environmental management arena is made possible, regardless of their apparent contradictory nature, by a balance of ignorance. Institutionalised ignorance makes possible the survival of contradictory discourses (participation and tragedy of the commons) and of contradictory discourses and praxis (participation and centralisation, conservation and indiscriminate unsound development). However, calculated ignorance is not only present in the state’s institutions; primary stakeholders have found that a balance between contestation and ignorance is a useful approach to an environmental management system that they understand as unfair. Ignorance is used here in the sense that Hobart (1993) and Quarles van Ufford (1993) proposed. When systematic knowledge and its institutions solidify, so does ignorance. Quarles van Ufford (1993), in his analysis of development interventions in Indonesia, proposed the concept of a systems model. This model explains the processes that make possible such solidification of systematic knowledge, institutions and ignorance. He defines a systems model as: 1) assuming the desirability and manageability of social change; 2) seeing the relationships between the different actors as relatively unproblematic; 3) using evaluation and
feedback as tools to see how far the project is off its original goals, instead of using them in institutional learning; and 4) providing an image of efficiency, coherence, and integration.

The first point relates to Callon’s idea of ‘obligatory passage point’ where a particular group within a network becomes indispensable. By stressing (or perhaps imagining) the ‘durable crisis’ of fish stocks (Taylor 1999), fisheries management institutions have cemented the very need for management. Just as with the scallops’ crisis in St Brieuk Bay, if the fish are to survive, if the fishermen want to keep their jobs at sea, if the consumers want to keep enjoying a plate of fresh fish, then it will be necessary to follow the experts’ management advice. In order to establish the need for institutional management, it is necessary to first portray the fishermen as helpless, powerless and ignorant.

The second element, the de-problematisation of the actors, is evident in the simplistic characterisation of the stakeholders, the fish and the environmental problem. The need of scientific fisheries knowledge practices for standardisation and immutability have resulted in distant representations of the main actors, while the problem at hand, the apparent marine resource depletion, has been explained in terms of just one of the many variables affecting the resource: ‘overfishing’.

Point three, like the first item about the desirability and manageability of social change, operates in relation to ‘becoming indispensable’. Institutional artefacts, such as evaluation, annual reviews and technical reports, are used as a way to measure the degree of accomplishment in relation to a pre-defined goal, which are unalterable. Fisheries’ institutions have proved to be incapable of shifting away from this pre-arranged set of goals. Stakeholder’s participation, having made its appearance late in the management scenario, has achieved an anemic position in the institutional set of management priorities.

Quarles van Ufford’s fourth point about the system model makes sense in the fisheries scenario since the image of efficiency, coherence and integration are needed in order to maintain hegemony and sustain the ‘problematisation’. This, which produces more ignorance than knowledge, makes the system durable through time and solidifies it as an obligatory passage point. In this light, he argues that a contradiction is evident, for “the need to know what is happening” at local levels, meaning decrypting the dynamics of the natural and social worlds, is
necessary for, and the aim of, management of marine resource at institutional levels; while, at the same time, the “need of remaining ignorant of what is happening” are interconnected (Quarles van Ufford 1993: 138). Marine systems and the people that approach them are so complex (even chaotic) that fisheries institutions have rested on ignorance as a way to cope with the vast list of ‘immeasurable’ elements. Ignorance refers not only to lack of knowledge about something, but also to the act of ignoring its existence. On the other hand, stakeholders, having to deal with a regulation apparatus that they cannot control, have found that a balance between contestation and ignorance is useful as well. Stakeholders question the validity and purpose of institutional/scientific knowledge, but this contestation does not always lead to explicit resistance. Many of them, feeling the impotence and futility of debating in the fisheries management arena, have developed tacit forms of resistance. Ignoring the environmental management apparatus, instead of openly challenging it, has become more and more common.

Puerto Rico’s fisheries management has two parallel systems (that of the stakeholders and that of the institutions) running simultaneously and independently. There are interfaces, encounters and avoidances, but for the most part, these systems acknowledge each other while ignoring each other. In reference to collaborative works (especially in scientific studies) where varied social worlds intersect, Star and Griesemer (1989) suggest that where varied social worlds intersect, those involved may ignore particular ‘extraneous’ elements. These strategies are present in Puerto Rico’s fisheries management, where those involved ignore elements that are not in accordance with the standardised structures.

In this light, the encounters in the fisheries management scenario work as what Callon (1986) calls the ‘obligatory passage point’. Processes of translation become apparent when the management institutions ‘become indispensible’ in the alleviation of the fisheries ‘durable crisis’ (Taylor 1999). The management institutions not only identify who the stakeholders are, but also name which of those are ‘capable’ of participating in the management consultation. As in Callon’s argument, once these actors have been named, a set of actions ensues that seek to fix the actors’ roles and identities. However, these actions can only last if those being involved in what Callon calls ‘interessement’ and those being “enrolled” do not effectively contest these actions. Here is where ignorance plays an active role. While Callon’s ‘obligatory passage point’ models the environmental management encounters, ignorance shapes the avoidances. In instances where
stakeholders do not recognise the authority or validity of the processes (in part due to a long history of futile efforts to achieve true participation via valid ‘spokespersons’), they partially ignore the environmental management institutions (and, it could be argued, the state at large). Stakeholders’ ignorance takes different forms. It may be manifest in the creation of an appearance of compliance by presenting camouflaged identities, or simply in disregarding those regulations that are not considered to be sound by them. On the other hand, fisheries’ management institutions have ignored the deficiencies in their conservational approaches, the weakness of the scientific knowledge supporting the regulations, and the unaligned but pivotal elements within fisheries: the primary stakeholders. In short, the official fisheries management apparatus is ignorant of its institutional failure.

In part, this dual, two-way ignorance has made bearable the meta-bureaucratisation of fisheries management. Puerto Rico, being a territory of the United States of America, is subject to local government and also Federal jurisdictions. As I show in Chapter 4, this ‘parallel institutionalism’ (Perez 2005) has created a very complex bureaucracy, which has distanced even more the primary stakeholders, since to achieve full understanding of the fisheries management apparatus is near to impossible.

In light of this description of the existing tensions in Puerto Rico’s fisheries management, it is not difficult to understand that real participation is an illusion. In the primary stakeholders’ eyes, any participatory approach effort is shrouded with an aura of futileness and manipulation. For the management agencies, participatory approaches are an imposition that makes the ultimate goal of fisheries conservation more difficult.

Despite the inherent contradiction of participation being disruptive or even dissuasive, and the fact that it consolidates hierarchies within those participating (Green 2010), its enactment gives the appearance of cooperation between diverse actors. It creates the illusion of alignment making possible the survival of the proposed project, in this case environmental conservation. This is the image of a boundary object. Participation is an attempt to glue together diverse social worlds (at least at selected interfaces): as Star and Griesmer state, boundary objects are necessary to “maintain coherence across intersecting social worlds” (1989: 393).
Puerto Rico’s fisheries

Puerto Rico’s fisheries share cultural, social, and economic elements with different countries, making it difficult to categorise. While commercial fishing is done in a small-scale, artisanal way that resembles to some degree the fisheries of ‘developing countries’, it also shares some elements of the fisheries of the ‘developed world’. Elements of the so-called ‘Third World’ and ‘First World’ coexist in virtually every country; Puerto Rico and its fisheries are no exception.

I will start by positioning the fishing industry within Puerto Rico’s economy. Commercial fishing has little impact on the island’s economy. It is only at very local and regional levels that commercial fishing makes an important contribution to household economies. Even for coastal populations, commercial fishing is relevant at a micro level. Over time, Puerto Rico’s coastal fronts have seen the development of a mixture of interests: agriculture, pharmaceuticals, tourism, recreational activities and commercial fishing. Surprisingly, despite the fact that commercial fishing has experienced a disadvantaged position in the state’s development plans, it has survived from Spanish colonial times until today. Although small in scale, it is relevant that commercial fishing has outlasted all the principal economic activities in Puerto Rico. Endurance and resiliency are embedded in the fisherfolk. “Small boat economies have survived the industrial revolution, government policies designed to eliminate them in favour of large-scale offshore fleets, the ‘blue’ (aquaculture) revolution and the latest go-round of water space and resource grabs under the Law of the Sea. By all indications, the small boat will outlive the factory ship” (Cordell 1989 cited in Perez 2005). Puerto Rico’s small-scale commercial fishing does not have any ‘visible’ competitor in the form of large-scale fishing, industrial fishing, or aquaculture. However, ‘camouflaged’ forms of competition challenge the commercial fishermen’s endeavours. Tourism, recreational fishing, regulations, coastal development, gentrification, ocean resource degradation, and globalisation are new (and old) challenges that fishermen face. In the present, just as they have done in the past, fishermen
have been able to find the ways to cope with a fast-changing world that at times seems to leave them behind.

Small-scale or artisanal fishing evokes ideas of remote exotic places where the ‘peasant like’ fishermen survive by harvesting the ocean on a daily basis. The idea of a ‘tribal’ (for developing countries) or ‘village’ (for developed countries) existence comes to mind. However, small-scale fishing in Puerto Rico does not conform to these essentialised ideas. In fact, as we will see in chapter 2, the fishing community under study, Maternillo, is virtually minutes away from the centre of Fajardo, a city on the eastern coast of Puerto Rico. Although Maternillo shares fishing techniques and fish marketing elements with small-scale fisheries in developing countries in Southeast Asia and Africa, their households and lifestyle are different. The fishing community studied here is considered a low-income community, or Special Community\textsuperscript{1}. However, access to modern commodities (e.g. satellite television, computers, internet connections, automobiles, mobile phones) is more common than expected. The ‘third worlding’ (Koptiuch 1997) of fishing communities seems to be widespread, a simplistic process that overlooks their complexity.

Another distinctive feature of Puerto Rican fishing communities is the intensity of the fishing activity. Puerto Rican fishermen’s fishing effort can be described as very low (with some rare individual exceptions). Having been granted state and federal economic transfers, the urge to go out to sea is not as imperative as in places where fishermen, in order to have a meal, have to fish. It can be argued that fishermen’s multiple occupational histories, combined with welfare aid, have created a morbid commercial fishing industry. Perez (2005) addresses this point by arguing that discontinuities in state-driven commercial fisheries modernisation projects, combined with economic assistance, have neglected the industry’s development from petty commodity production to petty capitalism.

Although the basic living standards of the fishermen have been protected, the development of commercial fishing followed a different path, which in part explains Puerto Rico’s hybrid commercial fishermen. Puerto Rico’s fishing industry has been, and is today,

\textsuperscript{1} Comunidades especiales CE (Spanish for Special Communities) is a state programme developed under Calderon’ administration. The programme discourse of community empowerment had traction (and relative success during its first years of implementation) and the “special community” label has become the official and popular qualifier for low-income communities
distant from the state’s priorities. If anything, commercial fishing poses an obstacle to coastal development interests. Different from places where social and eco-tourism has been exploited, Puerto Rico tourism is based on ‘sand and sun’ and supported by luxurious resorts. This kind of approach has led to fishing communities having to face gentrification processes, a topic discussed in chapter 4.

Overview of the chapters

Chapter 2 makes tangible the meaning of ‘fishing community’ in Puerto Rico. The chapter portrays Maternillo and the fishing techniques and gears used. Obviously, the communities chosen are specific case studies. I do not intend, by any means, to depict these communities typical of all fishing communities in Puerto Rico. However, there are some commonalities. Small-scale fishing or, as some prefer to call it, artisanal fishing is generally characterised by a high degree of resilience. Despite the variety of coastal morphologies, geographical settings, fishing and marketing approaches that translate in different community arrangements, there are common elements and struggles in Puerto Rico’s fishing communities. This chapter is an attempt to highlight them. By giving an ethnographic context to the elements found in a particular fishing community, a better understanding is given of what a fishing community is.

Chapter 3 explores ideas and debates about fishing communities that have been used elsewhere, and seeks to place Puerto Rico, and particularly Maternillo, within those debates. What place do the fishermen’s identities play in Puerto Rico’s imaginary of national identity? How close are Puerto Rico’s fishermen to the *jibaro* peasants? In short, where do we place the fishermen and the fishing communities in relation to Puerto Rico’s society and in relation to fishermen and fishing communities elsewhere? In the attempt to answer such questions, we will catch a glimpse of what it means to be a fisherman and to live in a fishing community. In this

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2 *Jibaro* is a term that refers to Puerto Rican peasants. The Jibaro has become an icon of Puerto Rico’s national identity.
chapter I explore the interplay of recreational and commercial fishing, which has produced hybrid fishing identities. The outcome of this process is what I refer to as ‘camouflaged fishing identities’.

The role of fisheries scientific knowledge and the state’s environmental management institutions are explored in Chapter 4. The aim of the chapter is to disentangle, and to some extent demystify, the separation of scientific knowledge production from other modes of knowledge. I provide evidence that points to the fact that science, far from being detached from social aspects, shapes the misfortune or success of particular views about what to do with a particular natural resource. Concepts such as obligatory passage point, ignorance, translations, boundary objects, and immutable mobility became useful in the analysis of the role and ‘by-product’ of fisheries science.

Chapter 5 treats the interface between state coastal development plans and the fishing communities’ traditional use of the coast. Ideas about development and empowerment collide in the marine resource management arena. This is the place where fisheries management institutions are less proactive, which contrasts interestingly with the diligence of the attempts to put a halt to ‘overfishing’. I interpret the paradox as a discourse through which actors’ identities are fixed, making overfishing, and the fishermen, the source of marine environmental problems, while coastal development remains untouched, given its relation to the state’s neoliberal development plans.

Chapter 6 revolves around fishermen’s ideas about the marine resource. Fishermen have an interesting view of the ocean. While their approach is utilitarian, at the same time personal decisions and community dynamics lead to an informal mode of environmental management. Far from romantic and essentialised views of peasant/indigenous/traditional pure and nature-linked ways of life, my contention is that utilitarian and extractive as they are, fishermen and fishing communities show respect for the resource that they harvest and, far from suffering the ‘tragedy of the commons’, fishermen, understand that to reproduce their household economies, they need a healthy marine resource. To better understand how these two, apparently contradictory views (conservation and exploitation) can coexist, I provide examples of how these fishermen, and the fishing community, impact on marine resources and how they protect them.
The last chapter investigates the creation and present status of the Canal Luis Peña Marine Protected Area (MPA) in Culebra, an island off Puerto Rico’s East coast, which is defined as a community-based project. The status of this project is still difficult to unpack given that there seem to be opposite ideas about its outcome. However, the importance of this MPA is that, to some extent, consensus was achieved through a long lobbying process carried out by different interests, and that it also exemplifies how different actors imagine an environmental resource. The MPA case shows how boundary objects operate in a scenario where different social worlds intersect and divergent opinions collide.

**Anthropology at the Backyard: situating the ethnographer in the field**

Nan-in, a Japanese master during the Meiji era (1868-1912), received a university professor who came to inquiry about Zen. Nan-in served tea. He poured his visitor’s cup full, and then kept on pouring. The professor watched the overflow until he no longer could restrain himself. “It is overfull, no more will go in!” “Like this cup”, Nan-in said, “you are full of your own opinions and speculations. How can I show you Zen unless you first empty your cup?”

(Reps and Senzaki 1958: 19)

Does anthropological research achieve more in-depth and insights when the ethnographer is doing anthropology at home? Or even more, when he is doing anthropology in his ‘backyard’? The ‘nativeness’ of the ‘native anthropologists’ has been scrutinised before. Critiques argue that other factors (e.g. class, gender, education) may be more prominent than the closeness of cultural identity, which has been related to intimacy and insight (Karayan 1993). Nonetheless, the common considerations analysed under the light of ‘native’ and ‘non-native’ or ‘outsider’ and ‘insider’ tend to characterise those under study as ‘others’ based on the above factors. The road less travelled is what happens when the anthropologists is doing anthropology in ‘his backyard’. What sorts of accounts arise or fail to exist when the anthropologists has been involved ‘in the field’ way before being in the field as such. Sharing my relation and links with this study previous to the ethnography may help to make my point clearer. It is not my intention to make this thesis look like an autoethnography. But, in order to be truthful to this research, I believe it is
necessary to share my position in the field. Besides, the considerations under discussion contribute to the literature of anthropology at home and issues around ethnographic research in general.

Fishing has been my biggest passion as long as I can remember. My dad, who is an avid sports fisherman, who has been fishing for over 50 years, introduced me to it when I was five years old. Since then, fishing has been an important part of my life. Surpassing the recreational aspect, fishing became a source of income for me in 1998 when I started working as a captain/fishing guide. From 1999 until 2006 (my first year in the Ph.D. programme at the University of Manchester), I was at sea an average of 210 days a year. On top of that, during those years I shared the same fishing grounds with the fishermen that later on became my collaborators. Although my original and foremost approach to fishing has been as a leisure activity in the form of recreational/sport fishing, I did combine ‘commercial fishing’ (selling the captures) with recreational fishing. Just like the small-scale commercial fishermen under study here, whose livelihood depends on a balance between commercial fishing, wage labour and chiripas (odd jobs), my labour history before deciding to pursue graduate studies involved tourist fishing-guide work, commercial fishing, and employment in the analysis of recreational fisheries statistics. We (the fishers and I) navigated the same waters but in opposite directions. While the commercial fishermen have historically showed a movement from fishing as independent producers towards semi-proletarianisation (Griffith and Valdes-Pizzini 2002), I fluctuated from wage labour to commercial fishing. In my case, at times when the tourist industry was not producing enough ‘trips’ (notoriously after the Twin Towers incident on 11 September 2001), I looked at commercial fishing as an alternative source of income. The commercial fishermen, on the other hand, have taken advantage of wage opportunities when they arise or have used odd jobs as a lifeline when weather or problems with vessels have left them on shore. It is well known that since the beginning of the last century, when sugar cane was the dominant economic activity in Puerto Rico (and the Caribbean), commercial fishermen worked as wage labourers during the cane-cutting period and fished the rest of the year (see Valdes-Pizzini 1990, 1987; Griffith and Valdes Pizzini 2002; Perez 2005; Price 1966). Just as Puerto Rico’s commercial fishermen have fluctuated from fishing to different economic sectors, I also ventured into their realm in a similar fashion.
In addition to being akin to the ‘not-so-Other’ Other, the community where I spent most of this ethnography was not alien to me. I used to fish with tourists right in front of the community, close to the mouth of the river that borders the community and which the commercial fishermen use as an aquatic gateway. Also, when I was a teenager my family got a vacation flat in the closest condominium to the fishing community, meaning that I have been visiting the area on a regular basis for almost 20 years. In short, I have shared the same landscape with the commercial fishermen and, like them, I have traversed their sea waters between leisure and work.

Do these experiences make the anthropologist better equipped to describe those not-so-far Others? Does having a resemblance with those we call informants help in understanding them and therefore lead to a more ‘genuine representation’? I am not sure about the answer. All I can say is that after achieving a desired distance from the field and the ethnographic experience, a retrospective/introspective reflexion process may help in the understanding of the virtues and flaws of doing ethnography in what I am calling ‘the backyard’.

Rapport and getting access

Being culturally ‘close’ to the society under study helps in getting access and achieving rapport. Speaking not only the language, but also the lingo, creates an instant connection with which the informants feel more comfortable. Rapport is more likely to be achieved if the anthropologist understands the ‘ins and outs’ of the subject under consideration. When a fisherman is talking about how to read and interpret the sea, or about a particular fishing technique, and the listener is in the same channel, talking the same language, a certain degree of camaraderie arises. Fishermen on an island whose residents do not relate with the ocean tend to feel like an alien and marginalised sub-sector of the population. The fact that the researcher can truly understand what the informant is talking about creates a level of respect and reciprocity that derives, not from educational or class differences, but from affinity. When a fisherman is talking about the importance of engoe or engó³, and the listener not only knows what this is, but also can

³ Enoge is a fishing technique used by commercial fishermen that can be translated to English as chumming.
actually go and help them catch the tiny baitfish by casting the net with them (just like them), he creates a different image of the anthropologist which works in his favour. Did someone mention participant observation?

However, not everything is happiness when the anthropologist shows himself to be ‘too knowledgeable’. An outsider knowing too much about what is meant to be known by a selected group may awake suspicion. Although ‘knowing how’ could help one to blend in and become part of the landscape and the daily life, it also makes distrustful elements within the group wonder how is it that the outsider knows what he knows. Conspiracy theories regarding the ethnographer’s presence in the community are not as unusual. In my case, a group of people was convinced that I was an undercover policeman. This idea was not born in isolation, it happened that the house I rented in the community belonged to a fisherman who worked as an undercover agent and helped in the arrest of some community members. The house was available because the owner, fearing revenge, vacated the house and rented another place. Soon after I moved in, I was warned to be careful not to wander at night on my own, until community members got used to (and accepted) my presence. Needless to say, the panorama was not ideal. I was an outsider ‘fisherman lookalike’ who was wandering around asking questions, jotting down notes, taking pictures; definitely not ideal. In that case, being a total outsider, let’s say Finnish, would have worked better and would have been less suspicious. In light of these events, being a ‘native’ instead of facilitating access, led to the distrust of a sector of the community. It took a good deal of effort and the support of key community leaders to break a barrier that would have been easier to cross for our hypothetical and unthreatening Finnish colleague. Mascarenhas-Keyes stressed this point by stating that “The Outsider usually has potential greater access to information because asymmetrical power relations and his ignorance are conspicuous” (1987: 185). All in all, the quasi-insider condition is not always as beneficial as it may seem in appearance; as I have suggested, it is auspicious in some instances and adverse in others.
**Insights and documentation: choosing what to collect**

Doing anthropology in the backyard helps in having a quicker and perhaps clearer understanding of daily affairs within the community. No time is ‘wasted’ on learning about what this particular food is, why they dress like this, what techniques they use to catch a fish or bait. It can be argued that it points to a more reliable account, closer to reality. No ‘exoticness’, folklore or ‘magic’ mediates in the descriptions to be depicted. However, experiencing the ‘cultural shock’, being relatively unfamiliar with a social group, has an invaluable advantage: a sense of novelty.

Let me explain this by using again the example of the cast-net. For an anthropologist who is completely ignorant about this fishing technique, the act of casting a cast-net could be fascinating and worth documenting. If I think about it, I realise that indeed it is. However, the fact that I have been using this technique to catch bait for no less than 18 years made it ‘invisible’ to me. Obviously, this is a study about participation and fisheries management, not about fishing techniques. But still, not a single line describing this process can be found in my ethnographic notes. I am positive that a foreign (or even a ‘native’ anthropologists not used to fishing) would have documented this sophisticated and complicated technique, which is central to the commercial fishing endeavours, and which plays a pivotal social and cultural role within the community.

The necessity of reflexion on the judgement of not documenting certain things is obviously not a condition of doing anthropology in the backyard. Ethnographies are a compilation of multiple and simultaneous voices and events that inevitably leaves the solitary anthropologists with the difficult task of having to choose what to document. But it is important to stress the fact that the ‘native’ and quasi-insider condition may lead to a loss of accounts that could well enrich the general narrative.
Methodology

The research is based on typical qualitative ethnography. Observant participation and in-depth interviews were conducted during a period of eleven months in a fishing community in Fajardo, in the northeast corner of Puerto Rico. Besides collecting information on the fishing and daily affairs of this community, I attended the arena where stakeholders’ participation in fisheries management takes place. These interfaces consisted of public hearings, scoping meetings, and workshops. The idea was not only to see and document how the commercial fishermen felt about resource management and their participation (or lack of it), but also to observe and document those encounters. After being present at those meetings and surviving the difficult task of having to explain to non-anthropologists the purpose of my presence, I was honoured with being invited to ‘closed door’ meetings where members of the marine management apparatus discussed issues with fisheries’ management, particularly regarding data collection. It was a valuable experience to see how the ‘experts’ approached the environmental issues when the ‘primary stakeholders’ were not present.

I also documented community meetings focused on the creation of counter-development plans and where networks with different groups were created showing an active and strategic community. During my stay in Maternillo, a group of undergraduates from the Universidad Interamericana de Fajardo performed a house-by-house survey of the community, collecting basic demographic data. The results of the survey helped in the triangulation of my qualitative data for Chapter 2.

This study is multi-sited in part because I followed the fishermen through their encounters with the agencies and their organisational process; I also spent four months on the neighbouring island of Culebra to study the particularities of the fishermen there, with a special interest in understanding the creation of a community-based Marine Protected Area (MPA). The fact that the MPA is supposed to have been proposed by Culebra’s fishermen drove me to the small island in an attempt to explore what was going on there. Commercial fishermen proposing a ‘no-take zone’ is quite a sight, and it was pertinent to understand what social phenomena led to this unique event in Puerto Rico’s fisheries management.
Given that the research time in Culebra was shorter, I focused on the central actors. This proved to be not a difficult task since Culebra’s size and population are relatively small. Everything is more reachable in Culebra than on the main island. What takes months to achieve on the main island, in Culebra may only take a few days. For instance, I was able to have an interview with the city mayor only a few weeks after my arrival. In a regular municipality, getting an appointment like that might take the whole duration of the ethnography, if you were lucky. To avoid a myopic centralised view of the events surrounding the creation and implementation of the MPA, I did short surveys in hot-spots were ‘regular citizens’ go to do daily things (like shopping). The surveys helped in widening the perspective from the central actors’ view to more peripheral views of the events under consideration.

As mentioned before, my relation with the subject goes back a long time. I include, as part of this study, the understanding I gained of Puerto Rico’s fisheries before entering the field of anthropology. So, by way of a disclaimer, I have to say that this study (as any other) includes all my preconceptions. This is particularly true when it comes to recreational fishing. Although the thesis is heavily inclined towards the commercial sector, references to recreational fishing are inevitable. An increasing overlapping of commercial and recreational fishing makes it difficult, if not impossible, to treat them in isolation. The data collected regarding recreational fishing were drawn from meetings with environmental agencies and observations in the field. No proper interviews were done with recreational fishermen.
Chapter 2

Maternillo: A Fishing Community.

This is a descriptive chapter of Maternillo community. The description of the community’s geographical setting, economy and its relation with fishing, the pescaderías, the fishing vessels, and the fishing techniques is twofold. On the one hand it provides an idea of what is a fishing community in Puerto Rico’s context. On the other hand, it complements Chapter 3 Identity: Fishing Community and the Fishermen.

For a closer description of the commercial fishermen I propose five categories that, based on Maternillo’s fishing ideas and dynamics, better represents them. The reigning categories, created by the fisheries management apparatus as part of the fishing license structure, are absolutely obsolete. They do not reflect the complex dynamics of commercial fishermen nor are in accord with commercial fishermen’s parameters. Discontinuities of this type are also discussed in Chapter 4: Science, Experts and Institutions. Maternillo y Mansion del Sapo is a relatively small fishing community consisting of nearly 180 households. During my ethnography, a house by house survey was conducted by social work undergraduate students at the Universidad Interamericana de Fajardo under the supervision of Dr. Norma L. Batista and Prof. Jessica Rodriguez. They were able to survey 157 households; I will refer to this statistical data as ‘the survey’. We shared field data and I used their statistic findings it in the triangulation of my ethnographic data which consisted of participant observation and interviews with key informants for a period of 11 months.

Most people refer to both communities, Maternillo and Mansion del Sapo, simply as Maternillo. Grouping both neighbourhoods as a single community is common even for the residents who refer to them as ‘La Playa’. However, for the older community members there are important distinctions given that both communities were settled at different times in history under different circumstances. According to elder residents, Maternillo was the first settlement in Fajardo. They mention that Fajardo Municipality was born there in the community. “El pueblo de Fajardo nacio aqui en Maternillo” is a general idea among its residents. They even mentioned that the river was used for commodities transportation during early Spanish colonial dominance.
over Puerto Rico. Stories about the existence of archaeological rests in the Bosque de Ceiba (a mangrove forest on the opposite river bank) from the Tainos, slavery and Spanish colonial settlements, need to be verified through archival and archaeological research, but the mere fact that community members are certain about its existence speaks about their relation to the place. Despite the unconfirmed existence of this archaeological site, there is historical evidence about a settlement surrounding the river that dates back to the early18th century, making indeed, Maternillo the oldest settlement in Fajardo. On the other hand, Mansion del Sapo was settled during the 1930s when the Fajardo Sugar Cane Company began a lime factory in the community surrounding. The workers employed in the limestone extraction from Icacos Island and in the baking of it at industrial ovens that operated in a piece of land that is now Marina Puerto Real built improvised houses that were eventually transformed into permanent houses that are now known as Mansion del Sapo.

Maternillo and Mansion del Sapo saw economic affluence, when sugar production was the principal activity in Puerto Rico, on jobs not directly related to the sugar cane plantation. In Puerto Rico fishing and sugar cane economy were always related. Both shared the same geographical space providing the fishermen with seasonal wage work as sugar cane cutters and the flexibility to return to the fishing economy during the dead period (la bruja). But, in the case of La Playa I could not find evidence pointing to the fact that the fishermen were engage in such activity, instead they worked on the lime factory, either at the boats stocking the raw limestone or the final lime product or at the oven. With the demise of sugar cane production and the closing of the lime factory the residents found themselves with little job opportunities and a precarious economic prospects, making Maternillo not only known as a fishing dependent community but also a state dependent community.

Maternillo and Mansion del Sapo are considered Comunidades Especiales (CE) or special communities. CE is a programme that was created in year 2000 under Governor Sila Caledron administration. The CE programme provides infrastructure improvements for low-income communities, which is made possible through governmental economic transfers. The CEs are communities characterised by: poverty, unemployment, single-parent households, and school desertion; all of them clearly present in Maternillo (and in most fishing communities in Puerto Rico). Lopez Marrero’s study (2009) in Maternillo found that 31% of the residents live
with less than 500 dollars a month, 38.6% of the population is unemployed, 34% of the households are composed by single mothers and 61.7% of the youth have not finished high school. Although Lopez’s data (collected a few years earlier) and ‘the survey’ are somewhat far in term of the figures, the essence of their findings are the same which compare favourably with my observations. ‘The survey’ (2007) showed that 57% of the population receives less than 500 dollars a month, 26% higher than Lopez study. The four year window between both studies may explain this difference and perhaps it shows a tendency in the community towards impoverishment. Regardless of the percentage difference, the important fact is the obvious lower income per capita in Maternillo when compared to the national and regional numbers. For the Census of 2000 the income per capita of Puerto Rico was 8,185 US Dollars, while the number for Fajardo Municipality was 7, 52 US Dollars. It is evident that this community is indeed a low-income community when compared to the average municipal and national figures.

‘The survey’ also showed that 65% of the households source of income was welfare benefits and Social Security, a fact that makes clear Maternillo’s community economic dependent on state’s aid. I noticed that 65% must be the absolute minimum percentage of resident receiving benefits. Virtually all of the residents I met were recipients of some sort of governmental aid.

Regarding the alarming 61.7% of school desertion’s I need to add that Maternillo’s level of illiteracy is equally shocking; a fact that definitely constrains their economic options perpetuating the dependence on governmental economic transfers. Historically low educational levels had being a constant among Puerto Rico’s fishing communities where the young gets involved in the fishing activity to make possible the reproduction of household economies. However, commercial fishing is becoming less attractive to youngsters for a couple of reasons: 1) the hardships it involves. Commercial fishing although it has been a traditional economic lifeline, involves hard work and it is surrounded by uncertainty. 2) Initial investment. Although small-scale commercial fishing does not implies the investment and operational cost of large-scale or industrial fishing it does requires an initial investment of a boat, motor and gear that acts as a deterrent for newcomers, especially if the household economy is shrinking. 3) Underground economy. Informal sectors being more profitable have lured the youth away from commercial fishing, or in some cases the combination of the two has leaved little time for fishing.
In this light Puerto Rico’s commercial fishermen seems to be aging and running out of new heirs. In Maternillo the youngest commercial fishermen is Aaron at 28 years old. Aaron comes from a commercial fishing family. His father and grandfather were both commercial fishermen so is his brother-in-law. Aaron oldest and only sister married a commercial fisherman, making fishing a central part of the extended family. But besides of Aaron and David (Aaron’s brother-in-law), who was 37 at the moment of this study, the rest of the commercial fishermen are in their late 40s to 60s.

Governmental aid to such communities is not new, but CE agency’s approach was innovative because it aimed at community empowerment. Instead of building caseríos (council states) or providing parcelas (the transfer of state owned pieces of land for construction), the CE programme operates under the empowerment discourse, and community members are incorporated to the housing and general community development. Some of the community development planning is done by community leaders, and in some cases the group to be impacted even have to do some of the actual construction. Another important difference is that CE looked to reach poor and ‘distant’ communities that were not traditionally impacted. All in all, the CE was novel because for the first time special attention was paid to the concept of community. Happy stories under CE about communities’ development were inspiring; at least during the programme’s first years of existence. However, happiness did not reach all corners. Maternillo was less than lucky in accessing the benefits of the CE programme. The funding for the development of the community seemed to have faced the same destiny as the funding for the reconstruction of the fishermen landing dock in front of the Pescaderia Maternillo, both were lost in a complex bureaucratic maze. In the case of the dock, the funds were momentarily lost (for the last 10 years) between regional and national agencies. The 80,000 dollars were flowing back and forth from the Department of Agriculture, to the Office for the Fishing Industry Development, to the Municipal administration, to the Department of Natural and Environmental Resources. In the case of the CE, although funds were assigned years ago, the CE agency has been incompetent in putting into action the economic transfer. Chan (the president of the Maternillo’s fishermen association) have been sending letters to the CE agency, and to the governor’s office, since year 2003, in an attempt to finally see the so much needed aid. His efforts have not produced any results.
Maternillo is a community that, although it’s evidently reliant on benefits, floats between being highly dependent and self-sustained. As mentioned before, 69 percent of the households depend on governmental economic transfers. Employment on the formal economy is relatively low, *chiripas* (odd jobs) and short-term self-employment is more abundant. 66 percent of the households possess the state’s health insurance (which, different from the NHS, is only granted to people with monthly incomes of less than 801 dollars). While dependency on governmental aid dominates the community’s economy, at the same time, Maternillo has historically been self-sufficient in terms of the daily needs. Everything required to reproduce the fishing activity (gear and vessels) is self-contained; this is also true for the housing.

Housing in Maternillo is eclectic, ranging from shelter-type zinc metal structures, to wooden structures, to all concrete two floor houses; from cosy and brightly painted to structurally unfinished and aesthetically unpleasant. The house I rented, which is an average and typical house in Maternillo, is a cement two bedroom structure with metal zinc roof. It was unfinished and unpainted on the inside. The house was built by the owner himself with the help of other members of the community. It is common in Maternillo that owners and friends construct and rebuild their houses. A variety of arrangements are possible to remunerate the collaboration on a house construction or rebuilding. Some people are ‘chiriperos’ (odd-jobbers) that will charge a low daily wage. Others will work on a reciprocity/exchange basis. This is the same with jobs done on the *yolas* (e.g. motor installations and repairs, fibre-glass works, antifouling paint works). The fishermen in Maternillo are very proficient at vessel work. The average fisherman knows light outboard mechanic, to paint gel-coat, and to work on fibre-glass. Not limited to vessel’s jobs, they usually know about general mechanics, construction, and carpentry. This is the result of the occupational multiplicity economic strategy that has exposed them to a wide variety of remunerated jobs and the necessity to have practical knowledge of multiple occupations to minimise expenditures. This social capital gives the community a degree of self-sufficiency that contrasts interestingly with the dependence on governmental economic transfers. While the vast majority of the house construction and vessel work is done inside the community creating a circulation of money and commodities, an important amount of money flux comes from governmental funds.
The overall unkept and decayed look of the community contrasts with the popular idea of a picturesque fishing village. Maternillo, similar to how Playa Guayanilla fishing community was described two decades ago, “resembles a slum rather than a traditional fishing community” (Lucca Irizarry 1981 cited in Perez 2005); it is important to question if a Puerto Rican “traditional” fishing community indeed is more of a slum than the essentialised representations.

In the case of Maternillo, a few issues contribute to its careless appearance. First is the fact that a significant number of structures are unfinished and unpainted, which gives a decaying appearance. Second, there was rubbish, wrecks, and discarded electro domestics in the public areas and in abandoned land lots. I need to emphasize that there was a visible change in attitude towards keeping the community cleaner. The process of fishermen identity “greening” (see chapter 3) was slowly permeating the whole community. An incipient recycling programme was taking place with bins for plastic and aluminium in front of the Maternillo’s pescadería. However, the aluminium bin was unnecessary and always empty since collecting aluminium and other metals to sell them to recycling centres is an important form of income for many residents. Also, pointing to that change in attitude is the fishing line recycling programme. Third, there is also the fact that the community is susceptible to flooding, for it surrounds the Fajardo River. The constant flooding makes the community streets muddy, and during such events, rubbish (locally produced and dragged from elsewhere) is deposited in the community surroundings. It is a possibility that the prospect of constant flooding led the residents to pay less attention to aesthetics.

**Maternillo an “urban fishing community village”?**

Most accounts about fishing communities or fishing villages begin with a picturesque introduction of the geographical setting and of how the distinct beauty of the place catches the eye from a distance. These fishing villages/communities seem to always be visible from afar as little oases in which the visitor can reconnect (at least visually) with some primal state that has been lost with modern life. This is not the case of Maternillo. The community is somewhat hidden, unexposed to the casual visitor. It is impossible to spot Maternillo from any angle
(besides the air or water) until you are actually in Maternillo; to find Maternillo you need to be looking for it or to be lost. A high volume of local and foreign tourists visit surrounding areas never getting in contact with Maternillo’s community. During vacations, hordes of local and foreign tourists get to the Culebra/Vieques Ferry Station, which is very close to the community, to visit the popular ‘pristine’ islands. The same is true with Cayo Obispo, better known as Isleta Marina, an island right in front of the community which during vacation seasons is highly visited. These two attractions are literally next to the community, but the average visitor, while being a few meters away, does not get in contact or even notice Maternillo. Other nearby sectors of Fajardo such as Las Croabas, Bahia Sardinera and Seven Seas also see large numbers of tourists, but a non-geographical distance keeps them far from Maternillo.

The apparent isolation of Maternillo contrasts with its location. Maternillo is an urban fishing community very close to the city centre. It is located in Playa Puerto Real, Fajardo in the Northeast corner of Puerto Rico (see map). The community’s proximity to the city centre makes this fishing community a particular one floating between ‘the urban’ and ‘the rural’. Although, the actual geography of the place is very far from the essentialised isolated fishing village, some idealisation persists making the place a sort of ‘urban fishing village’. In Puerto Rico, coastal areas where commercial fishing is performed are generally called villas pesqueras (Spanish for fishing village). The term is so loosely applied that it has even been used as equivalent to fishing associations; evidence of this is the 2007 Technical report for NOAA, where villas pesqueras is translated as fishing associations. Indeed, the use of villas pesqueras is generalised. The fact that the Programme for Minimum Facilities in Fishing Villages (a State-led agency created in 1963) was fundamental in the modernisation process of the fishing industry, by creating basic infrastructure, explains the persistence of its coined ‘village’ category (Perez 2005). The use of villa pesquera is not exogenous, as most of the commercial fishermen throughout the island refer to the fish houses as pescaderías or villas pesqueras. However, the fact that Maternillo lies in an urban enclave has been influential in being neglected from the popular fishing village category. In her study about fishing villages in Scotland, Nadel Klein (2003) suggests that ‘village’ is a category as problematic as ‘tribe’. ‘The village’ is embedded with a sense of rurality, backwardness, and authenticity, as if the village and the villagers where frozen in time.
Maternillo has not been able to escape the essentialised fishing tag. Discourses about fishing communities tend to fossilise them in time, while disregarding the diversity and complexity of such places and their people. However, its proximity to Fajardo Centre has helped Maternillo evade a direct reference as a ‘village’, and instead Maternillo is called a community. A ‘poor community’ while also a ‘coastal community’ with all the intrinsic value of such spatial locality, a ‘dangerous community’ while also a ‘picturesque community’, and above all and for most of the time a fishing community. The community tag may be as problematic as the idea of the village, but, at least in this case, the use of village is visually absurd in the face of its relation with rural and physical isolation. These two categories (rural and isolation) are relatively present in other Puerto Rican fishing communities considered to be ‘villages’. However, rurality and isolation are relative concepts that might be difficult to understand when 98 percent of the Puerto Rican land is considered to be urbanised and when its demographic density is 1,162 inhabitants per square mile. Not to mention that Maternillo is less than an hour car drive from San Juan, the capital; actually, the most distant place from San Juan is just two hours and a half away. Puerto Rico, as other small islands, presents a different perception of distances than other parts of the world. It can be argued that distance is not necessarily a matter of lineal distance, but an idea created by accessibility and by the difference of the destination compared to the departure point. Maternillo then can be very far from a close point while much closer to a far away one. For instance, Maternillo is a distant country from the luxurious resort El Conquistador (which is about two miles way), while it is closer to Culebra Island municipality which is 22 nautical miles away and closer to the USVI of Saint Thomas. The transportation point to Culebra is a few meters away; Maternillo’s fishermen have friends in the neighbour island where they spend most of their fishing nights, sometimes extending their stays for a couple of nights. On the other hand, in the nearby El Conquistador where the ‘official language’ is English, there are physical and symbolic borders that deny access to locals not staying at the resort.

As mentioned before, Maternillo is not the typical Puerto Rican fishing village, given its urban nature. Ironically, its proximity to the city centre makes it a less evident fishing community. Adding to this is the fact that the fishing industry in Puerto Rico is in decadence. The demotion of commercial fishing is not only palpable in terms of the number of practitioners, but also in its precarious material conditions. The condition of the pescaderías infrastructure is far from appealing, a physical expression of the fishing industry’s status (see appendix 5).
According to my informants, the condition of the industry was not always like it is in the present. For instance, during the 80s the *pescaderías* were physically in good shape, the number of fishermen involved was triple that of today, and the *pescaderías* even had employees. In the present, attendance and administration of the *pescaderías* are done by the fishermen association directives, while cleaning the fish is done, for most of the time, by Rey, a former community member who worked in factories in New York during the 50s and 60s and now lives from Social Security benefits. Cleaning the fish is an irregular job paid in cash on a basis of 25 cents per pound of fish cleaned. Rey, who is originally from Culebra, lives now in an inherited house at Las Parcelas Bertram, a neighbour community just behind the Vieques/Culebra Ferry Station. He walked everyday early in the morning to sit on a bench under the trees right in front of the *pescadería* facing the ocean, regardless of whether he had fish to clean or not. Rey learnt the fish cleaning office from the Maternillo’s fishermen, and although he never fished and he never learnt to read or write, he exhibited vast knowledge about marine life anatomy. I first realised the knowledge of this quiet man when I bought a few pounds of freshly arrived Queen conch. The snails were out of the shells but still alive, which combined with their thick slime proved to be extremely challenging. After seeing me struggle for a while, he kindly explained, to me how, what and why to cut off different body organs. His interaction with me felt more like a workshop on an invertebrate’s anatomy than a lesson on cleaning fish. Now, cleaning the *pescadería* is done by the same association members or irregularly by Silvia, Rey’s nephew. Silvia may also help cleaning the fish if landings are abundant.

Maternillo has a covert material fishing identity. Although it is a well-known fishing community, it may not be evident for the foreigner. An undergraduate students’ field trip to the community made this point clear to me. I was contacted by Dr. Jim Berkson, professor at Virginia Tech’s School of Fisheries, who was conducting a study about small-scale fisheries in the Caribbean. Berkson wanted to expose the students to social-economic aspects of fisheries, so I met the group at the El Conquistador Hotel and served as a ‘community guide’ for them in Maternillo. We had a morning trip to the community that lasted for a few hours. After walking through every corner, I asked them if the community was what they expected from a Puerto Rican or even a Caribbean fishing community. The answer was a firm negative. At that point, I realised that although there are three *pescaderías* in Maternillo, fishing activity is not evident. The Vessels are not present at public areas, the selling of fish and the *pescaderías* are not really
that visible, and the fishing gear is also hidden either in pescaderías’ lockers or at fishermen houses. The yolás are normally kept upstream Fajardo River, tied to improvised docks. The fact that the yolás are more protected upriver (from corrosion and rough seas), combined with the fact that the landing dock is in very bad shape, results in keeping the fishing boats out of sight. Also, the very evident and most relevant thing that makes this place a fishing community is not easily accessible to ‘outsiders’: the fishing culture. The people in Maternillo talk about fishing activity and fish all the time. Obviously, for the group following me that day, this was unreachable information. For one, the fishermen tend to be suspicious of outsiders, and on the other hand, the scholarly group was not Spanish speakers. This experience made me realise how disguised this fishing community is to outsiders.

The Pescaderías

There are three fish houses in Maternillo: Pescadería Maternillo, Pescadería Roble and Pescadería El Relincho. The first two, located at the ocean front, are close together, while El Relicho is at the heart of the community bordering the Fajardo River. Although similar in appearance and spatial distribution the three are intrinsically dissimilar. Pescadería Maternillo has the best infrastructure, it is the best known outside the community and the most accessible of the three. This pescadería exemplifies the classic Puerto Rican pescadería/fish house, with a main and relatively small rectangular concrete structure and 10 lockers for the use of the fishermen. The main structure is populated by four chest freezer used to keep the captures and the bait fresh, a hanging scale at the centre is, and an industrial stainless steel meat saw at the end to cut bigger fish (e.g. sharks, king mackerel) in steaks. This arrangement is typical, but Pescadería Maternillo possesses a particular symbolic relevance for the community: it is an informal community museum housing archival material of Maternillo. Its inside walls display images, photos and posters that keep a tangible history of the community. In a corner, an old desk holds letters, newspapers articles about fishing in Maternillo, and all sorts of documents relevant for the community.
Another relevant characteristic of this *pescadería* is that it embodies the ‘official face’ of Maternillo. Chan, who is the president of the fishermen association, is in charge of this *pescadería*. Chan is a very strong figure, not only at community level, but also at a municipal level. As ‘the survey showed, 62% of the interviewees identified Chan as the community leader. Also, important social events such as Fishermen Festival and the Virgin of Carmen Procession take place there, and other common but relevant events such as community meetings. This *pescadería* can be defined as the resistance front of Maternillo. Not only was FEPDEMAR (Federación de Pescadores y Defensores del Mar) gestated there; but also, protests and legal actions against the development of boat marinas and coastal development in general are born and organised there.

It is also in this *pescadería* where the incipient “fishers’ green identity” is more palpable with plastic and aluminium recycling bins, a fishing line recycling programme, posters of environmentalist activities (e.g. el festival del tinglar and Sierra Club activities), and informative brochures about marine life conservation programmes.

Pescadería El Relincho is the most precarious of the three (see appendix 5). It is a zinc roof, small wooden structure. A weak wooden structure functioned as fishermen lockers. This *pescadería* also has a little boat ramp where community’s fishermen launch their *yolas* into the river. However, El Relincho is not only a *pescadería* but also a bar. Very different from the *pescaderías’* puny structure the Relincho’s bar is a big concrete building with a pool table, a little dance floor, a huge flat T.V., and a big circular counter offering a drink selection similar to any night club. It can be said that El Relincho is the Maternillo’s equivalent of a pub. An amazingly high volume jukebox is on all day and night, playing merengue and bachata, stopping only from 2:30 p.m. until 5:00 p.m. when a popular activity among the fishermen takes place: horse races. Given the lively atmosphere at El Relincho it is in this *pescadería* where most of the youngest fishermen can be found. It is also visited by community members and Fajardo’s locals. During daytime the place feels very welcoming, being bordered by the river it is an eye catcher. However, at night the place does not feel as friendly. It is extremely dark and as an outsider I felt a thick atmosphere that could be explained by the fact that at night El Relincho becomes community locals only. With time I was able to be part of the bar scene and I developed good
friends there, however, there were a few individuals that never felt comfortable with my presence avoiding any contact.

El Relincho is administered by Iris. According to some fishermen, she got in front of the pescadería after his husband was convicted for drug traffic charges. I assume that some people saw me as a threat, a possible undercover police informant. Actually, when I first moved to the community, I received a call warning me about the fact that the person letting the house worked as an undercover cop in the disarticulation of drug traffic inside the community. The fact that everyone in the community eventually knew about this, forced him to move out, making the house available for me. Obviously, this was far from an ideal introduction to the community, and despite the fact that I had the confidence of influential community members and most fishermen, it seemed that some people found too suspicious the combination of: the history of my community’s residence, my investigative tasks, and being an outsider wondering at places where non-locals do not dare to visit. However, I was able to keep on with my ethnographic endeavours without much trouble since the fishermen were certain about the reason for my presence.

Lastly, there is Pescadería Robles. This pescadería, which was across the street from my house, is located on the ocean front and about 100 meters away from Pescadería Maternillo. This is a very different fish house in the sense that it does not have a fishermen base. Robles’ fresh fish supply was from a variety of sources, in contrast with the other two pescaderías, there was no compromise from the fishermen nor from the pescadería. Basically, Maternillo’s fishermen would supply Robles with fresh fish if the other two pescaderías are fully stocked and not accepting any more fish. Having said that, this pescadería would accept fish from outside the community, an uncommon practice since, under normal circumstances, fish houses would not buy fish outside its ‘fishing network’ which is mostly a place-based network. Not having a constant loyal source of fresh fish this pescadería operates on shorter opening hours and primarily based on imported frozen fish. Although some pescaderías combine their stock with imported fish, during high customer demand (i.e. Lent season) or low fishing effort (due to rough seas during hurricane season and cold fronts), most of the ‘authentic pescaderías’ will never consider selling frozen fish. Pescadería Maternillo and El Relincho praised themselves of never having sold non-native fish. The fishermen supporting these pescaderías were very proud about
the quality and freshness of their products; actually, quality, freshness and being native is the *pescaderías* marketing strategy to challenge the less expensive but also lower quality frozen fish.

Besides of these established *pescaderías* some fishermen would sell their catches independently, subsistence fishermen are particularly keen to do these. It will be useful to spend the next section on describing the types of fishermen in Maternillo. In the following section I propose five types of fishermen that to my experience represent better the actors engaged in the fishing industry. The categories to be proposed are antagonistic with the formal existing ones created by the state. It is my contention that the broadly used categories do not reflect the reality of commercial fishing elasticity and therefore it leaves some fishermen out while incorporates others that are not seen as true commercial fishermen by their peers.

**The Fishermen**

The number of fishermen in Maternillo is relatively small. Out of nearly 180 households, 30 are fishing dependent to some degree. However, the actual number of fishermen is very difficult to establish since the fishing activity in Puerto Rico has always been small-scale and artisanal and its practitioners depend from a variety of jobs in combination with commercial fishing to assure their livelihood.

The management institutions classify the commercial fishermen in three groups: *pescador comercial principiante* (beginner commercial fishermen), *pescador comercial a tiempo parcial* (part-time commercial fishermen) and *pescador comercial a tiempo completo* (full-time commercial fishermen). The elements defining these categories fail to grasp the complexity of the commercial fishermen. Given the inappropriateness of the existing categories typifying the fishermen I suggest five types of fishermen in Maternillo based on my observations and interviews, these are: ‘constant fishermen’, ‘irregular fishermen’, ‘casual fishermen’, ‘subsistence fishermen’ and ‘emeritus fishermen’. I am proposing these categories in an attempt to better represent the reality of the fishing activity. A significant contrast with the categories created by the regulatory agencies is that theirs are based on income, disregarding important
elements that come into play when a fisherman self-defines. To be considered a full-time fisherman 50% or more of the annual income has to come from fishing, while to be considered a part-timer 20% is the absolute minimum. Income is a misleading, even contradictory, way to determine the legitimate identity of a fisherman. Seniority, knowledge, lineage, volume of captures, and generosity towards their peers and underprivileged community members are more relevant elements in defining a commercial fishermen.

Obviously, a fishermen with years of experience will possess sound fisheries knowledge and will be successful at harvesting a higher number of fish making then, logical to think that it will result in higher income from fishing; but not necessarily. During active periods of working outside commercial fishing, time to fish commercially is limited. However, a good respected fisherman will still possess its fishing social capital (e.g. experience, knowledge, and lineage) and will still perform (high captures and generosity) accordingly. For instance, in Cano’s case, from Maternillo’s perspective, he is still a respected fisherman since he complies with the aforementioned characteristics, even though he was able to fish commercially only about five times a year in recent years. For the agencies standpoint he is not considered a fishermen despite the fact that he self-identifies as one and the fishing community sees him as one. In this line of thought, what supports the category of ‘constant fishermen’ is not quantity but quality; it is not volume but consistency through lifetime. A ‘constant fisherman’ will never be fully out of the fishing activity, will always be generous in supporting (morally and financially) his fishing community, even if he is not living in the community at the moment. Cano is the perfect example because his fishing activity is very limited and he is not living in the community at the present. However, he sees the sunrise every morning from the community’s shoreline, he goes out fishing during Easter when the demand for fresh ocean products leaves the pescaderías in a serious shortage of fish\(^4\), and contributes to the community’s activities and with unprivileged community members whenever he can.

\[^4\] Puerto Rico being a Christian, mainly catholic, country keeps the custom of restraining their protein consumption to seafood during Easter Festivities. The unusual extremely high demand for seafood usually combines with risky seas created by cold fronts, making the demand for fish much higher than what the fish houses can offer. During this ethnography Maternillo’s Pescadería had to buy fish from Pescadería La Parguera in the south coast (where cold fronts are more lenient) given that the freezers in Maternillo were empty. Cano went out by himself twice during this period, when most of the fishermen stayed at shore for the bad weather, collaborating with 208 and 112 pounds of yellowtail snapper. In total he went out five times that year, showing that for him it was a priority to produce some fish for the pescadería during the Easter bonanza.
An ‘irregular fishermen’ is a fisher that will fish commercially during periods of time but his bonding with the fishing activity is not as strong. If a good job opportunity arises outside the fishing activity they will put a halt to commercial fishing as long as it is needed without major concerns. Their fishing identities are not as strong as for the ‘constant fishermen’ and they have mix feelings about the hardships of commercial fishing vis à vis the rewards. They see fishing as an alternative income, a lifesaver in times of economic constraints, an always accessible ‘work place’. The ‘irregular fishermen’ can be as knowledgeable and productive in terms of harvests as the ‘constant fishermen’ but their bonding with the resource is merely utilitarian, not showing the appreciation for the sea exhibited by the ‘constant fishermen’. On the other hand, I classify others as ‘irregular fishers’ based on the fact that they never achieved the community recognition as savvy fishermen, their lack of fishing knowledge and of harvesting success deprived them from their peers recognition as a ‘constant fishermen’. This is the case of Jaime. He is an elder fisherman around 66 years old, whose only income comes from fishing and Social Security. For the agencies, Jaime is a commercial fisherman, and he is a commercial fishing license holder. However, in the commercial fishermen eyes he is not an ‘elite’ commercial fisherman because he never was really successful at harvesting respectful catches so he does not meets the ‘constant fishermen’ ‘requirements’ of knowledge and successful harvests although he possess the seniority and a fishing licence provided by the Department of Natural and Environmental Resources (DNER).

‘Casual fishermen’ is the Maternillo’s equivalent of recreational fishermen. These fishermen fish for leisure, however, the techniques employed and the attitude towards the resource and the goal is exactly the same as in ‘constant’ and ‘irregular fishermen’. The aim is extractive and, different from recreational fishermen, catch and release is not really the aim. The captures are done to consume and for presents to relatives and friends, but if the harvest is big enough it will be sold.

‘Subsistence fishermen’ are a small group in the community that combine fishing/collection from the shoreline, or on board small rowing boats, or powered by small outboard engines less than 10 horse power, with chiripas (odd jobs) such as collection of aluminium cans for sale. The vessels used are one-person boats from 7 to 12 feet in length. The material limitations restrain them to harvest coastal waters only for third class fish (e.g. mullet,
mojarra, sea bream, ladyfish, and grunts) with occasional catches of close to shore valuable fish (e.g. mutton snapper, lane snapper, snook, red hind and graysby). Their captures are primarily done with small gillnets and casting nets, but some hand line fishing is sometimes done too. They also engage in catching baitfish (e.g. mijiás, sardines, and mullets) for sale. Nonetheless, the gross of the catches are for consumption given the low market value of their targeted species. For instance, Toro set his gillnet once or twice a week. His harvest was normally used for consumption or for exchange, but during my stay in Maternillo he did two captures that were good enough to be sold at the fish house making him around 250 dollars each. However, catching fish that could earn him liquid capital was very rare.

Other community members classified under subsistence fishermen are those who collect marine life other than fish. Land crabs and blue crabs are species that underprivileged community members harvest on a regular fashion. Blue crab is a fully aquatic invertebrate which abounds in Puerto Rico, although it is highly priced in the United States (supporting a big seafood restaurant economy), it is not generally known by people outside coastal communities, and there is not a steady market for it in Puerto Rico. The blue crab fishermen sell these crabs to individuals of surrounding communities that enjoy eating them on soups or rice. The price arrangements are irregular but from what I observed a half filled five gallon bucket was sold anywhere from six to 15 dollars or even used for exchange. On a few occasions, I saw a half filled bucket of blue crabs being exchanged for alcohol and cigarettes.

The technology to catch these aquatic crabs is very particular to Maternillo. Blue crab traps are available at multinational department stores (e.g. K-mart and Wallmart), typically being chicken wired pyramidal shaped that opens flat in a star-like shape when it hits the sea bottom. This traps cost over 10 dollars which makes it inaccessible to subsistence fishermen, so they have developed their own traps in a very simple and functional fashion. The idea of constructing blue crab traps is not exclusive to Maternillo, as other places in Puerto Rico also construct their own traps with chicken wire by making a rectangular version of the pyramidal one but, as with many other aspects of life, ‘subsistence fishermen’ in Maternillo had found a simpler way to create their own. They just tie three strings, attached to a main one, to the front cover of a pedestal air fan; simple as that, but very functional. The fan cover trap is baited with fish guts from the pescaderias.
On the other hand, land crab is a highly valued commodity in Puerto Rico, ranging from to 40 dollars a dozen. However, this crab is very scarce and catching them means wondering at night the mosquito infected, muddy mangroves and wetlands with little success for most of the time. Also, state regulations are highly restrictive with only a few months open to fishing. The hostile environment inhabited by these crabs and the stiff regulations discourage most of the fishermen and community members, but not so to the lowest economic strata in Maternillo. It is important to underline that subsistence fishermen are not as eager to comply with fishing regulations given their economic needs and the material limitations they face in terms of means of production. This is an important loophole in the fisheries management. Subsistence fishing is not taking into consideration when creating the laws neither in terms of acknowledging its existence and much less in creating mechanisms to provide with options to the poorest members of these fishing communities.

Lastly, ‘emeritus fishermen’ describes retired fishermen that, although no longer participate in the actual fishing, are considered by community members as respected fishermen and are seen by active fishermen as invaluable sources of knowledge. I understood the privileged status of these fishermen in the commercial fishing world since the beginning of this ethnography. When I started creating networks and looking for informants in the community I was always directed to the ‘elders’. I was surprised about the fact that non-fishermen were recommending as potential informants for a study about present regulations, fishermen that were retired for as long as 20 years. Obviously, they were not the best source of information to understand how marine regulations and policy process operates in present time. With time I realised that these ‘emeritus fishermen’ possess such a standing in the community that they are seen as sages of any marine related issue regardless of their present inactivity.

The distribution in Maternillo of these proposed categories are as follows: 10 constant fishermen, seven irregular fishermen, five casual fishermen, five subsistence fishermen and three emeritus fishermen. Added together they sum 30 community members that at different degrees are part of the fishing industry. Nonetheless, not all of them are considered as commercial fishermen in community terms. Only constant, irregular and emeritus fishermen, in the community’s view, are to be considered a pescador. Casual and subsistence fishermen utilise the resource too sporadically (in the case of the casual fishermen) and with little intensity (in the
case of subsistence fishermen) for Maternillos’ understanding of what is a *pescador*. On the other hand, emeritus do not use the resource anymore, but just as emeritus scholars they have achieved a standing that surpasses their present engagement with the marine resource, plus the knowledge accumulated through over 30 years of experience at sea, summed with the prestige of the history preceding them assured them a for life position in the community’s fishing realm. This view of how a pescador is defined contrasts with the fisheries’ management institutions. On the one hand, commercial fishing is based on income, meaning that a fisherman that can prove that at least 20% of his income comes from fishing would be considered a commercial fisherman. And on the other hand, ‘emeritus’ and ‘subsistence’ are invisible and the important aforementioned social elements that constitute ‘constant’, ‘irregular’ and ‘casual fishermen’ are irrelevant as far as they can meet the income requirement.

It is difficult to understand the apparent impossibility of people involved in fishing to earn a commercial fishing license, at least the part-time one, since the requirement is 20 percent of the income, which given that community’s income per capita is relatively low. The survey showed that 57 percent of the community said to receive less that 500 dollars a month and 37 percent said to receive from 501 to 1,500 monthly. If we accept those numbers as good, the 57 percent of the population will need to produce as little as 100 dollars a month to meet the DNER requirement and 37 percent just from 101 to 300 dollars a month. In addition, 65 percent of the respondents said that the source of such income was from welfare and/or Social Security and fishing taxation enjoys an exemption of 90 percent which makes it a good alternative income that should not interfere with these governmental transfers. However, most of the fishermen lack a valid fishing license. The main reason is the reigning disinformation about how the license and taxation operates. None of the fishermen had a clear idea about how this operates, and they were concerned about losing the state’s economic benefits if they reported their fishing income. However, for them the lack of a fishing license, although potentially could present conflicts with enforcement agents, was irrelevant since they see the right to harvest the ocean as a birth right transcending the fisheries institutions and their bureaucracies. This superior right to harvest the sea makes the commercial fishermen little concerned about the state’s efforts to restrict their activities. Even in the face of punitive consequences fishermen would completely ignore a fishing regulation that they understand as irrational or unjustified. The same ignorance applies to the state’s classification system placed upon them.
After having proposed a set of categories that in my opinion is a better representation of the fishermen I will devote the last two sections to: 1) describe fishermen’s views and classifications of animals (with special interest on marine life) and 2) to describe their fishing activity. The following section is a detailed account of how these commercial fishermen conceptualise their immediate bio-physical world and the existing taxonomies for marine animals. Then I proceed to describe the commercial fishing activity itself in order to portray how is that Maternillo’s fishermen work at sea. Besides of being a descriptive account of the techniques, which would help to familiarise with small-scale commercial fishing and to comprehend the activity itself, it will help to understand the discontinuities of a regulation apparatus that uses overfishing as a starting point on fisheries management. As we will see the fishing is done in a very rudimentary way and it is indeed very small-scale in size as it is in the number of practitioners not only regionally but at national scale.

Ideas and Classifications about Nature and Animals among Maternillo’s Fishermen

The fishermen in Fajardo have a complex understanding about the natural world. The complexity of their ideas regarding the physical world can be seen as the result of the degree of uncertainty of the resource they exploit. Their views and understanding about the marine resource is complex because they conceptualise the resource itself as characterised by high complexity. As Acheson (1981) argues, fishing takes place in a relatively uncertain environment in a physical and social sense. That uncertainty, paired with the empirical knowledge of marine life accumulated by Maternillo’s commercial fishermen through generations of fishing activities, has resulted in an eclectic view that balances chaos and order. It can be argued that the fishermen understand the natural environment in a “probabilistic” way. In Worsters’ exquisite historical account of environmental/ecological ideas, he explains the evolution of scientific views about nature and their conflicting nature. His account shows that ecological knowledge is constituted upon contrasting ideas about systems vis à vis populations. Antagonist conceptions of nature as balanced, linear, ordered and in equilibrium in opposition to disorder, competition, disturbance and chaos were (and are) abundant in the development of scientific explanations of nature. The more the attempts to achieve a predictable, linear and ordered nature the more disorder and
unpredictability were found (1977: 389-400). The appearance of a less stable nature led to new theories in the ecological sciences. Among those rethinking ecology Simberloff (1980) stands out with his description of ecology as ‘probabilistic’. This view, just like those of fishermen in my field work, assumes that knowledge about nature is “relative, not absolute”. “Organisms, it might be claimed, generally behaved in such and such a way, but in any given case the scientist could not be altogether sure they would. He could only offer an approximation” (Worster 1977: 401).

This standpoint regarding ecological science and its capacity to understand and predict the natural world describes neatly those ideas of the fishermen about the marine resource and nature in general. Actually, it somehow sheds light on how they understand the social world as well. The fishermen express that when they go out to fish, to do what they know best, there is a degree of knowledge involved. Their Fishers Knowledge and Practices (for more on FKP see chapter 6) gives them a degree of certainty of what to expect, what species to catch and the abundance of such species; but that is by no means a guarantee of what the fishing trip outcome will be. Even the most experienced and successful fisherman is susceptible to coming back to shore empty-handed (una pelá). They talked about baitfish gathering in particular places at specific times of the year, while at the same time they argued that some years they may not behave like that at all. For instance, Cano explained that machuelos (Red ear sardines) will school every winter time in a shallow reef they call El Aguila, but then, he clarified that, although they have observed that pattern for decades, some years the sardines did not show up at all. Equally probabilistic they see the economic side of their activity. Sometimes, they argue, you go out and get a good catch but the fish houses are full, they will accept the fish but will ask you to not go out again for a few days, sometimes for a week. On the other hand, there are times when there is a significant number of customers willing to buy fish and the rough seas won’t let them go out fishing (see the section about Lent season in Chapter 6).

Just like the Vassilikiots (Theodossopoulos 2003), there is a sense of order among Maternillo’s fishermen. Theodossopoulos states that “In the context of Vassilikiot’s everyday struggle with the productive resources of their environment the indigenous concept of ‘order’ addresses the establishment of control (or sense of control) over the living and constantly regenerating parts of the natural world.” (2003:168). Similar to them, the fishermen of Maternillo
conceive a partial order of nature - and their indigenous knowledge of it- as an element that awakens a sense of control over the resource they utilise. However, the fishermen idea of order is paired with a sense of disorder. The fishermen understand order in marine systems as ephemeral and therefore their control over the physical world as limited, if at all. Nature’s patterns change and populations can ‘misbehave’, they stressed. In this light, they see animals as elements within nature that, although they follow certain tendencies, they cannot be completely deciphered, nor predicted. Their understanding of nature is found in an intrinsic tension between order and chaos. Therefore they understand their knowledge about nature as ‘probabilistic’. There is a natural order in nature, but that order is chaotic and, to some degree, not completely accessible to humans, nor controllable, nor predictable by them. Just like anthropologists Acheson and Wilson’s (1998) used the concept of ‘order out of chaos’ in their analysis of USA fisheries management in comparison with indigenous management, the fishermen of Fajardo stressed the existing tension between order and disorder in regards to their immediate physical world.

After having set a general idea of how the fishermen conceptualise their immediate physical world and nature, I will now explain in detail how they characterise animals, especially those with which they interact more. Fishing communities live in a close relation with marine and coastal wildlife and Maternillo is no exception. Such intimate interconnection develops into intricate relationships that deserve a closer look.

The fishermen of Fajardo have an interesting view about animals. Marine life and coastal organisms are positively looked upon. This is easy to understand as they are a source of food and income, but their understanding of animals in general, and of marine life in particular, is a complex one. On the one hand they see the organisms they harvest as gifts from nature; the fact that historically the community has utilised their immediate natural resource has conferred them the right – the birth right, they argue – to use such animals for their own benefit. They feel that they are closer to these animals (and coastal resources in general) given their constant interaction with them. The emphasis on practical knowledge nurtures their idea of possessing a more reliable understanding of marine life than that of scientists and policy makers.

Similar to Vassilikiots who claim that “the ecologists don’t know about animals…they talk about animals all the time but they don’t know about animals.” (Theodossopoulos 2003:
the fishermen in Maternillo place little importance to ideas brought by fisheries scientists for the same reasons. The fishermen feel that having a livelihood dependant on marine organisms, relating with such animals on a daily basis surpasses the ‘inadequate’ and ‘limited’ knowledge that fisheries science does produce. In such panorama, an apparent dualistic view is present –for the Western conservationist observer- since fishers express a closer and more intimate relation with marine organisms, while at the same time, they exploit the resource and kill these animals. For those familiar with Western conservationist ideas, the marriage between exploitation and conservation is somewhat difficult. Theodossopoulos noted this clash of conceptualisations about animals in the Vassilikiots’ case. In his case study, the environmentalists engaged in the protection of sea turtles accused the locals of relating to animals in “crude terms which involve only total exploitation of their productivity” (2003: 106). Maternillo’s fishermen are subjects of similar reactions on behalf of those involved in management and conservation. However, for the fishermen of Fajardo, their involvement with the marine creatures is done in a sustainable way, and they see their interactions with the resource as a natural event, similar to any other species within the food chain.

The ideas of Maternillo’s fishermen about the position of humans within the natural world are, to some extent, embedded in religious views. Making reference to Christian beliefs, Topol, a fisherman that fishes with hand line for yellowtail snappers, but whose main fishing effort is done by diving for queen conch and lobsters, said that: “Those animals were provided to us by God. He gave them to us and only He can call a halt to our use of the marine resource. Nature was created in a balanced way, we know that balance because through history we’ve been connected to it. God wanted us to be connected to marine life as well.”

The intersection of fishing activity and religion is not usually as outspoken as Topol expressed it. The case of Topol can be considered atypical, but there is indeed a Christian devotion among these fishermen that permeates in their views regarding marine resource. The Virgin of Carmen is the Patron Saint of the fishermen. A festivity takes place in May where the fishermen take a statue of the Virgin in a yola\(^5\) along the Fajardo Bay. This activity is a small Procession endorsed by the Catholic Church. The Procession, which has the intention of showing

\(^5\) *Yola* is the Puerto Rican name for fishing boats that are locally designed and constructed.
gratitude to the Patron who safeguards the fishermen, is also a community cultural reinforcement, reproducing the sense of a fishing community. Despite the fact that the community is seeing an era where the number of practitioners is declining, such cultural expressions maintain the fishing culture alive. The fact that one of the community’s projects for the near future is the construction of a small altar to permanently house the Virgin of Carmen is evidence that fishing identities are not necessarily connected to the actual fishing effort.

For the fishermen of Maternillo, having the blessing of a Patron Saint for their fishing activity provides them with a moral support which reinforces their rights to utilise marine organisms. Theodossopoulos (2003) explains how Vassilikiots’ understanding of the physical world and of their position within the natural world hierarchy is supported by religious views. With special detail to the connections between St Basil’s classification of non-humans, present on his *Homilies on the Hexaemeron* and local ideas, Theodossopoulos narrates a detailed account about local perceptions of human authority over non-human beings and how the Greek Orthodox dogma supports the human privileged position within the animal hierarchy (2003: 121-32). In similar fashion, the fishermen of Maternillo present an anthropocentric attitude towards the natural world which is as also cemented on religious views. The influence of Christian beliefs regarding anthropocentric ideas of nature has been noted notoriously by Worster (1977: 27), Morris (1981), and Ingold (1987) among others.

When it comes to the relation with animals, the fishermen from Maternillo are empathetic to them. Generally speaking, these fishermen can be categorised as anthropocentric and utilitarian, but being part of a community, whose livelihood has always been, at least partially, dependent on the harvesting of marine organisms, they see animals as beneficial. It has been argued that communities of hunters and gatherers show an egalitarian attitude towards animals (Morris 1998: 3-4; Serpell 1986: 174-6).

A comparison here of fishing and hunting could be useful. In terms of the activity per se, fishing is not much different from hunting. In this regard, Leap argues that fishing and hunting are similar activities, “differing only with respect to the commodity which serves as the focus of the subsistence effort” (1977: 256-7). Ingold (1987) also observes the commonality between fishing and hunting. He would argue, making reference to Meehan’s work (1982), that both activities (hunting and fishing) comprise excitement, anticipation, and the search for
hunting/fishing grounds. In this light, it can be argued that fishing and hunting communities, different from those that practice animal husbandry and agriculture, show a more egalitarian attitude towards animals.

Fishermen in Fajardo seem to enjoy the sight of both wild and domestic animals. Most households have some sort of pet, mainly dogs (for instance, the house I rented at the community came with Chico, a mix breed dog). In fact, there is a considerable amount of sick, abandoned dogs that have found charity in Maternillo. Many of these abandoned dogs were covered in scabies before community members adopted and took care of them. Ill dogs suffering from skin afflictions are treated with traditional remedies (from applying burnt car oil, to specific foods) and community members show joy and pride in having contributed to the wellbeing of these animals. The last stage of those treatments was a preventive daily shower in saltwater, a task performed mainly by Carmelo. Every morning, Carmelo, an old man who does not fish but who spends most of his days in the pescadería and who sometimes cleans the fish, collects the dogs under treatment, carries them one by one through the fishers’ dock, and throws them in the ocean. He assured that this keeps away skin ailments. Carmelo’s and other community members’ dedication to the recovery of the dogs is a good example that la gente de la playa are empathetic to animals.

Another example of how the fishers are fond to animals is Pancho the pelican. Pancho, a brown pelican that was not present in the community during my fieldwork, was the subject of stories that were commonly told in conversations. According to the fishers, this pelican arrived one day to the shoreline, right in front of the Pescadería Maternillo. The fishermen explained that they could tell, from the pelican’s physique and behaviour, that it was an old and sick bird. At first, the pelican was suspicious about humans getting in to close, they argued, but with patience, and fresh fish treats, they managed to ‘tame’ it. The fishermen adopted Pancho as another member of the daily affairs. Knowing that he was too old to find food on his own, they decided to regularly keep some of their baitfish so Pancho could survive. This story was surprisingly familiar to me. When I worked as a charter boat captain at a boat marina near the community, I had a similar experience with a pelican. After eliciting more information about Pancho, I figured out that he was the same pelican that I was feeding. However, Pancho seemed to feel more at home at the fishing community since, based on the anecdotes, he spent most of the day with the
fishers whereas he only visited me for a few minutes right after I docked, until my bait leftovers were gone.

Although Pancho’s existence did not concur with my fieldwork period, a new heir was present in the community. Jaime, a fisher that I refer to in a previous section, used to feed, every other day, a Great egret. The bird (named Jaime after his ‘keeper’) was resident of the fishermen’s dock end. Jaime used to keep the gills of his captures and some of his baitfish for the bird. This fisherman fishes mainly inshore at a visible distance from the community shoreline. As witnessed by me on innumerable occasions, as soon as Jaime anchored the yola, the Great egret took off from the dock’s end to land on the boat’s bow where it stayed motionless until Jaime headed back to shore. Immediately after Jaime was done fishing and had pulled off the anchor, the egret, invariably, flew back again to the dock to wait for Jaime to clean the fish and give him a treat.

The vignettes above exemplify how the fishermen of Maternillo praise birds, especially marine birds. Birds are useful for the fishermen. They show to the fishermen the location of fish and baitfish, they are indicators of weather changes and of fishing seasons. The faculties of birds are even seen with admiration, for birds are, according to my informants, the best fishermen you can find. The fishermen feel so akin to marine birds that comparisons with them are not unusual. “We are like the pelicans”, Negro an ‘emeritus fishermen’ stated once, making reference to the fact that marine birds and fishermen, in many aspects, share the same grounds and goals. Furthermore, Negro mentioned that with age fishermen and pelicans both suffer from the same physical challenges and that both, just like Pancho, depend on reciprocity of fellow fishermen.

The analysis of the above stories about animals reveals that, generally speaking, the fishermen in Maternillo have a classification system of animals similar to those of Vassilikos’ locals. For the fishermen of Maternillo, just like for the Vassilikiots, the importance of animals is directly proportional to their usefulness. Those animals (other than dogs and cats) are relevant, and a topic of conversation, only if they serve a purpose for the household. Theodossopoulo notes the same attitude when he mentions that “Rarely do Vassilikiots refer to wild animals and birds in contexts other than hunting… Birds, animals or fish not regularly hunted or fished appear less frequently in conversation” (2003: 111-5). Regarding birds, for instance, the fishermen will constantly refer to gulls, frigate birds, boobies and pelicans. The conversations
about those birds revolved around their endurance, dexterity, the sharpness of their eyesight, and other qualities that the fishermen have in high esteem. Similar commentaries can be done about native land based birds of prey such as Múcaro de Puerto Rico (Puerto Rican Screech-Owl) and Guaraguao (Red-tailed Hawk), but those birds are ‘ignored’ because they do not represent any use for the fishermen. Marine birds, on the other hand, are useful for the fishermen for they help them in ‘decoding’ the marine resource they exploit.

Such evaluations of animals become more evident when in reference to marine life. It can be argued, more accurately, that Maternillo’s fishermen show the same attitude towards marine organisms as those shown by Valisskiots towards animals in general. Theodossopoulos identified three general categories of animals and three matching attitudes towards them: first, an animal that provides no benefit is looked upon with indifference; secondly, animals possessing useful or positive characteristics (such as edibility) provoke desirability; and third, harmful organisms awaken resentment (2003: 132). In Maternillo, marine animals that are not edible, and therefore of no use for the fishermen, are treated with indifference (i.e. marine mammals, turtles, and fish of no commercial value). On the other hand, marine animals that are considered good for household consumption or that possess a good selling price are positive and desired animals (e.g. shellfish, lobsters, and good tasting fish). The characteristic of being ‘positive’ extends to other organisms that the fishermen understand as linked to those fish, such as marine birds and baitfish. Lastly, the fishermen’s attitude towards harmful animals, like sharks, is a mix of fear, resentment and admiration. Most of the harmful fish are top predators that fishermen do dislike to some extent but at the same time admire for their power and tenacity. In the following paragraphs, I present a folk classification based on these attitudes.

Based on the categories above, I identified a fishers’ folk classification of marine life that helps to better understand the fishermen’s attitudes towards marine animals (see diagram below). When loosely referring to marine animals, fishermen use the words peje or pescao. If strictly translated into English Peje stands for fish and pescao for caught fish. However, the English equivalent does not observe the complexity of those words as the fishermen mean them. In Maternillo, a peje refers to marine animals in general, not just fish. A closer distinction would be: being punctilious, finfish as opposed to fish. Therefore, peje refers to marine animals and
pescao relates to finfish. For instance, manatees are normally called peje despite the fact that they are marine mammals.

A formidable example is the Spanish name for Chelonia mydas or green turtle. This turtle has two accepted common names in Spanish: Tortuga Verde (literal translation of its name in English) and Peje Blanco. The latter is the more commonly used among the fishermen. The use of the name Peje Blanco can arguably make reference to the fact that locals conceptualise these marine reptiles as pejes or fish. We should keep in mind that, although both animals (manatees and green turtles) are considered endangered species and therefore strictly protected by federal laws, in the past, before regulations, the fishermen used to harvest them. I had the opportunity to talk with elder fishermen that remembered the impact that such prohibitions had on their economies. One in particular mentioned, in a sore tone, that he invested a large amount of money on nets to harvest marine turtles only to discover a month later that the turtle fisheries were going to be closed for good.

Manatees used to be harvested as well. Although none of the fishermen that I met had the experience of fishing the ‘sea cows’, one mentioned that his father used to do it back in the 40s, and that they used to refer to it as seven meats, given that, seven different cuts can be taken out of this marine mammal. On the other hand, the word pescao not only refers to caught finfish, meaning finfish that have been already harvested, it also refers to species of finfish that are desirable. So a green turtle is a peje, not only because it is not a finfish, but also because it has no value for the fishermen. On the other hand a lobster or a queen conch is a peje, not a pescao, because they are not finfish, despite the fact that they are highly desirable, which is a characteristic of pescaos. Also, a finfish may well be a peje based on their lack of utility regardless of their finfish anatomy. Tarpons, for instance, a finfish that abounds in the waters immediate to the community are considered pejes (not pescaos) because they are useless for the fishermen.

In other words, for the fishermen peje refers to marine animals (without a basic distinction to the Western concept of class), while pescao refers to finfish. A peje may or may not be useful, while pescao refers only to caught or useful finfish. However, there is a subcategory within peje: peje malo (bad fish). Peje malo constitutes a group of fish that could present a threat to the fishermen’s wellbeing in a number of ways. A Peje malo could be a fish of
low or no commercial value, it can refer to a fish that eats desirable fish that have been hooked, or it can point to a fish that puts in danger the life of the fishermen. Fish that are considered of no commercial value and that school in big numbers fall in this category because they do not let the fishermen’s lines get to the highly priced fish (pescao). Examples of this type of pejes malos are triggerfish, blue runners, black jacks, horse eye jacks and wenchman. The fishermen dislike these fish because if they arrive to the engoe, none of the targeted species of pescao will be caught. Targeted species (i.e. groupers, snappers, mackerels) will sell at a much higher price when those pejes malos may not be bought by the fish house, and if bought, they are worth so little that they barely cover the fishers’ expenses for that trip. Down that line, Papotin put it clearly when he expressed disgust towards the triggerfish: “Thank God they [pejes malos] do not arrive all the time. If the cenizo (local name for a species of triggerfish) were more abundant, there would be no fishermen anymore.” Another category of peje malo is those opportunistic finfish that steal the fishermen’s hooked fish. They are also called peje de dientes, making reference to the fact that most of them possess razor sharp teeth that can cut the potential catch, leaving the disgusted fishermen with nothing more than a fish’s head. Mainly barracudas and sharks are considered under this category of pejes de dientes. The arrival of a school of hammerheads or barracudas means for the fishermen a wasted trip, since every single fish at the end of their hooks will become an easy meal for these pejes de dientes. Lastly, barracudas, moray eels, and especially sharks are considered pejes malos by those who dive because they are a threat to the speared fish and to the fishermen themselves. As mentioned before, diving has become an increasing activity among Puerto Rico’s commercial fishermen. Commercial divers fear the encounters with those pejes malos, particularly with sharks. These pejes malos are attracted by the fishing activity and will claim the product of the fisherman’s labour. The fishermen have no option other than give up their captures and leave for the safety of the yola. They are not fond of staying close to the sudden feeding frenzy that can occur when these top predators discover an easy meal in the form of the fishermen captures.

In light of the above categories, it can be argued that the fishermen in Maternillo observe classifications of animals based on their usefulness or lack of it. Birds that are helpful for the fishing endeavours are desirable birds. Those birds are admired based on their ‘fishing skills’ and on the fact that their biological activities are beneficial for the fishermen. On the other hand, other birds were not important; they were never a topic of conversation, at least not during my
field work. In the realm of marine life, the fishermen have a more complex taxonomy. However, these categories are also fundamentally utilitarian, based on benefit, lack of use, or potential harm.

For this analysis, I have been doing constant reference to Theodossopoulos detailed ethnography on the human-animal relationships of Vissilikiots. But different from Vassilikiots, who emphasize on the notion of order and “the establishment of control (or sense of control) over the living and constantly regenerating parts of the natural world” (2003: 168), those fishermen from Maternillo do not consider control over the natural world as a possibility. And although they realise that there are patterns, they only understand order in nature as partial, ephemeral and impermanent. Such views of nature, I have argued, are similar to those of ‘probabilistic ecology’. I have also made the necessary distinction between the two social groups (Vassilikiots and Maternillenses) in terms of their economic relations with nature. One, being strongly inclined towards animal husbandry, seeks order and control; the other, being a fishing community, is surrounded by uncertainty and therefore inclined towards probabilism.

At this point, it is important to highlight that the proposed categories of fish refer only to species that the fishermen avoid, ignore or target for their selling potential; but those do not include a central actor in their fishing activity: the baitfish. As I describe in the next section, baitfish is neuralgic for fishermen in Maternillo. The bait includes a varied group of fish that serve as *engoe* or bait for the hooks. The fishers refer to them as *carnada*. Sardines, ballyhoos, and different types of anchovies fit in this category. *Carnada* is a finfish, but different from *pescaos*, it is not intended for sale. Nonetheless, it can be argued that baitfish is the most important element for the hand line fishermen. Without *carnada* there is no *pescao*. 
Diagram of fishers’ sub-aquatic life categories

- **Peje**
  - All marine animals
  - Irrelevant marine animals

- **Peje Malo**
  - Schooling finfish of low commercial value

- **Peje de diente**
  - Bigger fish that steal hooked pescao

- **Pescao**
  - Desirable finfish

- **Peje Malo**
  - Fish that could cause harm

  - Dangerous fish for the fishermen
Fishing Vessels and Fishing Activity

Maternillo’s fishermen favour three types of yolas the Dragon, Spider and Petrel (see appendix 4 for image of Dragon yolas). These vessels are locally constructed, and were designed to meet their fishing requirements. Different coastal areas in Puerto Rico have developed different boats based on the particular fishing techniques employed and on to the seas to be exploited. For instance, the Aguadillanas, the yolas used in Aguadilla, the Northwest corner of Puerto Rico have a higher bow making them more suitable to deal with the high swells of the Atlantic Ocean. The vessels in the Southwest (Mayaguez and Cabo Rojo) have cabins, are much bigger and have higher gunwales given that these fishermen fish the waters of Mona Island (45 miles offshore) fishing for longer periods at a time, reaching up to a week. Those vessels used in the Southwest are equipped with electric reels to catch deep water snappers and can be up to 45 feet in length. This diversity is not limited to the farthest coastal areas. The lancha planúa, the traditional yola in Humacao, a coastal municipality not far from Fajardo located in the east coast, is a flat bottom hull designed for the calmer coastal waters of the area. Las Croabas, being located in Fajardo, shares the same yolas as Maternillo, but they also have bigger vessels, similar to the ones in the Southwest, used for fishing with lobster pods.

In the present, the vessels in Maternillo are fibreglass boats designed for outboard engines. In the past, the popular commercial fishing boat in Fajardo was the barco nativo (Spanish for native boat), a sailboat that was also locally designed and constructed. However, the introduction of marine outboard engines in the 50s led to the design of the present vessels and the barcos nativos are now considered collectibles. Out of the three aforementioned yolas, the most popular model among the Maternillo’s fishermen is the Dragon 20 feet long. Despite the difference in vessel styles it can be argued that this boat size is the norm in Puerto Rico. According to Matos et al 2002 fisheries census, 68% of the commercial fishing vessels in Puerto Rico range from 16 to 21 feet in length (Perez 2005). The Dragon 20 was developed by Gelo, an ‘emeritus fishermen’ whose father at 96 years old is also considered an ‘emeritus fishermen’ and whose son is the youngest ‘constant fishermen’ at 28 years old, Aaron. Gelo used to build these yolas right in Maternillo, but later on, due to conflicts regarding boat construction pollutants, the factory had to move to Rio Grande. The yola is a simple deep V hull, with low freeboards, a self-
filling bait well, two fibreglass benches and an outboard motor hand operated. No steering wheel, centre console, nor electronics are present in the boat. It is typically powered by a single 40 to 75 (more commonly by a 60) horse power Yamaha outboard. Everything is simple and functional. The boat ride on board a Dragon is rough and wet, but it is a fairly safe boat. I was honoured to be invited to fish on these yolas in both calm seas and extremely rough conditions and I was impressed with its stability. However, waves were constantly spraying on me and at the arrival to the fishing grounds I was soaking wet. I was a little uncomfortable with such a wet ride, which did not seem to bother the commercial fishermen. As mentioned in the introduction I am used to recreational fishing and charter fishing and years ago I was on board a centre console boat as much as 250 days a year, but still, my interaction with the ocean was not as closed as what these fishermen are used to. Also, given the constant clashing against the waves, the ride on board this yolas is harsh on the lower back. The proel alleviates the roughness of the boat ride by standing on the yola’s bow, while holding a rope that is attached to the bow’s cleat. In what resembles a rhythmic dance, the proel bends his knees, flowing with the rocking yola to absorb the impacts created by the yola’s keel assailing the waves. I have seen the fishermen for nearly two decades performing what looks from shore as if the fishermen were cowboys taming a wild yola over the rough seas. It was not until I was invited for the first time to ride the aquatic fibreglass equine that I was able to understand the reasons for what seemed until that day an irrational activity to me.

Once anchored, the peculiarities of the yola start to make sense in a very functional way. The low gunwale it’s very helpful to pescar a la ronza. The bench, which crosses the yola’s beam, provides the fishermen with a very comfortable position to hand line all night which is not possible on the typical recreational boat centre console layout. The bait well, not powered by pump, keeps the bait alive since a series of little thru-hulls keeps a constant water exchange. The fishermen will close or open a certain amount of thru-hulls depending if the boat is motionless, idle or at speed; and also depending on the type of bait they are carrying. Once the fishing starts,

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6 Proel which comes from proa (Spanish for bow or front of the boat) is a term used for the fishermen that is not driving the boat. It also means for the management institutions that this is not the yola owner. Usually the one driving will be the owner and is positioned at the back of the yola, while the proel will be at the bow.

7 Ronza is an uncommon Spanish word for leeward. Pescar a la ronza (to fish leeward) makes reference to the fact that the engoe (or chum) and the fishing lines are flowing downwind and down current.
the bait well becomes a fish box. The fishermen will keep the fish in the live well where they will keep fresh (even alive) only to transfer them to the ice about once every hour or two. By doing this, a smaller amount of ice can keep the catches fresh all night. Now I will like to get into detail how is this fishing done.

To understand the fishing in Maternillo is pivotal to understand the baitfish. The *mijúa* is central for the Maternillo’s fishermen. It is not surprising, then, that one of the main streets in Maternillo is honoured with this name (image). The *mijúa* can be identified as a tiny silver fish in the anchovy family, averaging 1 inch long (see image). However, to narrow this fish down to species level (or even genus level) can be extremely difficult since, apparently, various juvenile species of baitfish (mainly anchovies and sardines) are categorised under this generic name. Mijua’s nomenclature seems to have evaded both scientific and ethno-taxonomies. Despite the apparent looseness in identifying and categorising these fishes, the fishermen in Maternillo are very proficient when it comes to understanding its ecology and predicting the cycles of these highly appraised fishes. Their knowledge about this species is not surprising since it is central to their fishing activity; not having *mijúas* equals not going out to fish. A Maternillo’s hand-line fisherman will never venture out to sea without at least a small amount of them for chumming or *engoe*. The *mijúas* are caught with a small mesh casting net that the commercial fishermen call *toldo*. To be successful at finding the *mijúas*, the fishermen need a good deal of knowledge about the migration patterns, the water’s colour, the ocean’s bottom structures and the marine birds. After having fished for them for years, they can predict quite accurately aggregation sites of *mijúas* and other baitfish (such as herrings and sardines) during different times of the year: El Aguila, on the South of Palomino Island; inside the protected marina of Lobos Island; in Punta Batería, at the entrance of the Villa Marina, Sea Lovers and Puerto Chico marinas; at Seven Seas beach; at El Indio at the lighthouse; at the Fajardo river; and even at the community ocean front where they sometimes catch them from the little *pescadería*’s wrecked dock. Catching bait is a sophisticated activity that encompasses holistic knowledge of marine ecosystems and oceanography.

Maternillo’s fishermen normally catch them on the same day of the fishing trip, but at times of great abundance, they save bags of them on a freezer after having shared them with their peers. It is a sign of distinction and good fellowship to share *mijúas* with fellow fishermen that
for any reason (e.g. health problems, lack of free time during daylight) are not able to catch their own. It was common to hear the fishermen judging generosity or greediness based on the attitude towards the mijúas. The mijúa are caught during the day. If caught from a yola, the captain will position the boat upwind in relation to the mijúas, while the proel will cast the toldo downwind on top of the bait school. As mentioned before different types of baitfish are used, although the mijúas are favoured, other fish may be used as ‘hook bait’ while the engoe will mostly be done with the mijúas. Two to four mijúas per hook are also commonly used as bait. This method is favoured over using a different bait than the engoe since the ‘hooked bait’ will exactly match the one used for engoe, but at times when the mijúas are scarce, it is used only for engoe while adult sardines, or even commercial imported squid, is used to encarnar. To hook the little and skinny mijúas, the fisherman pushes the hook through the fish eyes. Other baits such as sardina de altura (threadfin herring), jarea or lisa (mullet), cascarrúa (false pilchard), machuelo (red ear sardine), and balajú (ballyhoo) were used to target bigger fish (e.g. king mackerel, cero and sharks).

For these fishermen, the most effective way to fish is to engoar for some time first before casting out any lines. After 10 to 15 minutes of engoe the fishermen will throw a fistful of engoe with the baited hooks so the engoe (which is attracting the fish creating a feeding frenzy)

Encarnar is a term used by the fishermen which literally means to put bait. For hand-liners this means putting bait and the baited hooks sink together. To match the sinking rate of the freefalling engoe and the baited hooks the fishermen release a predetermined amount of fishing line to the water. The amount of line depends on the speed of the current. The whole process is very local; fishing experience/knowledge elsewhere is not really helpful in mastering this technique given its punctuality.

The fascinating and complex engoe process is learnt through years of practice. Many variables affect this process which leads the savvy fishermen to having to make constant adjustments and fine tunings to achieve success. The mijúas are mixed with sand to manipulate the sinking rate of the bait used to attract the fish. Particular types of beach sand are used to do

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Encarnar is a term used by the fishermen which literally means to put bait. For hand-liners this means putting bait (e.g. mijúas, sardines squid) on a hook while for trap fishers means to put bait (queen conch trims, fish heads and guts, or even beer cans for lobsters!) in a small compartment inside the trap.
this, a thin and loose sand, small in diameter, and rock/shell free is preferred by this fishermen. They normally get the sand from one of the islands in the Fajardo Bay (mainly either Palomino, Palominito, Ratones or Icacos). Given that Maternillo’s community borders the Fajardo River, where mangroves and wetlands are present, its sand is muddy and therefore unsuitable for this task. Many elements come into play to successfully meet the purpose of bringing a school of fish at fishing range of the yola. The speed and direction of the sea current, the presence or absence of free swimming baitfish around the boat, and the frequency of fish striking are some elements that the fishermen take into account when deciding how the enogoe will be done. At the beginning of the enogoe they make compact ‘sand balls’ (the size of a baseball ball) by adding some sea water to the sand while putting inside the ‘sand ball’ a handful of mijúa. By doing this, the bait (and the fish scented sand) goes down quicker covering the whole water column, all the way from the surface to the sea bottom. After having done this technique for some time, then they start using a loose mix of sand and mijúa which does not sink as quickly as the former, making the fish attracted by the enogoe closer to the yola. The fishermen claim that the harvesting success depends on the enogoe technique, too much enogoe and the fish will stay too far from the boat, too little and the fish will lose interest on the enogoe slick. If the sea current is strong, a higher amount of enogoe and of sand in the mix is needed, and during slower currents, less sand is used. So, the fishermen need to be constantly ‘decoding’ the sea, making small but critical adjustments to achieve a successful harvest. Many subtle variants may affect the result of a fishing trip. For the casual observer, these little details may pass undetected, but the fishermen were very emphatic about the importance of engoar the right way.

*Engoar* is even more important than catching the fish. A common mistake is to focus on hooking fish once they get to the yola and setting aside the enogoe; it is crucial to keep a good enogoe all the time. That is the difference between an outstanding fishing trip and an average one. A good fisherman is by default good at enogoe, a fisherman bad at enogoe will inevitably be a mediocre fishermen.” (Charlie during an interview, my translation).

A common fishing activity in Maternillo other than hand lining is scuba diving for seafood, mainly Queen conch, lobster and to a lesser extend caracoles. I was unable to presence a diving fishing trip given that the typical crew and the equipment used left little room for an observer. Three to four fishermen were the average crew per trip, and it included one to three diving tanks per fisherman, topping the maximum capacity of the little yolas. However, I was able to gather information about this activity via interviews. A crew member is in charge of
driving the boat while the other fishermen are diving; this person is called *yolero*. The *yolero* has the responsibility of keeping the boat at a prudent distance from the divers’ bubbles. Keeping the *yola* too far away from the divers means unnecessary fuel consumption. Also, in case of an emergency, being away from ‘the zone’ could mean losing valuable minutes in assisting them. On the other hand, being too close to the divers could mean a dangerous ascend for the divers. By calculating the currents in relation to the depth and the location of the emerging bubbles, the *yolero* can estimate the actual position of the diver in the sea bottom, an important estimation in order to keep the boat in the right position.

As mentioned above, diving is done to capture Queen Conch, lobsters and, to a lesser degree, *caracoles* or even octopus and benthic fish (mainly red hind, mutton snapper and hogfish). Diving fishing is the cause of arid disputes between its practitioners and the fisheries managers. Queen Conch, caracoles and lobsters are highly valued and its stock status and management is contentious. Restrictions include fishing techniques, quotas, seasons, and size. The fishermen in Maternillo agree with some of these regulations while firmly refuse and ignore others. The fact that the divers comply with some of the management restrictions and openly violate others shows that the fishermen, far from being powerless or reckless environmental users, have their own conclusions about the resource and its management embodying a fishing ethics which is based on experience and not on institutional punitive impositions (see chapter 6). The most conflictive conservation measure is the regulation that restricts the divers from breaking the shells underwater. Queen Conch possess a massive and heavy shell. To maximise the diving time and harvest per oxygen tank, the fishermen break the shells underwater, with a small pickaxe, bringing to the *yola* only the Queen Conch flesh. They also do this because it will be unsafe for the *yola* to handle the weight of the shells, fishing gear and three to five men. According to the regulations the fishermen have a maximum quota of 150 specimens per commercial fishermen with valid fishing licenses, which they need to bring intact to the *yola* and they have to start breaking and discarding the shells once the *yola* is in transit to shore after the fishing is over. According to the fishermen in Maternillo the regulation is completely inadequate, and if the fishermen where loyal to it fatalities due to excessive on board weight were in the horizon. Needless, to say that they keep breaking the shells (and the law) underwater, ignoring and openly defy the regulation, making it obsolete since no one follows it.
An interesting fact is that the institutions know about the popularity and broad usage of this practice, therefore knowing as well about the daily infractions. However, both parties seem to just ignore these events. The fishermen just completely ignore the regulation and the agency’s ignorance has taken the form of not enforcing it while keeping a discourse of sound management through the implementation of such measures. The institutional ignorance will be further developed in chapter 4.
Chapter 3
Identity: Fishing communities and fishermen

“I consider this a historical meeting for the sea working class. I proudly say with my head high that I talk on behalf of the voiceless, on behalf of the roughed hands, on behalf of the faces tanned under the sun, and on behalf of hundreds of broken hearts.”
(Oquendo’s speech during the first meeting of FEPDEMAR)

This chapter describes Maternillo coastal community that is considered, by its members and by state institutions, a fishing community. I will describe the particularities of Maternillo’s fishing activity, its artisanal/small-scale nature, its present status and how these particularities relate to, or contrast with, commercial fishing as a whole in Puerto Rico. By using Maternillo’s case study, I argue that the history of commercial fishermen’s fragmented organisation and their resiliency (that is, strategies to cope with economic, political and environmental fluctuations such as: flexible identities and occupational multiplicity) explain the weak stakeholder’s participation process on fisheries management at the institutional level.

The first section, “Fishing Identities”, works the concepts of commercial fishermen and fishing community. I address how these have been defined and how such definitions compare with Maternillo’s identities. By describing how the community fishermen fish, I will depict the local identities of being a pescador. I will also explore ideas about camouflaged and flexible identities are explored and the ways in which these processes have influenced fishermen engagements with fisheries management participation.

A second section, “Empowerment: The importance of fishermen organizations”, describes how disempowerment and the history of fishermen’s organisation have resulted in a generalised disinterest on fisheries’ participation processes. This section also explores fishermen’s new and creative forms of agency by documenting how community members have claimed participation, in fisheries management and community development, through non institutional mechanisms.
Fishing Identities

Oquendo’s quote exemplifies the dramatic tone in which commercial fishermen present themselves sometimes. Discourses about marginalisation are not unusual representations of commercial fishermen. It is true that fishers are among the most disadvantaged social groups in Puerto Rico, but their identities are not limited to that of an underprivileged class suffering from unequal power relations. They have also been romanticised as peasants who have succeeded in contesting modernity, as men liberated from daily stresses by being owners of their own destiny, as courageous peoples, and more recently, as groups of resistance and stewards of the ocean. There is a particular folklore surrounding commercial fishing. While fishing is generally characterised by poverty, at the same time there is an appealing pride about being a fisherman that is difficult to describe.

Maternillo’s fishermen constantly express a deep connection with the sea they harvest. The expression of “just being another drop of the sea water” exemplifies a profound relatedness with the sea. The use of the ocean and the fish as references to explain things that are not necessarily related is common among them. When someone has not been seen for a long period of time, they say that he or she “is harder to find than a lobster”. On one occasion, Negro, an emeritus fishermen explained to me that Maternillo’s fishermen are like the pelicans: “The pelican is always looking for mijúa (a type of anchovy that is the main bait for Maternillo’s fishermen, see chapter 2). The mijúa is what provides a living for the pelican, it is also true for the fishermen. The pelican dies blind, so do we.” The fisherman, who is visually impaired, was making reference to the fact that a significant number of fishermen suffer loss vision due to years of sun exposure.

Maternillo’s fishermen express an urge to be by the sea. They say that they won’t survive in any other environment. Residents who spent periods of time far from the ocean, outside the community, in other municipalities or in the USA, said that they felt anxious about returning to La playa. This relatedness with the ocean and with fishing has been documented by anthropologists who have investigated fishers’ working migrations. (Griffith and Valdes-Pizzini 2002; Perez 2005). Griffith and Valdes-Pizzini express neatly that: “those who fish, hunt, farm,
gather, raise animals, or rely on other natural resources for some or most of their survival often report that they gain much satisfaction from these activities beyond the more tangible benefits of cash, food, or other materials that they provide” (2002: ix, my emphasis).

Despite this close relation with the ocean, Maternillo’s fishermen, as the vast majority of the island’s fishermen, are characterised by their resiliency. Moving in and out of the fishing industry is a constant, regardless of emotional connections with the sea. Fishermen have developed a range of economic and social strategies to deal with uncertainty, resulting in flexible labour practices and identities. The next few pages explain why the fishing approach chosen by these fishers is proof of such malleability.

The fishing in Maternillo

In this section, I explain how natural and social forces out of fishermen’s control have shaped (and shapes) the Maternillo fishermen’s approach to their fishing activity. A good deal of attention has been paid to tradition and effective community learning in the explanation of the development of fishing techniques, but less emphasis has been placed on fishing techniques as adaptation to social and natural uncertainly. It is undeniable that tradition and community social networks play an important role in the reproduction of the community’s identity and in the way these fishermen do their job. But focusing exclusively on tradition creates a false illusion of static identities, which supports discourses of cultural loss and lack of agency. It is my contention that fishermen are dynamic groups that are not endangered as some (including themselves) would argue, but that instead evolve adapting to circumstances. Going and coming back to fishing, far from being a sign of extinction, is a form of survival.

Maternillo’s fishing can be summarised in two main activities: hand line fishing and scuba diving. Those who do the former are recognised by other fishermen as experts. However, scuba diving is an activity recently developed which is performed by many hand-liners as well. Some of the divers, however, only practise diving for queen conch and lobsters, but this is a minority. Only a small group of fishermen of Dominican origin specialised exclusively on
diving; most of the Maternillo’s fishermen either fished just with hand lines or combined this method with diving during the peak of the queen conch and lobster season.

In economic terms, diving produces two of the most highly valued commodities for the community lobster and queen conch. The third most relevant one is yellowtail snapper, which is catch by hand-lining. The high price of diving harvest (around five dollars a pound) explains why this practice has recently become so popular among the fishermen. In the past, lobsters and conch were not in high demand and prices were very low. Nonetheless, hand-lining is a year-round activity that is considered the trademark of Maternillos fishermen; 73 percent of the community’s fishermen fish with hand-lines, although most of them do it in combination with diving (only 33 percent fish exclusively with hand-lines and 26 percent fish only by diving).

The fishing techniques employed by Maternillo’s fishermen can be analysed as the result of strategies to cope with natural, economic and social elements. In other words, the character of their fishing activity is shaped by the uncertainty of said elements.

First, in terms of nature’s influence, storms, swells, wind, water quality, bait and predators migrations, submarine currents, tides, moon phases, and coral reef are natural variants that the fishermen cannot control and that affect their fishing activity. For instance, during the winter months, opportunities to go out to sea are very limited due to the constant arrivals of cold fronts. These fronts bring risky seas that are almost always not navigable for small vessels, and definitely not for fishing on yolas averaging 20 feet long. In addition, if the few windows of acceptable weather during this period do not coincide with the right moon phase, fishermen will not go out since they consider it a waste of time. Fishermen have identified right and wrong moon phases for fishing. They will only fish from the last quarter to the first quarter of the Moon phase, so if good seas come from the first quarter to the last one, no fishing is done for the whole month. These natural constraints are seen by the fishermen as ‘natural environmental management’ (see Chapter 6 for more on fishermen views on management).

Second, economic aspects also shape the ways that the fishermen engage with the fishing activity. Economic fluctuations, the importing of marine products, fisheries management plans and government development plans create conditions that affect the fishing activity and that the fishermen are not able to control. During harsh economic times, for instance, local fresh fish is
seen as a fancy commodity, and sales plummet. During my stay in Maternillo, Chan had to ask the fishermen to stay on land because the freezers were full with fish due to the ‘economic crisis’. In addition, frozen fish imports from India, China, Indonesia and Costa Rica unfairly compete, with their lower prices, against the local fresh fish.

Furthermore, commercial fishermen have felt the pressure of fisheries management restrictions. For instance, species-closures are normally based on spawning aggregations. During the time when fish gather at particular places to reproduce, fishermen used to harvest relatively high volumes of the spawning species. For many fishermen, spawning aggregations equalled bonanzas. Actually, fisheries scientists have learned about the spawning aggregations of many species based on the fishermen landing peaks, which illustrates that fishermen did focus on this natural cycle for higher yields, and this shows the importance of this practice for fishermen’s economies. Although it is a well-accepted fact that targeting spawning aggregations is an unsustainable practice, it still affects the economies of those who used to benefit from them.

Third, in terms of the social elements, the state’s development plans also have a direct impact on fishermen’s livelihood. On the one hand, land clearing for urban development has resulted in coral reef degradation affecting the well-being of fisheries. On the other hand, coastal development has resulted in a generalised gentrification process reshaping the fishermen communities and restraining access to areas that traditionally were part of the fishermen workplace.

These natural, economic and social elements that affect the fishermen’s activities, and that seem to be out of their control, have resulted in a fisherman that, instead of struggling to maintain a livelihood based exclusively on fishing, has reinvented strategies to deal with uncertainty. The fishing activity per se is evidence of these strategies. As mentioned before, the fishermen in Maternillo have specialised in hand-lining and more recently in scuba-diving. Hand line is the most simple and inexpensive approach to commercial fishing, it consists of a yo-yo (hand-held spool), monofilament line, small lead weights and hooks. I estimate the total value of Maternillo’s fishing hand-line gear in 10 dollars. In general terms, Maternillo’s fishing techniques are kept as simple as possible. Their boats, motors and gears are functional, dependable and practical. This is handy because if the fishing comes to a halt, for whatever reason, the capital invested is minimal. Also, their commercial fishing approach gives them the
flexibility to invest as much or as little time and effort on fishing as the situation provides. Such flexibility, however, is restrained in industrial fishing and large-scale operations (not present in Puerto Rico). However, other techniques employed in other areas of the island also present a certain degree of constrain to such flexibilities. Fishermen that fish with nasas or traps (a common technique especially in the South coast of Puerto Rico and throughout the Caribbean) find themselves attached to more responsibilities to the sea fare. Traps need to be collected at least twice a week, repairing them is a constant and if they are left out of the water they deteriorate quickly. Also, the initial investment to buy or construct these traps is relatively high. In short, industrial fishing (and to a lesser degree, the use of traps on small-scale fishing) entails a higher investment in terms of money and time, so it limits the flexibility to engage in other economic strategies.

In conclusion, by keeping a simple and low-investment approach to the fishing enterprise the Puerto Rican fishermen have been able to cope with uncertainty. Such approaches allow multiple economic strategies and a flexibility that industrial high-investment approaches would not. This is particularly true in Maternillo where fishing is done with the minimum investment.

After having summarised the particularities of fishing in Maternillo, it will be pertinent to explore what these categories of ‘fishing community’ and ‘fishermen’ entail, what discourses frame such categories and what repercussions are involved.

**Contestation: Fishermen, Fishing communities**

Maternillo y Mansion del Sapo is known as a fishing community, which raises an apparently simple question. What is a fishing community? The simplest of the definitions understands fishing community as a group of people engaged in the fishing activity as occupation. This will approximate it to an ‘occupational community’, which would be an inaccurate concept given the complexity of the labour reality of Puerto Rico’s fishers and because it would undermine social aspects that bond these communities. That is also the case of the recent and popular concept (used mainly by fisheries management institutions) ‘fisheries-
dependent community’, which has been defined based on the percentage of members of a certain locality engaged in the fisheries activities. The definition states that a fishing community’s dependency should range on a minimum of five to ten percent, while others have defined such dependency based on Gross Domestic Production (Brookfield et al 2005). As most definitions, these fail to grasp fisheries’ important social, cultural and historical dimensions.

Clay and Olson (2007: 29) provide a list of commonalities that are helpful in depicting what a fishing community is. Most of them are satisfactory, perhaps to some extent. The authors argue that most fishing communities share the following elements:

1) “A variety of linkages of common residence on land with common place of work at sea.” Indeed, there is a spatial perspective present on fishing communities, fishing households are physically present in a particular place, but fishing communities expand far and beyond their territory and such communities are composed of members who do not share the same locality. The elements that compose the Maternillo’s fishing community are mainly located around the Fajardo river, but likewise, some of them are spread out through the rest of the municipality, through the Caribbean islands, through the USA and through segments of other communities that at particular times are incorporated into the ‘fishing community’.

2) “Strong cultural beliefs about the importance of fishing to the community even when fishing revenues are only a small fraction of gross revenues”. Based on my ethnographic experience, this is among the most relevant aspects about what constitutes a fishing community. And at the same time, it delineates the principal conflict in determining who is a fisherman and what a fishing community is. For the fishermen, and residents in general, of Maternillo the relevance of fishing is culturally and historically rooted. Therefore, it is immeasurable by economic parameters. Also, for them, it is not about simply being a fishing community, but about being from ‘this’ fishing community in particular and that is what makes them different from other communities in the area. Furthermore, being fishermen is not the only thing that makes them different; it is also the fact that in their eyes they are ocean people, they are gente de la playa. Historically, Maternillo residents have been related to the ocean not only through commercial fishing, but also through other jobs such as the limestone factory in Icacos Island and merchant sailors.
3) “Women’s strong involvement in the resource enterprise—although that is changing”. Although describing women’s involvement in the fishing enterprise as ‘strong’, is open to debate in Maternillos’ present time, there is indeed women presence in it. Although no woman was directly active on the fishing activity per se, and according to community members, there are no records of women getting involved in actual fishing, women played an important role in the community’s fisheries. Here are some relevant examples: Silvia, who was in charge of keeping the Maternillo’s pescaderia tidy and who took part in the fish cleaning process. Olga, a woman who is in charge of El Relincho, the pescaderia that borders the river. And Rosa, the owner of Rosa’s Sea Food), a well-known sea food restaurant that serves marine products harvested by local fishermen. According to Gonzales Velez (2003), when Rosa started her business it was a combination of restaurant and fish house, and during that period she became an important middle woman. Rosa has not sold fresh fish in a long time, her business is exclusively now as a restaurant. However, she was in the process of reducing the restaurant operation due to lower sales. Puerto Rico’s economic recession has shrunk the restaurant’s offer, which has affected the local commercial fishermen and the fish houses that used to sell considerable quantities of fresh fish to Rosa.

Another relevant aspect in which women are highly involved is in community organisation. Community meetings were populated by a high percentage of female members. Meetings dealing specifically with fisheries issues were concurred by them, too. These women were active in the preservation and reproduction of Maternillo as a fishing community by stressing the cultural importance of the fishing activity for the community’s identity and survival.

Clay and Olson (2007) stress that, it is crucial to situate these commonalities among fishing communities in their particular ethnographic contexts. I have mentioned before that small-scale fishing communities present a number of particularities that make generalisations difficult. I will now explore different discourses about ‘fishing community’ and fishermen identity in the Puerto Rican and Maternillo context by explaining how different actors (those looking and those being looked at) imagine the fishermen and their communities.

To be a fisherman and to belong to a fishing community seem to be concepts in constant negotiation since different actors set different defining parameters. External representations
about what a fisherman is have been deployed at different times by different actors for different reasons.

Manuelle Castells (1997) proposes ‘legitimizing identity’ as an identity building process in which institutions and organisations are created while producing equally institutionalised and organised social actors in an attempt to perpetuate domination. Legitimizing identities are created through the environmental management apparatus that defines the resource and the actors involved. Meanwhile, participation fortifies such identities by reassuring them through the identification of stakeholders and spokespersons. As seen in the previous chapter, the attempt of the state fisheries’ institutions to categorise and calculate commercial fishermen through the license system falls short from accurately representing the complexity of the concept fishermen. In an attempt to reflect the actual involvement of commercial fishermen, I am proposed a new set of categories (see chapter 2) that, based on my understanding of the community dynamics, is more aligned with how commercial fishermen use the resource and with the way they self-identify. I should point out that legitimising the fishermen’s identity through external representations is not a new phenomenon. A good example of such imposed identities that goes back in time can be found in the National Geographic Magazine of December 1924. The article titled “Porto Rico, the Gates of Riches”, impregnated with what seems as colonial powers’ propaganda, presents a colour picture of a fisherman (see appendix 3). Both the pose picture and the photo commentary are an imagination of Puerto Rican fishermen and the island’s fisheries. The commentary states that “nearly every form of Mediterranean marine life abounds in Puerto Rican waters.” Clearly, the objective of this is one of marketing the recently acquired colony. The Caribbean as the ‘United States Mediterranean’ is not restrained to its landscape; it also includes its gastronomy. The truth is not that nearly every form of Mediterranean marine life abounds in Puerto Rico, but that nearly none of them are present. Not to mention the picture itself. It is very unlikely (especially in the 20s when boats were propelled by wind or by rowing) that in a ‘morning catch’ single fishing trip both silk snappers and lobster would be caught. Silk Snappers inhabit the shelf slope (ranging from 200 to 600 feet deep) while the lobsters are caught on coastal shallow waters. Even today, a commercial fisherman would not capture both species due to the fact that doing so requires two different techniques; basically, it is two different fishing trips. Another interesting feature in this picture is the presence of a net laying on the wooden boat bow as if the harvest was carried out with it, another flawed recreation of Puerto
Rico’s fisheries. In fact, none of these marine creatures can be capture with nets, but either with traps, hook and line (for the snappers) or by diving (for the lobsters). In short, the picture eloquently expresses how, in the past, ‘outsiders’ reinvented fishing activities. Although this was three quarters of a century ago, today external ideas about what fishermen do still shape the collective’s imagination.

Fishermen are commonly conceptualised as economically unprivileged, as members of the lowest social strata. Busby (2000) explains that in southern India fishermen are marginalised and considered to be the lowest cast. Hurwitz-Nadel (1984) explores stigmatism and forms of discrimination against fishermen in a Scottish fishing village. Walley (2002) states how fishermen in Mafia’s Island, Tanzania, felt discriminated based on their low education. This is not necessarily the case in Puerto Rico where fishermen are also seen as unprivileged in economic terms but have been idealised. In an island where its inhabitants do not behave as ‘islanders’, a romanticised fisherman identity permeates the locals’ ideas in what can be explained as non-fishermen’s vicarious connection with the ocean. For Puerto Ricans not involved in fisheries, fishermen and their communities are imbued with some glamour. It can be argued that, at national level, being a pescador is equal to being a jíbaro. In Puerto Rico’s history the jíbaro has dominated the national imaginary. The term jíbaro was used to represent the Puerto Rican white peasant. But the use of the jíbaro has transcended its class and phenotypical attributes. The jíbaro became a symbol of national identity. Babin (1986) argues that the jibaro “represents the deepest, most resilient, and purest of the Puerto Rican national identity”. Regardless of the disputes about the validity of the jibaro’s identity (see Guerra 1998, Torres Robles 1999, Scarano 1996) the truth is that it permeates the national identity and it became one of the most (if not the most) powerful symbol of what meant to be a Puerto Rican.

However, today the jíbaro is agonising. The demise of agriculture in Puerto Rico has left little room for the idealised jíbaro. Puerto Rico saw the end of agriculture not long after Operation Bootstrap during the 60s when the agrarian economy changed to an industrial one. Present time Puerto Rico can be considered an urban island that is heavily dependent on food imports. The jíbaro is long gone; it is near to impossible to find a single Puerto Rican that could be called a jíbaro. But, it is possible to go to Maternillo, for instance, and see a pescador. It can be argued that in a discreet way commercial fishermen have claimed a place in Puerto Rico’s
national identity imagination. Although commercial fishermen have always played a pivotal role at local levels, their relevance at national levels have increased after the debacle of agriculture. Evidence of this is the exposure of commercial fishing and the fishermen’s demands in Puerto Rico’s newspapers. The media seems to be sympathetic towards commercial fishermen, and more attention than usual has been placed on this group. The public has romanticised views of the fishermen as an endangered species, as a reminder of a better and more pure past when Puerto Ricans lived in tight, face to face communities.

Nevertheless, institutional ideas about fishermen differ in an important way. Fisheries’ managers also understand commercial fishermen as among the poorest members of society, but discourses surrounding the repercussions of their disadvantaged condition contrast with the generalised idealisations. For managers, the fishermen’s economic situation, combined with fisheries resource open-access, have resulted in the resource depletion. Hardin’s Tragedy of the Commons is still alive in institutional discourses about Puerto Rico’s fisheries management. The idea that fishermen are responsible for the decease of fisheries resource has depicted a counter identity of the commercial fishermen as utilitarian and anti-conservationists. Fisheries management institutions have conceptualised fishermen as powerless actors in need, not only of governmental economic assistance, but also of governmental guidance to avoid the environmental disasters that they are inevitably prone to. Institutional surveillance is necessary to protect the exploited resource and to assure the wellbeing and social development of the fishermen. The creation of governmental programmes during the 50s and 60s to develop fishing association, in an attempt to build ‘stronger fishing community identities’ exemplify these ideas (Perez 2005).

Obviously, the fishermen, as any other social actor, are not passive recipients of these representations. They contest or accept some of these external identities. Castells (1997) proposes that actors display “resistance identities” and “project identities”, and that by doing so actors are able to redefine their positions in society and attempt to rearrange social structures. As we will see shortly, I have documented how new forms of identity (through alliances with different social groups and the creation of new fishermen organisations) have contested traditional discourses placed upon them.
As mentioned before, the fishermen have been pointed by state’s agencies as the perpetrators of fishing resource depletion. This is a simplistic view of fisheries dynamics. By reducing the complexity of marine ecosystems’ problems to the adverse effects of overfishing, the burden is placed on the users while other elements such as institutional failure and by-products of urban development escape from the panorama. In this picture, drawn by institution’s discourses, it is clear that fishermen are the shameful culprits for an ‘environmental disaster’.

The creation (on 2007) of the Federation of Fishermen and Sea Stewards (FEDEPMAR by its Spanish name Federacion de Pescadores y Defensores del Mar) challenges such discourses. The very name of the organization sends the message that the fishermen, far from being part of the environmental problems, are stewards of the sea; and the composition of the membership and the people collaborating with them contest the institutionalised discourses. FEDEPMAR’s board and voting members are all commercial fishermen, but, environmental groups and members of the academia are informal contributors and supporters. Members of Misión Industrial (a national environmental NGO), of Puerto Rico’s Sea Grant (a conservationist and research university based research programme of NOAA) and of Sierra Club were present at meetings and collaborated with ideas, legal support and the writing up of documents.

The article, “Coastal Jewel Caught in the Nets of Development”, published in the Sierra Magazine (2004: 11), is evidence of the emerging but strong fishermen-environmentalists alliance. The one page article, which shows a picture of Chan (the president of Maternillo’s Fishermen Association) giving a speech in protest against proposed resorts for the Northeast coast of Puerto Rico, gives a good deal of attention to the negative social repercussions of such development for the fishermen. Basically, commercial fishermen have incorporated environmental discourses and have been supporting environmental movements, in what can be called the ‘greening of fishermen identities’. While, on the other hand, environmental groups such as the Sierra Club – considered by some as a historically white, upper-middle class environmental organisation not too inclined towards environmental justice (see Di Chiro 1999) - are looking for support in grass-roots organisations on the Puerto Rican environmental/political arena.

In accordance with Castells’ concept of ‘project identity’, Puerto Rico fishermen’s new coalitions with other sectors of society are reshaping their identities while, at least to some
extent, redefining their position in society. As I have mentioned, fishermen environmental activism presents them as the saviours of the sea, not as the perpetrators. But this is not the only way in which the fishermen have been contesting the ‘legitimizing identities’. As we will see in the last section, Disempowerment: fishermen organisations, fishermen have also created alternative projects for community development.

Another aspect about fishermen resiliency and flexible identities that has not been explored is the interplay of work and leisure as economic and social strategies. Commercial fishermen interchange both activities in a ‘camouflaged’ manner depending on the circumstances. The next piece shows such strategies.

The Interplay of Commercial and Recreational Fishing: New perspectives

Most of the literature about the interplay of leisure and work along coastal zones presents this interaction as one in which fishing communities are negatively impacted by ‘outsiders’, especially those related to the recreational boating industry (Griffith and Valdes-Pizzini 2002; Nadel-Klein 2003, Hurwitz-Nadel 1984). This is true in the form of coastal gentrification. But a less explored angle is that in which fishing communities are seen as capable of adapting and incorporating these challenges into their economic strategies. Fishing communities have shown a flexibility that has permitted their survival in difficult and shifting times. “Small boat economies have survived the industrial revolution, government policies designated to eliminate them in favour of large-scale offshore fleets, the blue revolution...” (Cordell 1989). It has been said everywhere that commercial fishermen have done multiple remunerated tasks parallel to fishing in order to supplement the fishing income (Comitas 1964; Griffith and Valdes-Pizzini 2002, Perez 2005; Price 1966). Surprisingly, none of these studies seem to connect commercial fishermen resilience to jobs on maritime tourism or recreational fishing. The recent appearance of coastal economies such as these have been characterised as adverse and as events that endanger the cultural integrity of fishing communities, followed by stories about conflict, resistance and class struggles.
Indeed commercial fishermen have suffered from gentrification processes in bigger proportions than the rest of the island residents. And they have also presented resistance against it (see appendix 6), Fajardo being one of the most affected zones in recent years, but it is also true that some commercial fishermen have found a niche in the tourism and recreational fishing sectors. Actually, in many aspects, recreational fishing and commercial fishing overlap. Not only do commercial fishermen have looked for spaces in the recreational sector, but also some recreational fishers participate in the commercial sector emulating some of the pescadores’ ways. Consensual encounters between members of the two groups blur the ascribed border of the not so dissimilar groups. By describing how particular collaborators fluctuate between the two worlds, I intend to shed light on the process of hybridisation and to introduce a phenomenon that can be defined as ‘fishers’ camouflage’.

Beginning at 6:00 am, Cano can be seen in Iris and Camilo’s kiosk. The place, located right in front of the sea and next to Maternillo’s pescadería, opens at 4:30 am to serve locals with heavy breakfasts (rice and beans with some meat, fried pork, sancocho, tripe soup, and of course fish stock with arepas). But Cano is not there to have breakfast. He goes there every morning, gets a coffee, and just sits quietly to admire the sea; the view seems to bring to memory the reason why he self-identifies as a pescador. The landscape surrounding him used to be his workplace. Even though he moved from Maternillo years ago, he is still emotionally attached to the community. When I asked him where his home was, he answered: “now I live somewhere else, but I am from La playa, I have been all my life in La playa.” By visiting the community daily, Cano maintains his relation with community members and other fishermen. They tell fishing stories, they remember well respected deceased fishermen and bring to live the vibrant days when the fishing association’s membership was buoyant. The ritual lasts only two hours; his present workplace, a recreational boat marina, starts operations at 8:00 am.

Cano has done various jobs parallel to commercial fishing. He has been bartender, security guard, worker in the Alaskan salmon fisheries, and factory worker. And although he receives a disability pension due to vertebral and psychiatric problems, for the last few years he has focused on working on recreational boat conditioning. He has changed the use of his diving tanks from collecting lobster, queen conch and caracoles to up keeping recreational boats from undesired slime and barnacles. More recently he has been working as a fishing mate on a sport
fishing charter. Although he still owns a *yola* and does fish commercially five to eight times a year, his commercial fishing days are gone, at least in a traditional sense. But still, people recognise him, and he self identifies as a *pescador*.

Cano’s incursion into the fishing charter industry, and the fact that he fishes with some recreational fishermen, is interesting. These activities provide him with a relief to the apprehensiveness of being far from the sea and the fish. He mentioned that “when you are away from the sea, when you haven’t fished in a while, you feel uneasy...itchiness invades you.” His metaphorical use of a physical representation (itchiness) for the feeling caused by being away from the sea and from fishing indicates the level of attachment that he, and other fishermen from Maternillo, have to the sea and to fishing.

This intersection of recreational and commercial fishing also provides to Cano the opportunity to sell some fish. When he goes out with recreational fishermen, the pre-arrangement is that the owner of the boat will keep a small portion of the catch, and Cano will sell the remaining one to any of Maternillo’s fish houses. This is also true for the charter where he gets paid for his work as a fishing mate, but he keeps the harvest to sell it, too. By analysing Cano’s case, it is obvious that both sectors (commercial and recreational) overlap at different levels: 1) At a cognitive level, the recreational and charter sector incorporates particular knowledge and techniques (such as fishing grounds, *engoe* or chumming, bait dynamics, and fishing gear) considered ‘traditional’ to fishing communities and accessible only by ‘belonging’. On the other hand, new techniques are explored by the commercial fisherman who finds himself in the need to deal with rod and reels, fish finders, GPS and artificial baits, even though he present resistance to recreational fishing technologies based on the fact that he praises his ‘traditional ways’, in what can be understood as a social distinctions. 2) At a behavioural level, the inclusion of commercial fishermen in recreational crews reshares leisure by prioritising landings over the experience of being at sea. Many recreational fishermen express that their main incentive for fishing is to ‘consume’ the landscape, to be in contact with pristine scenarios, leaving the ‘catching’ to a second level. The charter industry is also influenced by the incorporation of commercial fishers. Charter boats market themselves for a wide range of customers, among them the ‘purist’ recreational fishermen characterised by conservationist views. In these cases a catch and release policy tends to be strongly encouraged. But having
commercial fishermen as crew members has changed the format of this ‘recreational’ business. It is evident that since Cano started working in the fishing charter, the owner of the charter has modified his attitudes towards catch and release and is keeping a higher percentage of his catches. Even if Cano is not present on the fishing trip, the charter owner will keep some fish for Cano’s consumption, which he received with pleasure. On the other hand, Cano has been in the need of incorporating a more conservationist approach to deal with fishing charter clients that won’t accept any landings on the boat they have hired. The charter experience have lead Cano to appreciate species that in the past he considered as irrelevant pejes (for more on fisher’s classifications of pejes see pages 50-54). As mentioned in the previous chapter, Tarpons had no value for him, or any commercial fishermen in Maternillo for that matter. But since it is a highly valued game fish, his views regarding this inshore species have changed. He now sees these fish as a source of income in a non-traditional way. For Cano now, fish that only possess recreational value are seen as income, and since he knows that they are not valuable as edible fish, he expresses (and believes in) the need for conservation through catch and release.

Now it is important to underline that Cano is not the only Maternillo member working at this particular boat marina. There are four other Maternillo residents who work there, three of them being full-time employees, while the remaining one is a young 19 year old man who gives conditioning to boats, mainly cleaning and polishing them. One of the three full-timers, who work in the dry-stack⁹, is not related to fishing in any way. The remaining full-timers are considered commercial fishermen, and at some point in their lives, a substantial portion of their household incomes was based on fishing. Today, they only fish commercially during vacations. One of them, Piojo, is a yola owner and his vessel is docked at the same marina. Piojo’s lifestyle is similar to Cano’s from whom he learned to fish commercially; they were commercial fishing partners for years. Piojo doesn’t live in Maternillo (for the reasons stated in the introduction), but he still owns a little house there which served as my place at the community. And while he is a full-time employee at the boat marina, he will dive to clean hull bottoms during lunch time and after work. Piojo and Cano share their clients, which gives them the flexibility to cope with their other activities without leaving their clients down.

⁹ Dry-stack is an area of the marina in which relatively smaller boats (up to 29 feet long) are kept on a big metallic structure with the help of a forklift.
The overlapping of recreational and commercial fishing has served as a form of camouflage in which members of both sectors have the flexibility to adhere to a particular identity if circumstances favour one group or the other. They have learned to take advantage of being positioned on one side of the issue or the other. They have been creative in fooling laws and regulations: 1) Well-known commercial fishermen will self-identify as a recreational fisherman if intercepted by a law enforcement agent if their licences are expired or were denied, this is the case with Cano, Piojo, Charlie. 2) Some recreational fishermen hire commercial fishermen with valid licences as crewmembers in order to have access to larger quotas on fish such as Dorado, Wahoo and King Mackerel. The quota for these species, which is ruled by the Highly Migratory species (HMS) federal regulation for recreational fishermen, is a maximum of 10 per boat per species, for commercial license holders it is unlimited. The HMS is one of the few restriction applied to recreational fishers. At the moment, recreational fishermen have no quotas (largely known as bag limits) for benthic species. The unregulated benthic species are those of higher commercial value in Puerto Rico (i.e. snappers and groupers), which makes it possible for the camouflaged commercial fishermen to catch high numbers of those species while acting as recreational fishermen.

But not all actors’ movements from one sector to the other happened in a camouflage way, some found themselves moving from one sphere to the other through formal structures. Marcos Hanke is as hybrid as a fisher can be and the process took place within a ‘legal’ frame. Born in Porto Alegre, Brazil, from a Brazilian father and a Puerto Rican mother, Marcos started fishing recreationally in his hometown. He moved to Puerto Rico to do his undergraduate studies in marine biology. Soon after finishing his degree, close to two decades ago, he started a fishing charter business which today operates from Fajardo, and he fishes most of the time right in front of Maternillo around the river mouth. He said that most of his life he has identified himself as a recreational fisherman, although a few years ago (about two years) he applied for and got a commercial fishing licence which lets him supplement his charter business operation with commercial fishing. The Charter fishing industry is a seasonal job constrained by fluctuations in tourism. Commercial fishing gives him the opportunity to earn money during the slow touristic

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10 Recreational fishing licenses are mandatory based on Regulation 6768 of 2003 but DNER haven’t created a system to issue them yet, making them unavailable.
seasons. Marcos’ approach to fishing as a way of living has been exactly the same as that of commercial fishers Cano and Piojo, but in the opposite order. As mentioned in the introduction, my own path has been similar to that of Marcos, although I have to admit that in my case the crossover was done through the informal sector since I have never had a proper commercial fishing license.

Some commercial fishermen, as we have seen, have looked into the emerging but lucrative recreational fishing as an alternative to commercial fishing. On the other hand, Marcos (and myself) fished recreationally for years, made a business of it and later in his working life supplemented the charter business based on sport fishing by venturing in the commercial sector. However, Marcos has conflicting mixed ideas about his identity as a commercial fisherman. He does not consider himself a *pescador* as he understands the differences between his approach to fishing commercially and the way that traditional fishermen do. But, in one instance, I asked him if he was a commercial fisherman, and he hesitated and argued that he spends more time at sea than 95 percent of the commercial fishermen nowadays, and that he ‘removes more bio-mass from the ocean than most commercial fishermen. Finally he said, “I fish commercially, but I am not a commercial fisherman.” Marcos’ answer is very revealing. To fish for commercial purposes does count for being considered a *pescador*; there is an identity, a rite of passage, a cultural meaning, a sense of belonging which embodies the identity of being a *pescador*.

Also, the fact that Marcos is a marine biologist works as a deterrent, in many fishermen’s eyes, to effectively being perceived as a *pescador*. The vast majority of the fishermen expressed with anger that biologists’ proceedings are the cause of unfair regulations that affect their access to a resource that they used to harvest well before the experts took control over it. They see science and biologists as the culprits, the motor of a system where they (the fishermen) despite being the real experts do not have a saying. Adding to this dilemma is the fact that Marcos is a member of the Caribbean Fisheries Council which regulates fishing activities in federal waters.
Fishing tournaments

This section addresses fishing tournaments which are great examples of the interplay of recreational and commercial fishing. A hybridisation process of both sectors is seen as the commercial fishermen have adopted and reinterpreted what is commonly known as sport fishing tournaments. On the other hand, sport fishermen have incorporated commercial fishermen as part of their crews. In short, commercial fishermen have reinvented fishing tournaments by doing commercial fishing tournaments, and the sport fishermen have hybridised their staffs by including the ‘expertise’ and knowledge of commercial fishermen.

Fishing tournaments are important markers of the standing of fishing as a leisure activity in a particular area. Coastal zones with a strong history of recreational fishing tend to develop a higher number of fishing tournaments. For this reason, fishing tournaments can be used for measuring the relevance of recreational fishing within a social group.

The longest consecutively held international billfish tournament in the world takes place in San Juan. Considered one of the most prestigious in the world, it is praised for being the longest uninterrupted sport fishing tournament ever, with 57 consecutive years. The location of this tournament is no coincidence. Puerto Rico’s sport fishing started in San Juan. The costly sport found a population economically capable to enjoy the sport. Also, the sea in front of San Juan is the second deepest in the world, which facilitates getting to trolling waters within less than a mile offshore. The north coast, including San Juan waters, is just open ocean that offers excellent conditions for recreational fishing, being this the only option for marine sports enthusiasts.

On the other side, this dissertation’s area of study, Fajardo, held its first fishing tournament in the early 2000s. An explanation for such a late involvement in fishing tournaments is that Fajardo’s coast is characterised by relatively shallow and protected waters. It comprises numerous isles and keys connecting the main coast, Vieques and Culebra, and the USVI. This scenario is desirable for sailing and ‘island hopping”. Originally the marinas were mainly populated by sailboats and cruisers. But a boom in maritime leisure visitors to Fajardo inevitably increased the presence of recreational fishing boats as well. During the 1980s and 1990’s,
Fajardo experimented one of the most dramatic processes of coastal development in Puerto Rico. Beach apartments, touristic resorts and boat marinas were constructed at alarming rates, transforming Fajardo into one of the most important vacation destinies in Puerto Rico.

But it wasn’t just the boating marinas that experienced changes due to the emergent recreational fishing tendencies in the area. Recreational patterns of commercial fishers in Maternillo were influenced as well. During this ethnography, the fishermen held the First Commercial Fishing Tournament of El Relincho. The tournament is an expression of a hybridisation process: the ‘recreationalisation’ of commercial fishing and the ‘commercialisation’ of recreational fishing.

In one of the roughest seas I’ve ever experienced, the fishers held a ‘commercial fishing tournament’ that I was honoured to document by recording it on camera. One of the organisers asked me if I was willing to get on board one of the judges’ yola to record the tournament. The invitation was promising for several reasons: it would be my first experience on board a yola, it was a great opportunity to get closer to community members and it was a sign of approval to my presence in the community. It would also give me the chance to experience seven to 10 foot seas with 18 to 25 miles per hour winds, conditions that fishermen consider unbearable for anyone but a true seaman. Not getting seasick and being able to cope with dangerous sea conditions are characteristics that fishermen regard in high esteem. I was very excited to be part of it all even though I was still worried about the safety of the recording camera…and my own.

The morning of the event the weather conditions were as bad as forecasted limiting the participation of the fishermen. Only four boats participated, each with two fishermen on board. The crew of my assigned boat, a typical yola, were complete strangers to me. We departed from the little improvised docks on the side of El Relincho and went down the river to meet the ocean, following the four yolas that were competing against each other to reach their preferred fishing grounds first.

The four yolas rushed their way through the choppy seas to Aguila (fishermen’s name of a spot on the south side of Palomino were they have been catching bait for decades) to catch the seasonal bait cascariñas (false pilchards). We spent the rest of the morning moving from Palomino, to Icacos and Cayo Largo monitoring the fishing action. The sea conditions were so
bad that it was impossible to fish outside the bay, so the fishermen anchored their boats relatively close, which made possible for us to move from one *yola* to another quickly. I was lucky enough to record the moment when the winner of the biggest fish category hooked and landed his King Mackerel.

The tournament lasted about four to five hours. When the fishermen arrived, the judge proceeded to weigh the catches, just as in a normal recreational fishing tournament. For the most part, the event was identical to a sport fishing tournament. The techniques employed to catch the fish and the targeted species were different, but the organisation, the presence of monitoring judges at sea, and the recognition of the winners by giving them trophies and money prizes all resembled a sport fishing tournament (even the fact that the fish caught during the tournament were sold to the same organisers compares favourably). However, there was a crucial distinction between these two events. When the whole activity was over the participants and those watching just stayed in. They were not visitors on a distant place. They, different than to those participating in sport fishing tournaments, were in the place they call home and doing what they do as work.

On the other hand, typical recreational sport fishing tournaments differ and are similar to this tournament in Maternillo in a several ways. The size, type and price of the boats used on recreational sport fishing tournaments are strikingly different. *Yolas* are not the typical vessel. There are many different layouts on sport fishing boats, but in general these boats are much bigger (going up to 65 feet in length), are equipped with the latest navigation and fishing technologies, and generally speaking they are luxurious vessels that can reach up to a few million dollars. In contrast, as stated previously, the *yolas* are relatively small, practical and inexpensive with prices under 10,000 dollars. The boat crews on these recreational tournaments are composed of friends and relatives who enjoy the sport of recreational fishing. But, in the competitive spirit commercial fishermen have been incorporated into these tournaments as a strategy to incorporate new elements and increase the fishing knowledge.

These sport fishing tournaments take place in exclusive boat marinas. Membership or an invitation is necessary to have access to such places. The recreational sport fisherman’s attachment to the marina is mediated through leisure as opposed to the commercial sport fishing tournament which was based in their community. After the marina sport fishing tournament, the
recreational fishermen returned to their homes in San Juan or elsewhere. For the Maternillo tournament the participants just stay, since the tournament takes place at home. And obviously the techniques employed are also dissimilar. Sport fishing tournaments are based on *silga* or trolling, while the commercial fishermen fish as they do when fishing commercially, *a la ronza* or with *engoe* while anchored. The difference in techniques can be explained by the different species that are targeted and by the fact that the *engoe* is a technique that only seems to be mastered by commercial fishermen.

But despite the differences between those two tournaments, relevant commonalities exist: the selling of the fish. Sport fishing tournaments have a relative high participation, some of them hosting well over a hundred boats. After a whole weekend of fishing, the tournaments produce a significant number of landings. More often than not, the boat owners will sell their catches in order to cover the high costs of up keeping their boats and tournament expenditures that can be quite high.\(^\text{11}\) It is common for the marina restaurants to buy the majority of the tournament landings. This is a clear intersection of recreational and commercial fishing where the ultimate aim is a mix of both worlds. The most important distinction between commercial and recreational fishing is that of the activity aim. The former approach is one of work and income, the latter is one of leisure. While the aim of recreational fishermen participating in sport fishing tournaments is a competitive one, at the same time the supposed pure leisure goal is overlapped with a desire to earn money by selling the fish just as commercial fishermen do.

**Empowerment: The Importance of Fishermen organizations**

As I have shown, discourses about poverty and powerlessness surround fishermen ‘legitimizing identities’ not without contestation. Such ideas have created an atmosphere of fishermen inaccessibility to real participation on fisheries management. Institutional discourses have disregarded the fishermen’s capabilities (and rights) to contribute to the fisheries’

\(^\text{11}\) An average tournament fee is 400 to 500 hundred dollars, which combined with the fuel and other expenditures sums from one to three thousand dollars.
management by portraying their attitudes towards the marine resource as utilitarian in a ‘tragedy of the commons’ fashion. However, Maternillo’s fishermen have ignored and challenged these ideas and new forms of agency have evolved from these contestations.

It has been argued that the nature of small-scale fishing activity leads to organisational difficulties (Pollnac and Carmo 1980). It is true that the history of small-scale commercial fishermen’s organisational efforts in Puerto Rico (and elsewhere) have been fragmented with more failures than achievements. This is in part a result of fishermen’s occupational multiplicity. The fact that fishermen are in constant labour movement has impaired them from having a steady membership on such organisations. Also, the ‘camouflaged identities’ of some fishermen complicates their public involvement in political actions. Another relevant aspect that strongly influences fishermen’s organisations is the presence or absence of a central community figure, a leader. A history of governmental impositions (e.g. fisheries management, development plans, and supporting particular organisations) has created a generalised distrust among fishermen towards elements outside their communities. Such situation has complicated the organisation process, especially at regional or national levels. Despite these difficulties, during my ethnography, Puerto Rico’s fishermen were able to create FEPDEMAR organisation which aimed to incorporate the vast majority of the island’s fishing communities.

Maternillo’s organisational history is a good case study to see how failures and successes of fishermen organisational efforts are influenced by the local’s perception of its leadership. To show the influence of leadership, I will summarise Maternillo’s organisational evolution.

The recent history of fishermen organisations in Maternillo had passed through a number of changes. In its early stages, instability seemed to be a constant among this group. The first record I have of a formal organisation was given to me by Chan, the present president of the association, and Negro, an emeritus fisherman. According to them, the first attempt took place sometime between 1968 and 1970, as a cooperative. It only lasted for two years. They said that, as with most of the failed attempts to create a representative organisation, fundamental problems were caused by fishermen distrust on the administrators. In this particular case, the cooperative

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12 I am referring here exclusively to ethnographic data, based on interviews with the actual leaders and elder community members such as emeritus fishermen. However, it is a possibility of earlier organisational attempts than the ones recorded by me.
was headed by a new community member, a retired man who *rescató* (to occupy as a squatter) a piece of land. Some fishermen mentioned that they never fully trusted the man and that they were inquisitive about the cooperative use of the annual quotas and general accounting, resulting in its dismantling.

A second attempt to organise the fishermen took place over a decade after when in the mid-80s, Diego, a man from Mansion del Sapo created an association. This was an organisation without a fish house, the wooden structure that was used for those means was not used by this group. Basically they relayed on administrative work made from a little office in Diego’s house. This fishermen association lasted for a short period of two years as well. The problems stemmed from the fact that Diego had no experience at all with commercial fishing or the fishermen’s dynamics. Arguably, he had among his fishermen a long list of non-fishermen (although Chan said that among them there were some commercial fishermen too). Regardless of his relative inexperience about fisheries he managed to get funding from CODREMAR (the agency in charge of fisheries development during those years) and a fishing boat ranging from 40 to 50 feet in length. The boat was lost during hurricane Hugo in September 18, 1989.

A brief organisational attempt took place, right after the disintegration of Diego’s association in which Miguel Carrión, a community member, was in charge of what was known as Pescadores Unidos de Maternillo (United Fishermen of Maternillo). Again, this initiative had a short existence. Apparently, personal conflicts between Miguel and some fishermen led to another short lived organisational attempt of less than two years, between 1989 and 1990.

It’s after these futile attempts that a long lasting fishermen organisation was created. As with any successful enterprise, a combination of elements converged to make a solid and generally trusted association possible. In this case, what seemed as misfortunes operated in favour of the organisational processes. In the face of bad weather, the fishermen looked for strength in union.
Weather and agency

Hurricane Hugo was a life changing experience for many Puerto Ricans. The last major hurricane took place in 1928, San Felipe. Although a tropical storm Santa Clara (Betsy) did hit the island in 1956, it was not as devastating as Hugo. Given that no major hurricane had hit in 59 years, most islanders were experiencing a hurricane for the first time. Hurricane Hugo arrived with merciless strength in Culebra Island and Fajardo, and Maternillo was one of the most affected communities. The unfortunate event brought palpable changes to the Maternillo’s fishermen organisation that are still present today. The present president Miguel ‘Chan’ Davila was at the moment the president of an organisation called Comite Pro Rescate de Maternillo (Committee Pro Maternillo’s Rescue). After seeing the devastation caused by the tropical system and realising that the fishermen were strongly affected, he decided to organise them to search for governmental assistance for the reconstruction of the battered fishing industry. With the help of social work students of the University of Puerto Rico, Humacao Campus, who were conducting a study at the community, the association submitted a proposal requesting aid. Chan knew that after the hurricane devastation, funds were assigned by the Puerto Rico’s Department of Agriculture, in the form of three 40 to 50 feet fishing boats, to assist the most affected fishing communities. Without a doubt, the most affected fishing communities were those in Fajardo and Culebra since the eye of the hurricane only struck directly those two municipalities. Chan’s intentions was to get one of the boats to Maternillo and a second one to Las Croabas (a neighbour fishing community) in an attempt to develop the region’s fisheries with the acquisition of better vessels that could let the fishermen fish on rougher seas and extend their time at sea, all this to increase the fishing production.

The association never got to see the boats. Chan said that the destiny of the boats was marked by politics since it was evident that the only fishing communities in the main island that got struck directly by Hurricane Hugo were Maternillo and Las Croabas. Instead, the boats were given to Eliezer Casellas and El Congreso de Pescadores. What is left of this organisation is an office located at Marina Puerto del Rey, the biggest recreational marina in the Caribbean, and a scattered small group of members. According to Chan and many fishermen interviewed, El Congreso de Pescadores was an ‘artificially’ created organisation which had a long list of
commercial fishermen who were not recognised as such by them. In the agencies eyes, *El Congreso* was a legitimate commercial fishermen organisation, a liaison between commercial fishermen and the state institutions. Most of the governmental aid was destined to *El Congreso* who should have distributed it according to the different needs of the fishermen association around the island. The aid was in the form of vessels, fishing gear, materials for the construction of traditional/artisanal gear, and money to maintain the boats. A varied group of fishermen (from Fajardo to Ponce) at different instances (on informal conversations, interviews, meetings with agencies, and FEPDEMAR meetings) complained about the monopolisation of these resources. For instance, fishermen from Las Croabas, who are specialists in capturing lobsters with locally constructed traps, complained about the fact that the wire and wood that was supposed to be distributed for those purposes was instead stored away and was rotting in Puerto del Rey Marina. Based on issues like this, the relationship between *El Congreso* and the leadership of fishermen associations that I had the opportunity to interact with (Las Croabas [Fajardo], Punta Fisguera and Los Machos [Ceiba], Pozuelo [Guayama], and La Playa de Ponce [Ponce]) is absolutely antagonist, reaching its peak with the Asociacion de Pescadores de Maternillo y Mansion de Sapo and with Chan.

The failed attempt to get the aid of government agencies did not discourage Chan or the fishermen. Instead they decided to take action and created the first ‘Festival del Pescador de Maternillo y Mansion del Sapo’ on February 1992. The earnings from the festival were invested back in better equipment for the fish house. The Festival still takes place today and is recognised as one of the most important cultural events of its class, endorsed by the Instituto de Cultura de Puerto Rico (The Culture Institute of Puerto Rico).

In 1998 the Agriculture Department of Puerto Rico started the construction of a concrete fish house. Maternillo’s fishermen were provided with two wooden kiosks to be used temporarily until the construction was done. Another atmospheric event will be a catalytic in fishermen agency. On the eve of hurricane Georges hitting Puerto Rico September 20 1998, and after the refusal of the Agriculture Department to give the new *pescadería*’s keys to the association directories, the fishermen decided to break the locks to protect their fishing gears and the *pescadería* equipment laying inside the new building. Having changed the locks and fooling an electricity reparation team to make them connect the old *pescadería* electrical power to the new
one the fishermen and the recently created association claimed the new facilities as theirs until today.

Chan’s presence was, and still is, decisive in the fishermen organisation process at the community and national levels. He was the one responsible for the restructuring of the fishermen’s facilities and their organisation. His status among the fishermen and community members is not merely based on past achievements; it is also supported by his continuous efforts to develop the community, as I was able to witness during my fieldwork.

**Grass-Roots Community Development**

Maternillo’s fishing community has challenged the idea of powerlessness, and the need for (and lack of) governmental assistance by shaping their own development plans. During my stay in the Maternillo community members led by Chan looked for external help to craft a development plan. With the help of the University of Puerto Rico’s School of Architecture ‘Maternillo’s Community Development Master Plan’ was created. The community strategy was to create a comprehensive development plan as a counter-proposal to governmental coastal development planning which has been threatening the community (see chapter 5 for more on coastal gentrification process). The Master Plan is aimed at economically revitalising the community on the basis of their cultural materials. The proposed plan included: 1) the reconstruction of the pescadería’s dock, 2) the construction of a seafood turnover factory on top of the pescadería, 3) the creation of a guided kayak sight-seeing eco-tour through the Fajardo river, 4) the construction of a boardwalk to attract touristic activity, 5) the construction of a community centre for rental and for community’s activities and 6) the construction of a chapel devoted to The Virgin of Carmen, the patron saint of fishermen.

Some of these plans were rather utopian because of the lack of capital and support from governmental agencies or the private sector. However, by the end of my ethnography, Chan started negotiations to gather enough funding to rebuild the pescadería’s dock and to construct
the turnover factory. Recent phone conversations with Chan have revealed that both plans are close to become reality.
Chapter 4

Science, Experts and Institutions

This chapter explores the role of science, experts and institutions in the arena of Puerto Rico’s fisheries management and policy making. Environmental management and policy making is a dual process. While it advances the state’s interests upon a particular ‘natural commodity’, at the same time, the actors involved are fixed into categories through a process of definitions and imposition of identities. This process makes environmental management institution an ‘obligatory passage point’ (Callon 1986) in which it becomes indispensable for not only the solution of environmental problems, but also in allocating the environmental resource and its users. The implementation of participatory approaches in environmental management policies, far from being a process of management democratisation for better governance, is an artefact that reinforces the ‘obligatory passage point’. While participation can be understood as ‘boundary object’ in which different groups are aligned around the proposed project (Green 2010), it is necessary to stress how these alignments take place through representations.

Scientific knowledge and expertise play a significant role in the creation of environmental policies. In the particular case of fisheries, management revolves around the consolidation of science as a pivotal cognition of the resource at hand. Scientific knowledge supports policies and cements the institutions as indispensible centres of fisheries management. The fisheries management institution then, empowered by science, becomes an ‘obligatory passage point’. Callon (1986) sees four moments of transition (problematisation, interessment, enrolment, and representation) in which identities of actors and the scope and limits of their relations are negotiated. Obviously, this is a constant negotiation making it a process more than a product. However Callon’s analytic framework offers a helpful lens to have a glimpse of the fisheries management network.
Fisheries Management institutions: ‘becoming indispensible’

Puerto Rico’s Department of Natural and Environmental Resources (DNER) and its subdivisions Marine Resource Division (MRD) and the Laboratory of Fisheries Investigations (LFI) are the state’s institutions in charge of managing fisheries. The claimed role of these agencies is to guarantee the wellbeing of marine resources through investigation and the creation of sound policies and regulations.

Regarding the fisheries resource, the DRNE has declared that Puerto Rico’s stock is overfished and, accordingly, has created a management plan supported by Regulation 6768 enacted in 2003. It is important to underscore the statement made by the DNER about the fisheries resource being overfished. This implies that users’ activity is the root of the resource’s problem; a different scenario than saying that Puerto Rico’s fisheries resource is at risk or endangered. The latter would open a universe of possible actors (e.g. commercial fishermen, recreational fishermen, coastal developers, lobbyists, politicians, environmental management institutions) and a number of possible issues affecting the natural resource (e.g. overfishing, pollution, sedimentation, coastal construction, institutional failure). The former, on the other hand, closes all possibilities; the marine resource is endangered solely because of overfishing. By stating that Puerto Rico’s fisheries resource is overfished, management institutions define and create visible and hidden actors while positioning them at the centre of the fisheries network.

Fisheries management globally is characterised by a sense of crisis. Some scientists speculate that the world fish stocks could face near extinction by as soon as year 2050. In the case of United States and Puerto Rico’s fisheries, the experts’ mandate is that for year 2012 regulations as radical as total closure of overfished stocks will be imposed. It is necessary to ask if this sense of risk, or even fear, is real. Taylor (1999) calls the experts’ cataclysmic prophesies “a durable crisis”. According to Taylor, alarmist reports claiming the imminent extinction of salmon dates back as early as 1875. Worster also notes “the sense of urgency, bordering at times on apocalyptic fear” when it comes to attitudes towards environmental conservation (1977: 353). Regardless of the real nature of such catastrophic analysis, it is clear that by placing the burden of apparent fish stock decimations on fishing activity, an interdefinition of the actors takes place.

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While fishermen become the perpetrators of the environmental problem, the state’s environmental management institution consolidates its authority.

**Interdefinition of the Actors**

Regulation 6768 is supported by Law 278 of 1998, which gives the DNER and its Secretary absolute authority regarding the management of the resource. Before that, the resource was regulated by Law 83 enacted in 1936. Deep social, political, economic, and environmental changes took place during those 62 years. Neither fisheries’ regulations nor the development of the fishing industry have been able to cope with those changes. Historically, fishing has been disregarded as an unimportant cultural and economic element of Puerto Rico’s society, which explains the state’s laxness on its regulation and development. According to the new law, one of its purposes is the ‘redefinition’ of concepts. This redefinition is not limited to the natural world; it also redefines the actors, making the environmental management institution an ‘obligatory passage point’ (Callon 1986).

Commercial fishermen are now categorised as full-time, part-time and beginner. To be considered commercial fishermen, the ‘prospect’ needs to ‘accept’ one of the categories by filling the application form and meeting the requirements. For full-time, 60% of the income should come from fishing, and for part-time 20%; the beginner category is for ‘new’ fishermen who cannot provide evidence of previous fishing activity. The evidence to be provided is the fishing statistics (more on this in a following section) and the previous year’s income tax forms.

It is important to stress that this is a complete reconceptualisation of commercial fishermen and the industry. Commercial fishing in Puerto Rico is a small-scale industry in which its practitioners rely on occupational multiplicity as economic strategies, fluctuating through formal and informal economies. The institutional standardisation of commercial fishing redefines the actors by positioning the environmental management institution as the creator of the parameters of who is a commercial fisherman. In the past, the same institution, the DNER was in charge of emitting the commercial fishing licenses, but it had an important community-based
element. The licenses were issued in coordination with a fish house, a fishing village or a fishermen’s association.

The standardisation of the licenses based on economic factors has deep implications regarding the definition of the actors. To be a commercial fisherman, far from being defined by economic terms, is rooted in social aspects based on identities (for more on fishing identities see Chapter 3).

Also, the aforementioned fact of institutional discourses about overfishing fixes an identity of commercial fishermen as perpetrators. It rejuvenates Hardin’s Tragedy of the Commons, creating the idea of commercial fishermen as ‘dangerous’ users that need to be monitored given their hopeless, selfish and extractive nature.

Regarding recreational fishermen, a similar process takes place. These are defined as users whose fishing activity is one of leisure without interest in economic revenues. When in reality Puerto Rico’s commercial and recreational fishermen cross lines more often than not. It is common for recreational fishermen to sell their harvest, and it is not unusual to see hybridisation and camouflage of recreational and commercial activities (see Chapter 3 for more on hybrid and camouflaged fishing identities). However, recent DNER studies in coordination with the Marine Recreational Statistical Service (MRSS) revealed that the estimated total harvest of recreational fishermen in Puerto Rico is basically the same as the estimated total harvest of commercial fishermen. Showing that, at least to some degree, the institutional differentiations are fictional. Despite the revealing numbers, there is a persistence on keeping the somewhat difficult categories that differentiate recreational from commercial fishing. As shown in the next chapter, the state’s interest over the development of coastal recreational tourism may help explain the necessity of such distinctions.

The institutional definitions and delimitations are not restricted to the resource users; the scientific community suffers such standardisation as well by the appointment of those to be considered the state’s experts. A small group of scientists choose the methodologies to produce the scientific knowledge regarding fisheries resource.

There are two principal scientific approaches to fisheries management: Fish Stock Assessment (FSA), which is single-species oriented, and Marine Ecological Management.
(MEM), a more holistic standpoint. Apparently, FSA approaches are considered passé by many scientists in light of nearly forty years of unsuccessful implementation. Since the 90s some fisheries’ scientists rested their hopes on MEM as an approach which looks at fisheries as a whole and more keen to work with all the pieces (social aspects included) that compose a complex system such as fisheries. Nonetheless, fisheries in the USA and in Puerto Rico are still basically managed through FSA approaches.

The advocates of MEM argue that the main flaw of FSA is the fact that it works with ‘things’ (Le Heron et al. 2008: 49). It treats each single species in isolation. After collecting ‘acceptable’ data (normally the data is based on harvest and effort) about a particular species, management actions take place. Actions could include seasonal closures, size limits, or quantity quotas. The problem with this approach is that it focuses on the fishing activity of a particular species when there is a whole spectrum of natural and social elements that influence the health of a specific marine organism. Habitat destruction, pollution, sea temperature, changes on migration patterns (of both the fish on question and bait), changes in the market, fish importations, fishermen’s strategies, and fishing activity are some elements that play a central role on the ‘wellbeing’ of a particular species. The way that these elements interact with each other will have an impact on the fish populations and on how these are documented. As mentioned before, the FSA approach only pays attention to overfishing.

About the fisheries management approaches, Le Heron et al. insist that the main difference between them is the focus: “We argue that the most fundamental lines of divergence when discussing the problematic [fisheries issues] come down to whether ‘things’ or ‘relationships’ are seen as the ‘unit’ around which knowledge systems are built up. We contend that FSM [Fish Stock Management, which is the same as FSA], is guided by the former approach and MEM by the latter.” (2008: 49).

The institutional recognition of a group of scientists as ‘experts’ and as representatives of the scientific community needs to create a degree of knowledge stability to disguise the existing theoretical and methodological debates regarding the resource. A contested group of experts are not an efficient group of experts. A degree of ‘in mutable mobility’ (Latour 1987) is needed to guarantee the ‘obligatory passage point’. The artefacts, technologies, chemicals, data, reports, analysis, and so on, are to be constant (at least in appearance) or universal among epistemic
communities. However, such universality has been challenged by arguing that science is the product of local activities. Mol and Law (1994) argue that: “…the practice of science requires an enormous amount of laborious, meticulous, and routine manipulation of artifacts.” To which I will add the manipulation of facts as well.

Ethnographic research of scientific knowledge production is a remarkable tool to understand how this knowledge is created at local levels before it reaches its universal status and its immutability. This is particularly true regarding fisheries’ knowledge production because: 1) fisheries resource is characterised by higher levels of uncertainly and 2) it is based on data collected at a very specific local level and provided by non-scientists.

The fisheries resource is characterised as unpredictable and extremely complex at best, or even as chaotic (Acheson and Wilson 1996). The principal form of fisheries data collection is actually done by fishermen when they render information of their landings. By analysing and estimating landings, state’s management agencies draw tendencies of fish stocks and create management plans accordingly. So the first step in the creation of Puerto Rico’s (and ultimately United States) fisheries scientific knowledge is based on how fishermen document and interpret their fishing activities.

To put this in a local perspective, I will briefly share a piece of information from the field which reveals how the factual circulates through the fisheries network and how different actors transform the ‘facts’ of a fishing trip making the immutable mutable before it becomes scientific data, that is immutable.

Puerto Rico’s fisheries’ management approach is single species-oriented. This means that management policies are enacted to protect specific species that are considered overfished by establishing quotas, size limits or seasonal closures. It is a well-known fact that marine resources in tropical waters are characterised by its diversity, not by its biomass. This means that a fishing trip can include a good number of species, but not necessarily a big volume of fish. Commercial fishermen in my field site are very good at finding a particular type of fish, but by-catches are not uncommon because of this biodiversity. The following section is an actual catch made by two commercial fishermen and how it was documented and reinvented soon after the little boat was docked.
The two commercial fishermen returned at 4:00 am after spending around 12 hours at sea. The product of that fishing trip was as follows: 128 pounds of *rubias* (Yellowtail Snapper), 38 pounds of *rubia de altura or las locas* (Rainbow Runners), 28 pounds of *cabrilla* (Red Hind), and 6 pounds of *mantequilla* (Coney).

What followed constituted a chain of reinterpretations that started right after the fishermen arrived which made the facts extremely mutable and which ended in a distant representation of the fishing activity at an expert’s office where the facts then became immutable. A first alteration took place when the fishermen decided to keep some of the catch as food and to give away. The fish that are not sold are specimens that escape the official numbers.

A second alteration took place when the person in charge of the fish house wrote down the fishing ticket. More often than not, if the catch of a particular species is relatively small, it is incorporated to the main catch. That particular night, the fishermen caught six pounds of Coney that were added to the twenty eight pounds of red hind making it thirty four pounds of Red Hind instead, and no record of the Coney. An initial look at this fusion does not seem to be extremely problematic in terms of the official statistics; they belong to the same family Serranidae, or Grouper family. But the implications of this fusion for fisheries management deserve some analysis. The red hind (*Epinephelus guttatus*) is managed and considered by regulatory agencies as commercially extinct in some areas of Puerto Rico. There is a seasonal closure during what the scientists have defined as the ‘spawning aggregation’ of this grouper’s species. During December and January, it is illegal to catch, possess or sell this species. On the other hand, the fishing of the Coney (*Epinephelus fulves*) is completely unmanaged. It can be caught all year-round and no quota or size limit applies to it. Taking into consideration that early morning event in Fajardo, and the fact that the merging of these two fishes into a single category is widely common, it is completely logical to ask: What if the red hind is not as overfished as the authorities believe, and, on the other hand, what if the Coney’s stock is not as healthy? With this in mind, a considerable margin of error becomes evident, which creates serious doubts about the reliability of the data supporting fishing regulations. The decision of creating a seasonal closure or not, of managing a particular species instead of another is not supported by unbiased scientific data; it is not detached from the social.
Following the same example, in some cases Groupers and the Yellowtail Snappers also merge into a single catch since they share the same market price of $2.50 per pound. Now, in this case, three different species merge into one while representing two different families: Serranidae or Groupers and Lutjanidae or Snappers. However, the remaining type of fish caught that morning, the rainbow runners, stayed on a category of their own since they are not considered first class fish, its price ranging from $1.50 to $2.00 per pound. These interpretations of actual landings are not too significant for commercial fishermen since the ticket is issued for accounting purposes only. It is basically a receipt and financial record for both the fish market and the fishermen.

Up to this point, the fish had been classified into two different categories by two different actors. First, the fishermen deciding which specimens would be sold, which ones would be consumed and which ones will be given-away. A second translation took place in the fish market where the fish was categorised based on its selling potential. By joining different species of fish as one category on the landing ticket, the fish house is translating the fish harvested from the reality of the weight/species to a market reality. So far, the fish had been classified on economic and social considerations. Groups were created based on aspects as: potential market value of the fish, taste, and give-away community arrangements.

The actual fish are now out of the picture; they were consumed, sold or given to community members. Now, all that remains from the fish and the fishing activity is the *pescadería* ticket, a representation of a fishing activity and the fish. The fishing activity took place almost a year ago. For months, the piece of paper, a memory of the fishing activity, will sit silently and untouched, piled with hundreds of other tickets until April, the end of the fiscal year in Puerto Rico. At this point another actor makes some alteration to the factual as well. The fishing association’s secretary needs to translate what took place at sea and at the dock into the ‘Single Trip Ticket’ form provided by the Laboratory of Fisheries Research (LFR). Now it’s time for the secretary to make his representation of what happened before by filling the fish house fishing statistics which have to be sent to the laboratory. The task should be simple; it is just a transcription of the fish market landing tickets to the Single Trip Tickets provided by the fisheries’ scientists. The secretary also found himself on a translation process.
If we go back to the actual fishing trip, there were four different species: Yellowtail Snapper, Rainbow Runner, Red Hind, and Coney. Those four species were translated into three for the fish market ticket. Now the fishing association secretary faces a new challenge to be solved. The Rainbow Runner does not figure as one of the species on the scientists’ Single Trip Ticket. The secretary will need to translate Rainbow Runners to what he believes is his closest kin in terms of market price and of morphological similarities. It is a difficult ethno-taxonomical task to find a category that could reflect the fact that for commercial fishermen Rainbow Runners resemble yellowtail snappers (morphologically and ecologically), but on the market the Yellowtail Snappers are highly valued and Rainbow Runners are considered third class.

The secretary finally recorded the rainbow runner landings as Blue Runners, a fish which matches favourably in terms of market price. Problem solved. The forms are shipped to Mayaguez where the LFR is based. Now the fish is on the laboratory, under the science realm and at a controllable distance. There, a process to make the fisheries knowledge immutable takes place not without facing some manipulation first.

Scientists at the LFR are aware of the fact that social aspects shape their data. Actually, it has been argued that at a global scale, fisheries’ scientific knowledge margin of error ranges from 40 to 60 percent (Acheson and Wilson 1996). In the particular case of Puerto Rico, a major issue is the fact that a good number of commercial fishermen do not report their catches, and that recreational fishing is as extractive as the former while no documentation of their actions takes place. To cope with this, scientists use mathematical formulas and correction factors to estimate the annual landings. For instance, for year 2003 the landings reported were 2.4 million pounds while the laboratory estimated the annual landings in 4.3 million pounds —almost twice than the real numbers— showing how fisheries’ scientists also reinvent the reality of the fishing activity.

Now, after having suffered an enormous number of transformations the real fishing harvest, the events that took place at the ocean are shaped into a scientific document called: ‘Puerto Rico’s Landing Data Technical Report’. Although it is a distant representation of Puerto Rico’s fisheries, it is the ultimate reference from a scientific standpoint. It is at this particular moment that the highly mutable knowledge about events that were reinvented while circulating through the fisheries network becomes immutable. When the fishing harvest is transformed into scientific documents moving through epistemic communities and supporting regulations, its parts
are held in position. Before this immutability can be possible, as we have seen, a good deal of transformations have been done by actors involved in the fisheries network, making it highly mutable.

This process points to another interdefinition of an important actor, the fish. Just like the successfully anchored scallops became the spokesman of the universe of scallops lurking the St. Brieuc’s Bay (Callon 1986), the fish that were successfully harvested by Puerto Rico’s fishermen and later documented by the institution’s scientist became the spokespersons for the universe of fish lurking the Puerto Rican waters. After suffering a long chain of transformations, the annual harvests become the representatives of the fish stock.

It is necessary to question if those spokesmen are representative. Are the fish harvested representatives of the fish stock? Also, are the chosen spokespersons for the remaining actors really representative? A look at the actual participation process is a good start. The next sections are short summaries of the regulations and participation process at local and federal levels.

**Regulation Process and Participation at Local Level**

As mentioned before, the fisheries management process in Puerto Rico is ruled by 2003 Regulation 6768 known as El Reglamento de Pesca de Puerto Rico (Puerto Rico’s Fishing Regulation). The regulation is supported by Law 278 of 1998. The institutions responsible for the creation of such regulations are LFR which is responsible for collecting (and the purification) of fisheries data; the Hunting and Fishing Division (HFD), which is responsible for the issuing of fishing and hunting permits; the Marine Resources Division (MRD), who is responsible for the conservation of marine ecology in general; and lastly, the Cuerpo de Vigilantes (CV), which carries out the enforcement. All of those subdivisions are under the authority of the Department of Natural and Environmental Resources (DNER). The maximum authority in the DNER is its Secretary, who is part of the Governor’s Cabinet and as such can be changed every election year. Politics permeates the agencies in a domino effect that starts at the DNER Secretary, given that
the directors of each division are subalterns of the Secretary, who in turn is a political appointment.

Despite the highly bureaucratic nature of the management institution and its expert-led and top-down focus, discourses about participation coexist. In this regard, participatory approaches should be interpreted as ‘boundary objects’ (Green 2010) in which the ‘obligatory passage point’ validates the actors’ representations. By aligning ‘legitimate’ representatives around the fisheries management participatory process, those represented are arguably in favour of the proposed project. In this case: that the fisheries resource is overfished, that the DNER (and its subdivisions) is the state’s institution called to solve the crisis through the creation of management policies and regulations. The legal document supporting the institution management policies states:

The fishermen recognise the need for the development of new strategies for the better use, management, and conservation of fisheries resources and that their relationship with the Department of Natural and Environmental Resources should be one of cooperation and co-management

(Fisheries Law 278: 1, my translation)

According to Fisheries Law 278, the fishermen are aligned with the institutional mandate of management and conservation and at the same time are willing to participate on the process through cooperation and co-management. However, the idea of cooperation and co-management is not developed elsewhere in the document leaving the stakeholders (and myself) without a clear notion of what cooperation and co-management mean in this scenario. Despite the lack of definition of crucial concepts, the sharing of responsibilities and of benefits among state’s institutions and the resource users is implicit to co-management. The process that followed was a far cry from the ideas of cooperation and co-management, making clear that spokespersons on the participatory proceedings are not representative.

A member of the LFR present at the consultation process said during an interview that three public hearings took place as a consultation process before the enactment of the regulations. Attendance to the hearings was poor, averaging around 30 fishermen. The public hearings were announced via newspaper edicts. Fishermen from Maternillo and different localities said that they were not properly informed and expressed their disapproval of such
mechanisms, which in their eyes are institutionalised ways of hiding information. They said that if public hearings are to be held for such an important matter, they should be informed via mail.

Only after commercial fishermen’s fragmented but constant protest against the new regulations, a more coherent form of participation took place, with Law 5 of 2005. This statute amended Law 278; the reasons for this amendment read as follows:

The regulations, as expressed by the fishermen themselves, establish a series of limitations on the fishing activity that will provoke the extinction of the fishermen with a negative impact on the already battered economy of this agricultural sector. The Regulations, as they are written now, are highly onerous to this humble ‘business class’ which deserves the respect and attention of the Department of Natural and Environmental Resources and of the Legislature of Puerto Rico. It is important that the Legislature act diligently since, if the regulations stay active, the future of this ‘business class’ that are our humble fishermen will be doomed to extinction.

This is why we, the ones called to legislate under Puerto Rico’s constitution, have the responsibility to amend this Law so in the future the Secretary of DNER has to acknowledge the opinion of these humble workers regarding regulations that affect them. (Fisheries Law 5: 1, my translation)

On a more romantic tone than the original law, this amendment became the legal base for the participation of primary stakeholders. While expressing an eclectic redefinition of the fishermen as pertaining to the business class and the agricultural sector, it clearly formulates that the agencies will have to listen to what the fishermen have to say. Now, the way that this participation took place did not necessarily deal with this intention.

Subsequently the statute explains how the consultation process will be constituted. It will consist of: 1) four members representing the commercial fishing sector, 2) three member representing the recreational fishermen (two saltwater and one freshwater fishermen), 3) two members representing a marine conservationist organization, 4) one biologist specialist in marine resources from the academia, 5) one biologist representing the DNER, 6) one member of the Caribbean Fishing Council (CFC), and 7) one member of Puerto Rico’s Agriculture Department (AD).

As stated by Law 5, this group is constituted to collect the fishermen’s (commercial and recreational) input and to work towards potential amendments to the fishing regulations. For the first time in the history of Puerto Rico’s fisheries management, a coherent form of consultation is
expressed in written form. However, my observations during the fieldwork showed something different.

It is necessary to go back to the question of how representative spokespersons really are. First, for spokespersons to be representative (and the whole participation process), the constituents need to be aware of the existence of a participatory process. I was impressed by the fact that none of the fishermen in Maternillo knew about the existence of the advisory board. In the community, only Chan had some information about it. However, he had no idea of who were the fishermen representing them. Leaders of other fishing communities (i.e. Punta Figuera in Ceiba, Los Corchos in Naguabo, Pozuelo in Guayama, Sardinera in Fajardo, Punta Santiago in Humacao) were as uninformed about the advisory board as were Maternillo’s fishermen. Some of them admitted to having heard about its existence but did not have details on who those spokespersons were, what were the issues discussed and what mechanisms were implemented to guarantee an equal participation. A generalised lack of knowledge and distrust regarding those representing them have compromised the transparency of the participatory attempt.

Another problem present in Puerto Rico is the generalised tendency of focusing on commercial fishing when addressing topics on fisheries. For example, it was not until 2002 that data about recreational fishing was collected. Much to the amazement of the fisheries ‘experts’, the landings of recreational fishermen were comparable to those of commercial fishermen. With recreational fishing being such an important activity, it would be expected to have the same representation as commercial fishermen, which is not the case. Another basic flaw in this representation of the fisheries universe is the lack of fishing charter industry members. However, the DNER does regulate this activity and in theory imposes a specific permit for it.

Also, reserving a position for a Caribbean Fisheries Council (CFC) member seems unnecessary, on such a reduced group, since federal regulations have their own participation processes. Those particular issues aside, the rest of the distribution seems balanced enough to start a negotiation process: a biologist from the state agencies and one from the academia, which should guarantee a balance on the scientific topics; the presence of environmental groups consisting of two members; and a member of the Agriculture Department (AD) to add the industry development perspective.
I had the opportunity to attend two of these meetings. The meetings were not public which meant that having access to their schedule was difficult. They seemed to be characterised by improvisation. The composition of the members attending those meeting was: four commercial fishermen, one recreational fisherman (Marcos Hanke, a marine biologist who was attending for the first time, a main collaborator on this research who plays numerous roles on the fisheries arena, i.e. recreational fishermen, fishing charter owner, and member of CFC), a member from the CFC (Graziela, the biologist advisor) and five members of the DNER (three biologists: two from the DNER and one from the LFR; and two lawyers from DNER: the director of the Hunting and Fishing Division, and an advisor of the DNER Secretary). There were no biologists from the academia, no members from the AD, and no representatives of environmental groups. It was obvious that the composition of the committee was not as balanced or representative as stated on the legal document. It is also important to address that the representation was strongly inclined towards the experts; five out of eleven participants were biologists working for state agencies. I understand the lack of scientists outside the official posture as a mechanism to create the appearance of immutability. In a participation arena, where most stakeholders are present, the institutions do not need a set of experts contesting the validity of the fisheries knowledge supporting the regulations.

Notwithstanding the fact that the participatory requirements, as stated on the legal document, were not met, the meeting went on. The atmosphere during the proceedings was one of futility. The agency officials lack of engagement in the consultation process was abominable; at times during the speaking turns of commercial fishermen they were talking and laughing. The apex of this disrespectful attitude had to be when a commercial fisherman proposed a mechanism for the exclusion of the annual permit fee on elderly commercial fishermen. The man exposed the idea of exempting commercial fishermen over 65 years of age from the permit payment by virtue of being honourable members of their communities who spent their best years at sea and sharing, were sharing their knowledge with younger generations of fishermen and who are now having economic difficulties. In short, the petition looked for the inclusion and recognition of what I have called in Chapter 2 as emeritus fishermen. The man, who I felt was making a self-portrait, was speaking with a broken voice about the difficulties that commercial fishermen suffered in the past and that some fishermen still suffer. While the fisherman was presenting his case by appealing to what seemed to me as honest drama, some of the agency officials were
mocking him. I was able to overhear the following comment, which epitomises the lack of commitment to the process and the reigning environment of disrespect: “I couldn’t care less about those old men”. The inflammatory incident summarises the whole atmosphere and sheds light on the probable outcome of the meeting.

However, apparently not all meetings had those same dynamics that can be considered as the antithesis of a participation process. Members of DNER, as well as commercial fishermen, told me about incidents of open dialogue among the members with positive results. The most prominent case seems to be one regarding the silk snapper size limit amendment. Originally, the regulation stipulated a size limit for this deep-water snapper. The commercial fishermen claimed that this limit was nonsense since the fishing technique employed to fish this species, at over 400 feet of water, couldn’t enable them to release the undersized ones. Through negotiations with the committee members they agreed to establish a season closure during the fish spawning aggregation. Both sides, fishermen and biologists, were happy with the amendment that in the eyes of those involved was a better management approach.

So, it seems like not all the history of DNER’s committee has spoken so eloquently about unequal power relations as during my ethnography. But, from what I collected, agreements like the silk snapper regulation amendment are scarce and far from the rule.

I have discussed the process of participation at local level. The institutional definition of actors, the arbitrary appointment of spokesmen, and the tokenistic nature of participatory approaches that has created a regime that intends to consolidate the expert-led environmental management. Puerto Rico’s fisheries management participatory process operates as a ‘boundary object’ where state’s intervention is facilitated through the alignment of illusory spokesmen.

In the next section, I explore how participation process takes place at a federal level. The first portion is a brief explanation of why, it is that federal jurisdiction permeates in Puerto Rico’s fisheries management. I then, look into the federal law supporting the management actions. This is followed by concrete examples of how is it that the consultation takes place in the actual meetings and the real outcomes of the encounters and avoidances of the federal fisheries managers and the primary stakeholders.
The Federal Sphere

The urge for marine conservation is not endemic to the island’s interests. Marine resource management, as many of Puerto Rico’s laws and public policies, can be traced to legal documents or political moves in the United States that provide a legal framework in which local actions are based. Although with the creation of Puerto Rico’s Constitution in 1952, some degree of local authority is allowed, the ultimate decisional power relies on the United States Congress. Indeed, the US Congress has the power to impose political actions on Puerto Rico. It is clearly stated by the President’s Task Force (2005) on Puerto Rico’s Status:

However that term may be used [Commonwealth], Puerto Rico is, for purposes under the U.S. Constitution, “a territory,” as President George H. W. Bush recognized in his 1992 memorandum concerning Puerto Rico. It is, therefore, subject to congressional authority, under the Constitution’s Territory Clause, “to dispose of and make all needful Rules and Regulations respecting the Territory… belonging to the United States.” In adopting this view of Puerto Rico’s current status, President Bush was confirming the view that the U.S. Department of Justice had taken in congressional testimony in 1991 and had first reached in 1959. Congress may continue the current system indefinitely, but it also may revise or revoke it at any time. For example, Congress could legislate directly on local matters or determine the island’s governmental structure by statute, as it has for Guam and the U.S. Virgin Islands.

As mentioned in the report, the Congress of the United States has the power to “make all needful Rules and Regulations respecting the territory” or, even more, to “determine the island’s governmental structure by statute”. Normally, U.S. political influence on Puerto Rico’s governance does not occur on such an intrusive fashion, but indeed, it shapes all political actions. I argue that Puerto Rico’s fisheries management is embedded on such colonial power relations. Marine regulations in the USA are based on the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The aim of this act is clear:

To take immediate action to conserve and manage the fishery resources found off the coasts of the United States...by exercising sovereign rights for the purpose of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone by President Proclamation 5030, dated March 10, 1983...

(MSA 2007: 2)
To provide for the preparation and implementation, in accordance with national standards, of fishery management plans which will achieve and maintain, on a continuing basis, the optimum yield from each fishery…

(MSA 2007: 3)

The fragment clearly shows the purpose of this act: to manage the resource in accordance to optimum yield without jeopardizing sustainability. The aim is straightforward and fundamentally based on biological data. So far the marine management scenario is to be ruled by ‘the experts’ (lawyers, marine biologists/ecologists, economists and statistics).

However, on the Purpose Declaration section of the MSA a participatory statement adds complexity to the panorama by including different stakeholders:

To establish Regional Fishery Management Councils to exercise sound judgment in the stewardship of fisheries resources through the preparation, monitoring, and revision of such plans under circumstances (A) which enable the States, the fishing industry, consumer and environmental organizations, and other interested persons to participate in, advise on, the establishment and administration of such plans, and (B) which take into account the social and economic needs of the States.

(MSA 2007: 2)

To assure that the national fishery conservation and management program utilizes, and is based upon, the best scientific information available; involves, and is responsive to the needs of, interested and affected States and citizens; considers efficiency; draws upon Federal; State, and academic capabilities in carrying out research, administration, management, and enforcement...

(MSA 2007: 3)

This democratic declaration on the management act incorporates any group “affected” or “interested” in the process to the policy-making. Now the policy-making arena is shared by new actors, meaning that the experts engaged in the management process have a new quota to fill: participation.

As the citations above shows, the MSA applies to the coastal waters off the States that constitutes the United States of America, so the question remains as to where Puerto Rico, a non-incorporated territory, stands in this legal document. The document defines a “State” as: “…each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, The Virgin Islands, Guam, and any other Commonwealth, territory, or possession of the United States.” (MSA: 3) Having said this, Puerto Rico’s fisheries management is subordinated
to the USA fisheries regulation and treated in this particular as another State. This means that technically, on the territorial waters (9 miles off the coast), the State’s regulation is in effect (which can be similar or stricter than the federal but not more lenient) and on the Economic Exclusive Zone (9 miles to 200 miles) Federal regulations are the rule to follow. This is important because it is a demarcation line of where the colonial government has some sort of power upon its marine resource and where the Federal law rules. However, the creation of local management regulations needs to be sanctioned by its federal counterpart; the Federal jurisdiction permeates the local fisheries policy-making; as in any other aspects, Federal power can take over the local regulations.

As a matter of fact, it can be argued that most of the environmental regulations implemented in Puerto Rico at a local level are the result of Federal policies. In many occasions, local environmental policies are created in an attempt to cope with the federal management actions to avoid losing decisional power to the north; federal agencies ‘push’ locals. If Puerto Rico’s environmental policies are not enacted within a legal timeframe, federal agencies may ‘take the field’. This is the case of the Highly Migratory Species Act (HMS) and of recreational fishing permits. According to the director of the RFL, Aida Hernández, HMS regulations took over local jurisdiction because local agencies did not create the necessary regulations on time. That seems to be the destiny for recreational fishing permits in the near future. Since 2004, the Marine Resource Division (MRD) has been working to create all the mechanisms to issue recreational fishing licences; five years later, the permits are still not available. The MRD Director admitted that he basically accepted the idea that the permits will be issued by federal mandate. Also, it is a rumour on the DNER that its Secretary created Regulation 6768 after a sudden visit of the National Oceanographic and Atmospheric Association’s (NOAA) Executive Director.

As stated in the MSA, regional councils are responsible for the participation processes: “(A) which enable the States, the fishing industry, consumer and environmental organizations, and other interested persons to participate in, advise on, the establishment and administration of such plans, and (B) which take into account the social and economic needs of the States.” (2007: 3). The regional council in charge of guaranteeing this in Puerto Rico and the US Virgin Islands
is the Caribbean Fishery Management Council (CFC); this council will discuss issues pertinent to Federal jurisdiction.

The voting members of the CFMC are composed as follows: a member of the USVI Natural Resources Agency, a member of the DNER (Aida Hernandez or Miguel García), a member of the National Marine Fisheries Service (Roig Crabtree), a USVI commercial fisherman (Winston Letee), a Puerto Rico’s recreational/charter fishermen (Marcos Hanke, who is also part of the participatory committee at local level), a Saint Croix recreational fisherman, and the chairman who at the same time represents Puerto Rico’s commercial fishing sector (Geño Pinero). At the meetings I attended, I noticed that Graziela, who is the CFC biologist advisor, Miguel Rolón, a marine biologist who is the Executive Director of NOAA in Puerto Rico, and his secretary were also present.

The CFC creates public participation in the form of scooping meetings. In these meetings, considerations about new management regulations are discussed and recorded. The meetings started with a Power Point presentation about the management measures to be analysed. After the presentation, which normally took about 20 minutes, the microphone was open for the attendees to express their opposition or support to the measures. Based on my observations, this section, in which primary stakeholders had the opportunity to express how they felt about the regulations, normally took about ten minutes to half an hour given that the average audience on these scooping meetings was about 10 fishermen. Those present seemed to be basically the same people each time: a few DNER employees, a few fisheries agents, a few members of the LFR, and a modest group of commercial fishermen.

It was clear that most of the fishermen who attended these meetings do not fully understand the management divisions between federal and local processes. Actually, one of the recurrent complaints from CFC members was that the participants expressed their discontent with local government regulations which were part of the meeting’s agenda. The bureaucracy that characterises the management apparatus is extremely complicated, which makes understandable the difficulties that fishermen may have to differentiate between federal and local jurisdictions.
One of the voting members who was elected for another four-year term neatly expressed the complexity of the management process: “I was re-elected for another four years, this is the rule more or less, because it is expected that during the first term a voting member will still be learning about the regulation process and the protocols... so you become fully knowledgeable of the processes and a functional member during your second term”. This gives an idea of why the fishermen’s participation is so low. If those having a position in the CFC, with access to all the fisheries regulation data, and with the support of the long-standing members have a learning process of four years, it would be expected that the stakeholders not directly involved in the proceedings will have a hard time coping with this complicated regulatory apparatus.

Misunderstandings about the federal and local divide and the fact that the fishermen’s most urgent concerns are not discussed in these forums have led to the primary stakeholder’s frustration regarding the participation process. But this is not the only reason for the lack of participation. I uncovered other reasons, based on data beyond that collected. The issue of apathy regarding participation was a recurrent topic during interviews and informal conversations with commercial fishermen.

CFC meetings take place in hotels. A good number of commercial fishermen stressed the issue that hotels are not the best place to encourage the fishermen to attend these meetings. They said that hotels are not a place where fishermen feel comfortable. In Charlie’s words:

Most of us don’t feel comfortable there, we don’t belong there. A fisherman in a luxury hotel is like a cockroach on a chicken dance. Some of us don’t even have the garments required to go to those places. There is also the problem with transportation; normally they [the agencies] do those meetings far from us. And even if you own a car then you have to pay a very expensive parking at the hotel...for what? At the end, they will do the policies they want, they are not asking us what we think it should be done, instead, they are just letting us know what they will do...that’s the history of fisheries management in Puerto Rico...going there is useless. If they really want to hear what we have to say they should come to the community, we can do a meeting under the palm trees...there will be loads of people.

Another fragment during an interview with Charlie shows more emphatically that a reason explaining the lack of participation is a generalised distrust. The fishermen don’t trust nor have faith in the participation process. They strongly believe that policies are already made when the participation process begins:
The meetings are just a quota requirement to be fulfilled; they don’t really take into account what we think. At the end of the day, the regulations will be done by a biologist sitting in air conditioning...yes...by a biologist who has never been on a yola, who had never had his hands cut by a fishing line, and who can’t differentiate a rubia from a pargo.

The overlapping of federal and local regulations, the hyper-bureaucratisation of processes, the questionable representatively of spokespersons, and the imposed interdefinition of the actors has led to dissidence, contestation and the institutionalisation of ignorance.

Dissidence, Contestations and the Institutionalisation of Ignorance

As stated in the introduction of this chapter, the fisheries management institutions have determined a set of actors while establishing themselves at the centre of the network. Their formula is simple: fisheries are overfished, and institutional management should be put into action to achieve sustainability. Using Callon’s (1986) analytic framework I have called this process the ‘obligatory passage point’. However, this process is not imposed without contestation. Although designations are characterised by constant negotiations, in this scenario contestations seem to be the common outcome.

The definition of the actors has not been satisfactory in most cases, and institutional management, which is commonly shaped as Fish Stock Assessment (FSA), has proved to be ineffective globally. The fishermen have been portrayed as perpetrators in a Tragedy of the Commons fashion. Commercial fishermen have contested such discourses by ‘greening’ their identities. Fishermen and environmental groups have created alliances in which the fishermen present themselves as stewards of the sea. The creation of FEPDEMAR (Federation of Fishermen and Protectors of the Sea, by its Spanish name Federación de Pescadores y Protectores del Mar) is an example of how these emerging identities are challenging former discourses (see Chapter 3 for more about this alliances and emerging identities). The fishermen ‘green identity’ is only one of the forms of contestation.
More often than not, commercial fishermen have opted for ignoring the institutional fisheries management. The minimal attendance of fishermen to the meetings regarding regulations that affect them directly is evidence of this; the fact that, the fishermen possess a different understanding of the resource and of its conservation has created a generalised apathy. For the primary stakeholders, to be bona fide element within the formal regulations, to claim and achieve real participation in fisheries management will mean their transmutation. For the most part, agencies regulating environmental resources are prone to elicit changes in the user’s behaviour, attitudes, and access toward the resource; however, the same agencies are extremely rigid and incapable of institutional change. Participatory approaches are living examples of their incapacity of change. Fisheries’ management institutions have experienced a process, from being highly centralised to being forced to exhibit participatory rhetoric. In the light of such sudden (and mostly unwanted) transformation, participation is a nook inside the management apparatus. A shift from up-down to bottom-up should be accompanied by an institutional reformulation, but, instead the new approaches have been squeezed into the old management approach. The persistence of the centralised framework leaves those called to participate in the need to absorb the institutions system. Given that the fishermen do not share such standpoints leaves them out of a panorama of real participation. To be able to participate, the fishermen would need to cope with the scientists, scientific knowledge and the FSA approach. As I will show in chapter 6, the fishermen’s approach to the marine resource is much different to that of the agencies and, if anything, closer to MEM approach.

The dissident scientists, in turn, are sceptical about the institutional approach to fisheries management, and although public forums for expressing their concerns are minimal, those scientists collaborating with environmental groups have openly expressed their disapproval of institutional management of natural resources in general. The dissident scientists who are supportive of the organisational process of the fishermen are advocates of the MEM approach. This approach, being intrinsically more comprehensive, is keener towards participatory approaches as well. In this light, the dissidents also disapprove the tokenistic nature of the consultation process, which explains their dedication to advance the commercial fishermen claims.
The institutions, however, are aware of the deficiency of their knowledge production surrounding fisheries. Just as I previously showed by exploring the tensions created during the process of making the ‘mutable’ ‘immutable’, in sustaining an appearance of a scientific stability, the management institutions have found themselves in uncertain waters. Legal and discursive artefacts have been used to sustain the facade of reliability and worthiness. The institutions have recurred to ignore all elements that expose their fragility and management failure. During a close doors meeting where all the management institutions were present, but none of the primary stakeholders, the tone regarding their data was less authoritative. The Department of Environmental and Natural resources of Puerto Rico (DENR), Laboratory of Fisheries Research (LFR), Caribbean Fisheries Council (CFC), Fish and Wildlife Service (FWS), Cuerpo de Vigilantes (CV), National Oceanographic and Atmospheric Administration (NOAA) and the National Marine Fisheries Service (NMFS) were all represented at this meeting. At this multi-agency encounter, the sense of urgency and the tragedy rhetoric did not follow the same logic. When the meetings include the primary stakeholders, the tragedy revolves around the overfished status of the fish stocks and how the agencies, after having deciphered the aquatic paradigms, have developed sound management strategies. Then, the users are informed about which of their practices need to be modified in order to achieve sustainability. On the other hand, on that institutions-only meeting the tragedy rested on the fact that their data was inadequate. The meeting was more like a workshop where members of these agencies tried to find a solution for their poor data collection. A member of the NMFS was leading the proceeding. He stressed the fact that the improvement of data collection was necessary since, “after nearly forty years of data collection, its reliability is still very questionable; most of it can be thrown in the bin”.

In the face of weak data, even inexistent in some cases, the management institutions have protected their central position via a legal document. The MSA states that one of its purposes is “to assure that the national fishery conservation and management program utilizes, and is based upon, the best scientific information available…” (MSA 2006: 3). The laxness of setting the parameters of what is reliable data supporting the regulations is evident and perhaps functional. The “best scientific information available” in the case under consideration is one that, in the words of an agency’s expert, could be thrown to the bin. On a different occasion, during an interview, a fisheries manager stated that in the past, in the face of lacking scientific data within a particular area, data collected from other jurisdictions have been used in the support of
regulations. So, the best available data category has been stretched to the point of importing scientific studies from dissimilar geographical areas. Obviously, as mentioned before, such weakness and mutability of the fisheries knowledge is not accessible to the *hoi polloi*.

On the other hand, the fish, although highly silenced by charts and reports, inadvertently evidence institutional failure inasmuch as fish stock numbers are still declining based on the institution’s own representation of the resource. And the experts’ scientific discourses about fish stock depletion, which are based on the institution’s own projections, are in contradiction with the idea of institutional management as the saviour of the marine resource.
Chapter 5

Fishing Communities and Coastal Gentrification

Gentrification process in Fajardo seems to be a different phenomenon from what is widely studied under the gentrification banner. In general terms, gentrification studies have traditionally focused on how this process takes place in urban/city areas. The term was coined by Ruth Glass back in 1964 to describe a process of ‘invasion’ of working-class London neighbourhoods by the wealthy. Although some recent works address the gentrification of rural areas, it is surprising that little attention have been paid on gentrification process in coastal zones.

Now, why is coastal gentrification relevant for a study about stakeholders’ participation on fisheries management process? The aim of this chapter, then, is to explain how coastal development influences citizens’ access to participation process on fisheries management. To explain this relationship I will provide ethnographic experiences and ‘encounters’ with the ‘gentrified coast’. I will also explore the reasons why coastal gentrification process is so particular in Puerto Rico when compared to other coastal areas that have experienced such gentrification.

This chapter addresses the relation between coastal development and stakeholders’ participation in fisheries management. I argue that primary stakeholders’ (i.e. commercial fishermen, recreational fishermen and fishing charters) degree of participation in fisheries management is highly influenced by coastal development plans. In other words, users’ access to participation in fisheries management is directly proportional to the affinity of such users’ interests and the development investors’ interests.

This chapter is organised in three parts. The first part locates Fajardo within the literature of coastal gentrification and recreational tourism: First, I describe how Fajardo’s coastal development compares to the scarce literature about coastal gentrification. Special attention is placed on the idea of coastal development as sanitization of the coasts and on the absence of social or heritage tourism. Second, attention will be placed on the specificities of tourism in
Fajardo in relation to the global and local character of the tourist industry in comparison to other parts of the globe. Third, the importance of second homes as a form of recreational tourism will be discussed. And, fourthly, I explore the role of recreational boat marinas on coastal development.

The second part of the chapter centres on coastal gentrification and the fishing community of Maternillo, although brief examples of conflicts over coastal land on other parts of the eastern coast are summarised too. This section will focus mainly on the collaborators encounters with coastal gentrification.

And the third section explains the connection between coastal development, recreational tourism and participation on fisheries’ management.

**Fajardo’s Coastal Gentrification.**

Fajardo is a perfect example of what is a gentrified coast. Having the highest percentage of fishing marinas per square mile in Puerto Rico, luxury resorts and a significant amount of second home summer apartments, Fajardo epitomises a gentrified coast. The presence of multiple actors, each of them approaching the resource differently, makes the area a common ground where conflicts over the marine resource are easily visible.

Fajardo’s coast is appraised by its landscape value. Several islets and keys are present in its bay and with the islands of Vieques, Culebra and the USVI of St. Johns on the horizon the visually attractive area has become very popular in recent times. The seascape vista and recreational activities related to it have made Fajardo an important place for real estate investors. Although development on this coastal zone started in the late 70s, a boom was experienced during the 90s when numerous condominiums were constructed.

During this period of time, access to this North East corner of Puerto Rico was facilitated by the construction of highways PR 53 and PR 66. The former, opened in 1994 and connects Humacao with Fajardo giving faster access to residents of the central and eastern parts of the
island. However, the Fajardo-Humacao is only a portion of it, by 2017 it is scheduled for PR 53 to connect Fajardo with the south coast by joining PR 52 at Salinas municipality. The constructed portion of PR 53 cuts in half the travelling time from Humacao to Fajardo which used to be of approximately 40 minutes. On the other hand, PR 66 was opened in 2006 to facilitate access from the Metropolitan area of San Juan. The construction of PR 66 was highly contested by residents and environmental groups given the proximity to El Yunque, the national rainforest, and to the natural reserve Corredor Ecologico del Noreste (CEN)

The creation of faster accesses to Fajardo is parallel to the growing relevance of the area as a destination for recreational tourism. The State’s multimillion dollar investments on access to this coastal zone is aimed at reducing what geographers call ‘the friction of distance’ (Hall and Page 1999: 302), making Fajardo’s coastal environment attractive not only to recreational tourists but also to developers. Hoogendoorn and Visser (2004: 110) note that a shorter commuting time from permanent residence to the recreational area is pivotal for buyers. In this regard, Hall and Muller (2004: 8) argue that “second homes demand decreases in a logistic curve with increasing distance from the primary residence...” In Fajardo, as in many parts of the globe, recreational tourism is not only based on big resorts but on second homes as well. Hall and Muller state that “In many areas of the world, second homes are the destination of a substantial proportion of domestic and international travellers, while the number of available bed nights in second homes often rivals or even exceeds that available in the formal accommodation sector” (2004: 3). Fajardo, as a destination for recreational tourists, includes not only one of the biggest and most luxurious hotels on the island but also contains numerous condominiums that double the hotels accommodation capacity. El Conquistador is a massive resort with 954 hotel rooms and a maximum capacity of 3,816 guests, but despite its impressive size it is only a fraction compared to the total amount of second homes in the area.

A particular phenomena present in Fajardo’s coast is that gentrification has been a process that can be described as coastal sanitisation. Studies about coastal development in other parts of the world (e.g. Maine, Ireland, and Scotland) have documented how ‘heritage tourism’ and the praise for ‘authentic coastal communities’ have gentrified the coasts. However, Fajardo’s coastal development (and Puerto Rico’s coastal development in general) is based on clearing and building new; there is no investment in traditional settlements. It is a real estate lead
development based on construction and not on remodelling old structures or investing in traditional coastal communities. Behind this process of sanitizing the coastal zones is the idea or traditional coastal communities as not only physically but also socially ‘unsafe’ and ‘unhealthy’ environments. This has been documented in other two coasts of Puerto Rico: Guanica (on the Southwest) and Rio Grande (19 kilometres west of Fajardo).

Regarding Guanica’s coastal development Brusi-Gil de Lamadrid (2008) argues that “The state has tended, historically, to relocate poor communities located by the sea, deemed to be ‘unsafe’ or ‘dirty’ (especially in mangrove-populated areas) to areas deemed to be safer, such as parcelas or caseríos.”


Brusil-Gil de Lamadrid and Valdes Pizzini’s comments on how traditional coastal communities are conceptualised compares favourably with discourses about Maternillo’s coastal community. Maternillo’s case is more acute given that the community have been described not only as an ‘unsafe’ environment but as a ‘dangerous’ community. Community members allude that these accusations are no more than “municipal administration propaganda to discredit the community”. Chan had intense disputes on the local media challenging the veracity of police officers comments that accuse Maternillo to be one of the most important areas of drug traffic in Puerto Rico. Years before my stay in Maternillo, The Miami Herald (1998) published an article where they stated that a significant portion of the cocaine entering to the USA was done via Puerto Rico. The article argued that the drug traffic was via Colombia-Fajardo-USA mentioning Maternillo as an important node in the drug traffic. Members of the community stated that this kind of comments were a strategy to harm the reputation of the community in order to advance developers’ plans to build high-end apartments and a boat marina. I have to admit that the picture of Maternillo as an ‘unhealthy’ and ‘dangerous’ place was in my mind when as an adolescent I used to vacation in one of the area condominiums. Beach apartment owners were emphatic about the dangers of wondering around this community.
Puerto Rico’s sanitisation approach to coastal development plays a prominent role in the shaping of global and local interplay related to tourism. It has been argued, that the study of tourism sheds light on the interplay of global and local relations given that tourism is a dual process of globalisation and localisation. Gotham (2005) argues that tourism is a global phenomenon which is propelled by multinational capital while at the same time is based on visitors’ taste for local cultures; rooted on marketing ‘unique’ and ‘exotic’ destinations. Fox’s analysis of tourism is a pertinent approach to study ‘heritage tourism’, ‘cultural tourism’ and ‘historic tourism’ where cultures are seen as a commodity. Despite the relevance of these relatively new forms of tourism, such approach does not take into consideration the traditional ‘mass tourism’ or ‘recreational tourism’ also known as ‘sun, sand and sex’. Tourism in Puerto Rico (and most probably in the Caribbean region in general) is more characterised by the latter tourism modality. Although, mass tourism also portrays an image of the destination as exotic, or at least as different from home, it is not particularly focused on consuming local identities. This central focus of this kind of tourism is on the material. As Smith (1989) argues, the ‘tourist bubble’ of Western amenities is characteristic of such type of tourism. This kind of tourism, then, is centred on the magnificence of the resorts and their amenities, not on having an ‘authentic local cultural experience’. Actually, tourism in Puerto Rico is not only focused on ‘mass tourism’ but it is mainly centred on USA tourists. Puerto Rico is marketed as a destination for US citizens where the Caribbean landscape can be enjoyed without the need of a passport and were the tourists will be treated well and still can enjoy the comforts of home.

This particular type of tourism present in Puerto Rico is important because it does not leave much space for the conservation or restoration of local settlers of the areas to be developed. If anything, poor coastal communities are detrimental to the seascape and their removal is a must in order to achieve a perfect coastal vista.

Another significant characteristic of Fajardo’s coastal gentrification is that of boat marinas facilities. Fajardo is the coastal municipality with the most marinas in the island. Eight major marinas are present including Marina Puerto del Rey which was built in 1989 and has capacity for 1,700 boats, which makes it not only the biggest marina in Puerto Rico but also in the Caribbean. Villa Marina, built 14 years earlier, has a capacity of 1,000 boats. The sum of all marinas in Fajardo exceeds a capacity of 4,000 boats. This figure does not include the boat yards.
There are several coastal lands that have been transformed into what commercial fishermen call ‘dry marinas’ (*marinas secas*). I estimate that the total boats held in these dry marinas at no less than 300 boats; making Fajardo the municipality with the most number of vessels in Puerto Rico (Fortuno Borrero 2008).

The boating industry’s relation to coastal gentrification is multiple. First, construction of marinas in itself constitutes a significant change in Fajardo’s geomorphology and in the fishing communities that surrounds them. Note that fishing communities are settled in coastal zones which offer a natural protection to vessels, making these communities highly desirable for marina’s development. Fishing communities’ prime coastal locations has made them susceptible to displacement or relocation in the face of marinas construction.

Second, boats can be considered ‘mobile second homes’ (Hall and Muller 2004). The fact that owners of bigger boats can use their boats as floating second homes adds an unexpected number to the already numerous ‘floating population’ created by vocational second homes.

Third, the increased number of recreational boats creates conflicts with ‘working boats’. Commercial fishermen argue that in recent years the increasing boat traffic in Fajardo has affected their fishing and bait grounds given the extra pressure of recreational boating.

Fourth, boat marinas are exclusive areas which restrict access to locals. Commercial fishermen said to be particularly affected since access is denied not only by land but also by water. Many informants argued that have been confronted by marinas personnel while catching bait off their *yolas*. I am familiar with this claim; I had two incidents one in 2003 and a second in 2005 in which I experienced exactly the same kind of situation. Both encounters with these ‘private waters’ happened while catching bait just as commercial fishermen narrated during interviews. In the first case a marina employee told me (in English) that I had to leave the area because it was private. I argued that in Puerto Rico ocean waters are of public domain as stated in the Constitution, that there are no property rights over bodies of water according to Puerto Rico’s law. The employee was firm in the fact that only authorised vessels could navigate the marinas’ water. I again replied that they own the marina infrastructure but not the water and that as long as I did not use their facilities I was allowed by law to be there. I finally left the area after catching my bait.
On a similar experience, I was catching bait on the entrance channel of, at that time under construction, Sun Bay Marina. Then, again, personnel asked me to leave. I had the same discussion only to find out the next day that two enormous boulders were placed in the marina entrance blocking all possible access to the marina waters. The rocks stayed there until the opening of the marina.

My own personal experiences were just an echo of what fishermen of Maternillo claimed to be the gentrification of ocean waters by boat marinas. As a matter of fact, commercial fishermen do not attempt getting into those places anymore and they have moved to other areas to avoid confrontation. Commercial fishermen said that “there is no room for yolas on a sea of yachts”.

And fifth, boat marinas have provoked an accelerated construction rate of second homes. Several high-end condominiums surround each of the existing marinas in Fajardo, which provides boat owners with accommodation during weekends and holidays, adding to the coastal construction and gentrification process.

Coastal Gentrification and Maternillo Fishing Community

Maternillo’s residents have fiercely resisted construction attempts in its community. The community took legal action to stop a marina which as it was proposed would enclose all existing commercial fishing facilities. By looking at the aerial view showing the location of the planned marina it was obvious that the community was facing a first step for displacement. Two ‘L’ shaped jetties projecting deep into the sea will be closing a portion of the shoreline right in front of the pescaderia in the community’s waterfront. So basically, the area where activities related to commercial fishing take place (e.g. landing the fish, catching bait, cleaning the fish, and selling) would be encapsulated by the marina as proposed. But not only the fishing activity was endangered, also, activities relevant to the community at large such as The Fishermen’s Festival, the bohemias, and just the everyday relaxation under the palm trees while chatting with neighbours take place in the area to be developed as a recreational boat marina.
Community members argued that developers promised to keep the community untouched and even to construct some facilities for the fishermen. Despite of such promises they firmly disapproved the proposals arguing that “it’s always the same, they promise a million things but at the end of the day they take what they want and they give you nothing. The history of coastal development has taught us that.”

According to commercial fishermen the interest of the municipal administration on developing a marina in their community is the reason for the delay in the reconstruction of the wooden dock, used by the fishermen for ducking their yolas and landing the fishing harvest. The dock was partially destroyed by Hurricane George in 1998, since then the fishermen have been unfruitful in looking for governmental assistance to reconstruct it. The community consensus was that: “Investing in the pescadería’s dock is against the developers’ interest and that’s why the government don’t want to help us”. In their eyes, politicians and developers have orchestrated a plan to slowly demolish the fishing industry and fishing dependent communities’ to take over the highly prized coastal land.

The 2007 law project proposal 3915 catapulted the community’s suspicions on governmental plants to dismantle fishing communities. The proposed law made pescaderías administration accessible to municipalities and private entities. At present the time, pescaderías and fishing villages can only be administrated by fishing organisations under the guardianship of the Department of Agriculture (DA). The law was proposed by senator Johnny Mendez (which according to community members is a cousin of Fajardo’s Mayor). According to Chan, Anibal Melendez (Fajardo’s Mayor), on the mandatory public hearings supported unconditionally the boat marina proposed for Maternillo’s seafront.

But Maternillo is not the only fishing community engaged in such struggles against coastal gentrification. It is a common conflict throughout the island. In Brusil-Gil (2008) aforementioned article, “Deluxe Squatters in Puerto Rico: The case of La Parguera’s casetas”, local fishermen faced the gentrification of coastal areas that have been used for generations to perform their fishing activities. Valdes Pizzini also documents the struggles of Rio Grande’s fishermen in the face of privatisation of coastal zones. Punta Figueras, another fishing community close to Maternillo in the Fajardo-Ceiba border suffered the same fate. According to Don Fundador, the president of Punta Figueras Fishermen Association, the construction of
Marina Puerto del Rey closed public access to their community which leaded to legal court action in the 90s and that still in litigation even after a First Circuit Court resolved in favour of the fishing community.

Puerto Rico’s coastal gentrification is not only restricted to the main island it is spread through the islets reaching up to Culebra Island. Palomino Island, Lobos, Ramos, Cayo Obispo, and Cayo Norte in Culebra are privately owned. Palomino Island is rented by El Conquistador which limits the local’s access to it. All these islets used to be commercial fishermen fishing/bait grounds. The most recent privatization was Cayo Norte in Culebra. Spanish Virgin Island Investments paid 10.1 million dollars for Cayo Norte, the corporation is owned by the Shelly family which is the owners of Marina Puerto del Rey. The privatization of Cayo Norte has alarmed scientists, and environmental groups which believe that the new owners are planning to develop a resort and another marina.

I also need to take into account recent confrontations between users and developers and the state, regarding the development planning of the coastal land of Roosevelt Roads, a former military base of the US Navy. The incident epitomises the contested views about the use of coastal zones. After the removal of the US Navy from Vieques Island Roosevelt Roads land ceased military operations and is on a process of returning the land to the Puerto Rican government. Local residents and the state have engaged in a harsh debate about what should be the future developments of the 2,900 acres of coastal land. The debate typifies the standpoints and contrasting interests of both parties.

Under a Governor’s Executive Order, Portal del Futuro was created as a ‘Local Redevelopment Authority’ for the planning and development of Roosevelt Roads Property. One of the claimed reasons for the creation of Portal del Futuro was to incorporate the inputs of local residents regarding the future of Roosevelt Roads development. Despite the participative claims, a project blueprint was in hand before the consultation process. The development plan includes: a 2,500 rooms hotel, a mega casino, a mega marina, high-end shops and other amenities. On the other hand, local residents, organized as Alianza Pro Desarrollo de Ceiba, proposed to create an eco-development focusing on middle-income residents and retirees; they also advocated for the development of commercial fishing facilities for the battered fishing communities of that zone.
The fictional nature of the negotiations was evident when Jaime Gonzalez, the executive director of Portal del Sol, irrupted during a meeting with residents and expressed the following:

We are going to have some stores… some will sell products you can’t buy. Well, such is life. Not everyone is so fortunate. But there is no exclusion here…And the person who does not have 50 cents to buy a limber (a typical Puerto Rican dessert), at least you can enjoy and go out for a stroll in those walks by the sea and see the cruises come, and see the passengers, the passengers with money, get off the cruises, and see them go in the stores and see them buy expensive things, and whoever has an inferiority complex because of this, well, I feel sorry for you…such is life. Not everyone is so fortunate… but don’t lose your faith and keep playing the lotto.

(Shokooh Valle 2009)

Coastal Gentrification and Fisheries Management

As we have seen, the development of coastal zones in Puerto Rico excludes traditional coastal settlers. The coast, especially Fajardo’s coast, has become the elite playground displacing coastal communities and fishing communities. Given that the state’s development plans for coastal areas are focused on luxury resorts, high-end second home buildings and marinas there is no space for local people’s real participation in the coastal development processes and planning. On the other hand, the fishing industry per se is at the bottom of the state’s priority list for coastal use. The governmental approach to coastal development which commodifies the coasts as recreational grounds excludes fishing communities which advocates the development of the fishing industry. In this scenario there is no atmosphere for true stakeholder’s participation on fisheries management. The fishing industry and fisheries management are captive of developer’s interests.

Developers and agencies directors claim that these groups (commercial fishermen, environmental groups, and community grass-root organizations) will protest against any development plan or management measures. Arguing that a NIMBY (not in my backyard) syndrome drives all local groups protests. I argue that the protests and resistance of coastal residents against state development plans, and of commercial fishermen against fisheries
management is provoked by 1) the fact that locals see participation channels as co-option and 2) the different degree of attachment to place between locals and visitors.

The case of Roosevelt Roads shows clearly an ex post facto participation process. Development plans are made beforehand and a later participation process is in place to create a false sense of democracy. The same trend is present on Puerto Rico’s fisheries management. The Fishing Regulation 6768 was enacted while the Secretary’s Advice Board (la Junta del Secretario) was created two years after the fishing regulation was in effect, and only after commercial fishermen presented fierce opposition and open defiance to the management plans.

To minimise local’s opposition to development and to fisheries management as plain NIMBY is reductionist at best. It has been argued that second home owners and coastal recreational tourists express a place-attachment to the places they visit. Connection with nature, escape from the stresses of urban life, and having real life experiences are ideas that such tourists have expressed as reasons to feel attached to their visited places. Brusi-Gil (2008) states that in La Parguera second home owners say they inhabit and work in their permanent residence but really enjoy time and feel most alive in their beach vacation houses. The second home owners’ attachment to a place is relevant to understand the motivations of their touristic/vacation home behaviour, but it is exponential on local residents. For Maternillo’s residents free access to the ocean and the fishing resource is a ‘birth right’.

They based this ‘birth right’ in the fact that they have inhabited this coastal community and harvested its waters for many generations, going “back in time to when no one cared about the coast or the mangroves”. They see the land, and specially the ocean, as a part of themselves, as what gives them a sense of self. Their attachment to a place is not only based on the spatial/physical, it is related to an identity that is fuelled by the ocean, the fishing activity, and living in a face-to-face community bordered by the sea. Fishermen are self-defined as an endangered species, threatened by the state’s coastal development plans. They expressed that agency restrictions to commercial fishing activity are just one more element of the ‘master plan’ to take over their industry and subsequently over their communities. For Commercial fishermen in Maternillo there is no difference between coastal development, coastal management or fisheries management; they see them as parts of a system in which their interests are not prioritised. It can be argued that the state’s interests have been historically placed elsewhere,
rather than in fishing. Agriculture, factories, tourism, military bases, housing and second homes have all seen, to greater or lesser extent, moments of splendour. The fishing industry and the fishermen are still, hopelessly waiting for their turn.
Chapter 6

Fishers Knowledge and Practices: Commercial fishermen’s Knowledge and their Views on Management

This Chapter is an attempt to agglutinate Fishers’ Knowledge and Practices (FKP), in which I provide with the Maternillo’s fishermen’s knowledge and views about the sea and its marine resource. In this respect it complements the section about fishers views and attitudes towards nature and marine animals in chapter 2. However in this chapter I focus on how such ideas and knowledge articulate the communities views on fisheries management. It is an important topic for the dissertation since it reveals the counterpart of the fisheries knowledge and management which is dominated by science and the experts. As I have mentioned before in previous chapters, Puerto Rico’s fisheries count with two parallel but dissimilar systems. While those systems at times overlap, as in the data collection explained in Chapter 4, for the most part they ignore each other. After having devoted a chapter on the production of scientific fisheries science it is only fair, and necessary, to explore the fishermen’s knowledge, their engagements with the resource and how it shapes their ideas about management.

Similar to Chapter 4, where I developed how is it that institutionalised scientific fisheries’ knowledge operates, it is the aim of this chapter to explore how it is that those in constant contact with the resource conceptualise it, and, in ‘unorthodox ways’ have developed (or faced) marine resource management. This kind of knowledge has been disregarded by management institutions based on the idea that fishermen’s accounts are subjective and anecdotal (Ames 2007). Despite of the fact that, as I showed on Chapter 4, fisheries scientific knowledge goes through a good deal of purification (Latour 1993) and manipulation, other forms of knowledge are dismissed as they do not fulfil the experts’ requirements.

A typical approach used in similar anthropological studies is that of Traditional Ecological Knowledge. The longstanding engagements with non-scientific ways of knowledge tend to over emphasise the dichotomy between western Scientific Ecological Knowledge vis à vis and Traditional Ecological Knowledge. Debates surrounding the usage of ‘traditional’ have led to equally difficult categories as ‘indigenous’. It has been argued that traditional is a term that evokes ideas of static and simple understandings (Warren 1995). On the other hand the
indigenous tag is not less problematic and is an inadequate representation of Puerto Rico’s fishermen. I am avoiding the apparently inevitable representational effects of the terms ‘traditional’ and ‘indigenous’ by using Fishers’ Knowledge and Practices (FKP). Ecological is a term that seems to be missing in the mix, to be in accordance with previous concepts such as traditional ecological knowledge resulting in something like Fishers Ecological Knowledge. Nonetheless, the usage of ‘ecological’ may be as problematic. The term ecology, defined as a branch of biology that studies the relations in the biophysical environment, is obviously a discipline in the domain of Western science, therefore, incongruent with the fishers’ ways (Berkes 1999). Also, and even more important, the fishermen would never relate themselves with such epistemologies. So, I propose the concept FKP since the first two terms (fishers and knowledge) do not carry any extra connotations, and the third one (practices) suggests that it is a knowledge derived from experience, from doing. Commercial fishermen’s knowledge can be defined as a practice; it cannot be separated from experience.

The chapter presents how the fishermen in Maternillo view the resource. An intimate relation with the sea and the marine life has developed into a balance between exploitation and respect. I have mentioned in chapter 2 that the fishermen show anthropocentric views towards animals. However, I made clear at that point that these fishermen relate with their immediate physical world in a complex way and that they also show an egalitarian attitude towards animals when compared with societies that practice agriculture and animal husbandry.

In the first section of the chapter I show how the fishermen understand their usage of the resource. The second part deals with events that the fishermen understand as natural and social dynamics that restricts their impact on the marine life and thus operates as mom-institutionalised forms of resource management. Acheson and Wilson (1996) have suggested that fisheries’ management that are rooted in social and cultural aspects are more successful than those of Western societies which are based on legal and scientific frameworks. In the case under consideration, the existence of both systems made the fishermen overwhelmed with regulations. In what can be seen as the meta-regulation of an industry that is very small in scale, restrictions are not only coming from the management institutions, but from natural and social aspects too.
FKP: Fishermen’s engagement with the ocean

As seen in chapters 2 and 3, the nature of commercial fishing in Puerto Rico is very small in scale. It is performed on small boats with little to no technology (e.g. fish finders, GPS), and non-invasive gear (primarily hand lines, as opposed to trawlers or net fishing). This apparently simple approach to the fishing activity is paired with a vast knowledge about the resource which is built upon an intimate relation with the sea. The lack of technology is due in part to the fact that the fishermen know the sea like the back of their hands. When asked about why the lack of electronics that for most boat users is a must, they made reference to the fact that they do not need them. Navigation, either at day or night, is no different than driving a car they said, “When you know a street because you have travelled it for decades you do not need to ask for directions.” However, driving a boat at night is not the same as driving a car, especially if around there are sandbars, reefs and other dangers that would damage the vessel if the captain gets too close to them. A sound knowledge about the sea is not only useful for navigation, it is also necessary to perform the actual fishing. The fishermen’s knowledge regarding the sea, the fish, habitats, birds, migration patterns and their interconnections is what makes them successful as fishermen. The fishers’ knowledge is rooted in practice. Since the marine environment is an ever changing resource, different than forests for example, knowing by practicing copes better with a resource that have been described as ‘chaotic’ (Acheson and Wilson 1996) and ‘probabilistic’ (Simberloff 1980).

Years and generations of experience at sea have gathered a body of knowledge that I am referring to as Fishers Knowledge and Practice (FKP). It can be argued that FKP resembles the ecological approach known as Marine Ecological Knowledge (MEM). As I exposed in Chapter 4, MEM views fisheries management in a holistic way, which pays attention to the interconnection of elements affecting the resource. Different than Fish Stock Assessment (FSA) where fish stocks are analysed in isolation and solutions seem to be inclined towards eliminating overfishing, MEM intends to understand and manage all variables interacting with the marine resource (e.g. habitats, ocean temperatures, overfishing, runoffs, bait, coastal development). This approach is coherent with the FKP. However, as mentioned above the scientific implications of it makes the comparison difficult. Besides, the fishermen have other ideas regarding the resource
that escape the scope of scientific approaches. There is a degree of empathy with the sea and its products that prevents such comparisons. FKP is based on an intimate engagement with the sea. Commercial fishermen are in contact with the sea not only during the activity per se. Their households’ geographical position provides them with a constant visual contact with the resource. Before going out on a fishing trip, they start reading the seas from land. The strength and direction of the wind flowing through their houses is an indication of how calm or rough the seas would be, where the bait might be gathering, and which fishing grounds to visit. Winds blowing from a certain direction mean the baitfish would gather at a particular place, while the fishing would be done at some areas where they know it will be calmer. By looking at the water colour from shore they can predict the water quality out in the fishing grounds, slight changes in colour tells them if there is *reboso* (swells) or not. These are only a few examples about the amount of knowledge that the fishermen have gathered through years and generations of practice, the list could go on and on (clouds’ shapes, moon phases, birds’ behaviour etc.). The assemble of such a diverse number of natural elements, other than the fish stock itself, have made FKP a body of knowledge that integrates species, weather, habitats and local environmental history. But FKP is not limited to the world of natural comprehension as any other way of knowledge it is embedded by social and cultural elements.

The fishermen, having such an intricate relation with the sea they harvest, showed an understanding of the resource, and of their position within it, that relates to other spheres of their life. As I have mentioned in chapter 2, some fishermen expressed these views in religious terms: “the sea and the fish are there for us to use it; no man, no scientists can tell us how we should use what God have created for us the fishermen to survive. No men have an idea about the fish status, only when the Creator tells us to stop, then we will stop fishing.” This creationist tone of is not necessarily shared by all fishermen, but, they all seem to have in common an idea that the right to fish the sea comes from a higher source than those imposing regulations on them. In different ways the fishermen expressed that fishing the sea is a birth right that they possess. These ideas, challenging the authority of regulatory agencies, are also fuelled by the thought that they and their ancestors have been fishing long before the creation of institutions for resource management and the solidification of science in Puerto Rico’s fisheries dynamics. Their belief in having been successful at harvesting the seas before the ‘durable crisis’, made them confident
that their practices are sustainable, and that other elements responsible for the prophesies of a fisheries collapse.

As I have stated FKP is derived from a holistic understanding of interconnecting natural and social elements. This knowledge provides the fishermen with a more comprehensive view of the dynamics of what Western science would call marine ecology. As opposed to the prevailing myopic view of fisheries’ management, which sees overfishing as a starting point instead of as one of the elements to take into account, FKP recognises elements outside fishing that affects the resource.

For fishermen in Maternillo the fact that all official discussions point to them as the perpetrators of environmental damage is a mechanism of those in power to detour the attention from those who are actually responsible for any damage to the marine resource. They made constant references to environmental issues outside the fishing activity in the explanation of why it is that the resource is not as abundant as in the past. As matter of fact, the fishermen’s memory of a healthier environment dates back to when the fishing pressure was more significant due to the fact that the number of fishermen and the effort was higher. But, as well, that was a time where construction development on coastal areas was not as abundant as it is today. They see the marine environmental problems as a chain of interconnected events that start at land, go through the marine habitats and finally develop in the detriment of fish stocks. Every time the topic of fisheries decline was brought to the table, the commercial fishermen’s reaction was the same: “look around, all the mountains have been cleaned, there are no green spots anymore, how would you expect to have healthy fisheries if they are destroying everything from the land to the sea.” The fishermen’s reference relates to the fact that the clearance of vegetation and destruction of buffer zones creates higher runoffs, which increases the volume of suspended particles in the water column. It is a well-known fact, by those who favour MEM approaches, that this kind of inland activity kills the coral reefs, which are primal and essential habitats for the wellbeing of tropical waters. But these events are not the only ones that the fishermen identify as detrimental to the resource. They also blame the recreational sector as harmful elements for damaging the marine resource. The construction of boat marinas, the behaviour of recreational boaters, and the by-products of their activities are in the commercial fishermen’s eyes a primal source of the oceans troubles.
Boat marinas need for their construction protected areas within the coast. This represents the destruction of essential habitats such as mangroves and wetlands. The fishermen are far from pleased by these activities since these besides of being buffer zones are nurseries for species of commercial value. The fact that environmental agencies provide permits for construction in these zones while prohibiting the fishermen’s use of the mangroves is seen as a living example of the agencies incongruence. “They provide permits for construction that wipes out extensive areas of mangrove, but, if a fisherman gets caught cutting two sticks of mangrove he gets fined.”

Fishermen disapprove the behaviour of most recreational boaters. The conflicts over the use of coastal waters are based on their different approaches. For commercial fishermen coastal waters are a place to catch bait and in certain circumstances, such as very rough seas, to fish as well. The pressure of recreational boats with powerful motors, running at high speeds has restricted commercial fishermen’s use of the coast. They say that these activities disrupt the delicate balance of the close to shore waters, changing patterns of fish, making them go to deeper and less troubled waters.

Lastly, the by-products of recreational boating are a source of major concern for commercial fishermen. Pollutants created by the fuel that propels the bigger vessels, rubbish produced by the boaters, and chemicals used in the maintenance of those boats are among the principal complaints of commercial fishermen regarding their recreational counterpart.

The sum of these elements, together with the fact that recreational fishing is lightly regulated when compared to commercial fishing have created a latent conflict between the users. Commercial fishermen understanding the resource as ‘theirs’ see recreational fishermen as disrespectful. The Commercial fishermen then feel marginalised in his own environment by external elements, while being described as the perpetrator of fisheries depletion when they feel that the burden should be carried by the developers, the agencies supporting it, and the recreational users.

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13 Traditionally commercial fishermen used mangrove wood for the construction of fishing gear, especially for nasas (lobster and fish traps). Maternillo’s fishermen are not pescadores de nasa, but the residents used to made charcoal out of mangrove wood.
Natural Management

It was a breezy, wet and cold morning in Maternillo. The steady winds of nearly 30 miles per hour made the raindrops feel like needles. The customers at Camilo and Iris’ kiosk, which are normally spread through the coastal front, were looking for cover under the zinc roof. The wind in combination with the rain and seven to ten foot swells made it impossible to sit on the improvised seats arranged along the shoreline. Among those looking for cover were a few commercial fishermen. The inevitable morning topic was the harsh weather and sea conditions. The fishermen knew that under such conditions, their options at sea were limited. The cold fronts season had arrived with merciless force.

One morning, after over a week of such conditions, a fisherman pointing to the angry seas said to me: “what more seasonal closure than this do the agencies need.” His comment was an eye opener. Different than regulation agents’ views, the fishermen’s understanding and engagement with the resource is one that derives from a close and intimate relation. After such a comment, I realised that the fishermen not only conceptualise the resource in a different way, but they also understand that there are social and natural elements that control their fishing activity more effectively than the institutional regulations.

Puerto Rico’s weather and sea conditions are relatively steady throughout the year. But subtle weather changes, that might not be noticeable for most Puerto Ricans, mean a world of difference for those who perceive the sea as their place of work. From late winter until late spring, cold fronts going south from the United States East coast visit Puerto Rico, having a slight cooling effect on the island and bringing dangerous sea conditions. Obviously, for the commercial fishermen this event is a tragedy since their small vessels cannot cope with the weather, and, furthermore, the risky seas converge with the Lent season, the fishermen’s economic bonanza.

Puerto Rico’s population is mainly catholic, therefore the Lent season is observed by most. During this period the fish houses are visited by large numbers of customers looking to buy fresh sea products for the religious festivities. But the weather prevents the fishermen from harvesting the sea often enough to match the unusual demand. During my stay in Maternillo the
heavy seas lasted for the whole religious festivities, only a few fishermen ventured out when the
forceful sea provided a short window of opportunity. However, these were not enough to satisfy
the demand.

Chan, the president of the Fishermen’s Association of Maternillo, and person in charge of
the Pescadería Maternillo, was very concerned about the prospect of not having any fish to offer.
For the pescaderías, just as for the fishermen, the Lent season is a period where they round their
financial year; it can be seen as the end of the fishermen’s economic year. After having
experienced what they considered to be one of the most economically constrained years, not
producing good finances during the 40 day period of the Lent could mean leaving the pescadería
inoperative for the next year. The panorama was one of desperation. Chan even pondered for a
second the idea of selling imported frozen fish. As mentioned in Chapter 3, the two main fish
houses in Maternillo, as any other ‘respected’ pescadería, only sell local fresh product, never
considering selling imported fish. But under that pressure, Chan had a moment of ‘weakness’ (as
he was mocking himself later on). However, the idea was discarded and the incipient
organisation FEDPEMAR came to the rescue. A pescadería from Lajas, which is part of
FEPDEMAR, sold him 2,000 pounds of Mahi Mahi to alleviate the crisis. Although those fish
are not what Maternillo’s customers are used to buying, they were received with pleaseure, and
in combination with the few captures done by Maternillo’s fishermen, helped the fish house
produce enough capital to survive the forthcoming slow selling months after the Lent season.

The pescadería administration found support in its fellow counterpart from the south
cost, but this solution did not alleviate the situation of the fishermen in Maternillo. Not going
out at sea during this period, which has been historically a time of getting a considerable amount
of liquid capital, was a precarious scene. They just accepted the idea with resignation and had
nothing else to do than to wait in expectation for a saviour window in the form of a couple of
days of average seas. But day after day the weather was as just described before. The fishermen
were able to enjoy only four days of fishable conditions throughout the whole duration of the
Lent.

This situation, that seems to be a constant, puts a halt to the fishing activity serving as a
‘natural closure season’ in which fishing pressure is minimal. It also embeds the activity with a
sense of uncertainty that discourages the participants, and newcomers alike, to stay in the
business, keeping commercial fishermen at sustainable numbers. The last census made in 2010 by the Laboratory of Fisheries Research estimated the number of active fishermen as 868. Although the veracity of the actual number could be questionable due to the difficulty to sustain categories and requirements employed by the agencies (see chapter 2) the truth is that the number of practitioners today is modest, to say the least. However, the census shows a significant reduction of commercial fishermen when compared to their numbers for the 1990s, when the quantity of fishermen was estimated in 1758. This compares favourably with the fishermen’s accounts. The fishermen at Maternillo constantly say they are becoming an endangered species in reference to this.

Another natural element that the fishermen of Maternillo see as a management tool is the moon. Hand line fishermen time their fishing trips with particular moon phases. When the moon is not right they do not venture out at sea since they see it as a waste of time. They will fish exclusively from the third quarter going into a new moon, and from new moon growing to first quarter, favouring waxing crescent and waning crescent. The cycle going from first quarter to full moon and then to third quarter are a period of no fishing. This leaves a period of half a month where the fishing resource is not exploited. On top of that, if the good moons converge with rough seas, the fishing pressure for that month is minimal. To sum up, the hand line fishing can only be done a maximum of 180 days a year. Hand liners understand this as a natural management that makes unnecessary the implementation of any other restriction to their activity. I need to clarify that the moon phases are observed only when fishing at night. During daytime the moon does not seem to play a role in hand line fishing. But it is also true that the vast majority of the fishermen fish at night. For different reasons (e.g. avoid sun radiation, abundance of certain species, the use of light in the dark to attract bait and predators) the fishermen prefer night fishing. In Maternillo only a few fishermen will fish during the day and only a few times a year. In short, hand lining practice is really constrained by the moon natural cycle.
Social Management

Fishing activity is also regulated by social aspects. The demand for fresh fish is not as it would be expected in the island of Puerto Rico. The above account about the high demand during Lent season is atypical. Actually, Puerto Rico’s per capita consumption of fish is minimal. Only at very local level, fish represents a significant source of protein, the vast majority of Puerto Ricans will only consume fish a few times a year, if that, during the period of lent.

According to a National Marine Fisheries Service (NMFS) report on national and global fish consumption for 2009, Puerto Rico ranks among one of the countries in the world where less sea products are consumed. The report is broke down in eight geographical areas (i.e. North America, the Caribbean, Latin America, Europe, Africa, Near East, Far East and Oceania). Puerto Rico figures as the country in the Caribbean region with the least consumption with a per capita of 1.7 pounds, followed by Haiti with 7.9 pounds. As a comparison, the neighbour United States Virgin Islands presents a per capita of 25.4 pounds. For instance, the presence of the staple fish and chips in the United Kingdom is represented by a per capita of 45.1 pounds; while Spain, with whom Puerto Rico shares the majority of its gastronomic tradition, exhibits a per capita of 90.6 pounds. The only countries showing a lower fish consumption than Puerto Rico are: Tajikistan (0.6 pounds), Uzbekistan (0.8 pounds), Afghanistan (0.1 pounds), Mongolia (0.5 pounds), Ethiopia (0.3 pounds) and Lesotho (0.1 pounds). This datum about the irrelevance of fish in Puerto Rico’s consumption at a macro level is important because it shows, once again, the importance of observing the micro and the ethnographic contexts to understand particular processes. While fish and the fishing industry may not be important elements at national levels, for communities such as Maternillo they are a central part of their identity. The abysmal contrast in relevance, between macro and very local levels is one of the reasons that makes the somewhat apparently unimportant activity pertinent.

Puerto Rico not presenting a preference for fish consumption explains a form of regulation in the commercial fishermen eyes: the market. For the fishermen, the marine resource cannot be exploited at unsustainable levels even if the fishermen were willing to, since there is no demand for it. The fish houses know this, and therefore, after having bought the catches of
two or three fishing boats they ask their fishermen to stop fishing for a couple of days. The fish houses processing of the fish is minimal which makes the storing span very short. The fish are stored unprocessed (with scales and guts) in chest freezers just as they are landed. When a customer buys them then the fish goes through the scaling and gutting process. The fish, thrown in the freezer without being cleaned or packed, are susceptible to freeze burn lowering the quality and its selling potential; or even getting bad. Larger fishing operations elsewhere, process the harvests by cleaning, filleting and packing them which assures longer storing period. In this scenario the pescaderías can only accept a quantity of fish that can be sold within a week. This, added to the fact that sales are slow, works as a form of regulation that is based on the market. The fishermen refer to this force regulating them, in a fashion that reminds those of economists, it can be argued that fisheries are regulated by ‘the invisible hand of the fish market.’ On top of that, local commercial fishermen have to compete with imported fish sold in supermarkets. The imported frozen fish (mainly from Costa Rica, India and Indonesia) is offered at a fraction of the price of those sold at the pescaderías. Although customers that frequent the pescaderías praise local fresh fish and seem to be very knowledgeable and demanding for quality, the vast majority of the fish consumed is the less expensive but also lower quality imported frozen fish.

Besides the market, another form of regulation is based on fishermen’s ethics. Commercial fishermen have their own understanding of fish stocks and their status, and will act according to what they comprehend is sound usage of the resource. A fisherman not following that ethic is disregarded as an infamous fisherman. There are some that still participate in what their peers may condemn as inappropriate and shameful behaviour, but the fact that they do it in a covert manner shows that there is an unwritten code among these fishermen. For instance, there are some fishermen that expressed the intention to violate the Queen Conch closure. Although this is a regulation made by the management institutions, the commercial fishermen have broadly accepted it since they understand this particular measure as a sound one. A fisherman, after months of cooperating with this research, confessed that he breaks the closure three to four times a year. His reasons were purely economic. He said that the closure creates a black market which triples the price of these highly valued sea snails, when compared to the formal market during the open season. The way that the confessed poacher approached the topic was interesting. He made his case by quietly whispering, exhibiting a guilty demeanour, that it was his way of compensating the times of the year that he could not go out fishing due to weather or vessel
problems. The fisherman’s body language was that of an exposed child that has misbehaved. This event shows that the fishermen have embodied an ethical code of wrongdoings and accepted practices. The nearly embarrassed way in which he confessed his fault, contrasts with the energetic tone when confessing the violation of other regulations that are not rooted in the communities beliefs. When talking about the DNER requirement of breaking the Queen Conch shells underwater the tone and body language changed from shame to a vigorous one. The secretive way of talking about the community accepted regulation could be understood as a fear of being reported to the authorities. However, the way I interpret it is more than just a concern about punitive actions. It is a dread for being rejected or demoted as a *pescador*. When other fishermen treated the topic of violating regulations such as the one protecting the Queen Conch they showed repulsion. They said that: “those damaging the resource by fishing without respecting the sea should not be called *pescadores*”.

Although the fishermen do not explicitly present themselves as the stewards of the sea, they argue to possess the best knowledge about the resource and a higher degree of respect and consciousness based on their constant and close interaction with it. They said that their connection with the sea and the fish are impossible to understand by those that do not experience it the way they do. These differences on involvement and attachment with the resource, in combination with their extractive commercial nature are responsible for providing them with an eclectic view of the fisheries management. There are practices that the fishermen understand as sound, but are seen as detrimental by institutional managers, and therefore banned. The fishermen’s ideas about management are flexible and adaptable to the conditions surrounding each particular case. In contrast, institutional managements need for standardisation cannot observe the merits of each situation. While the institutionalised regulations, as any other legal document, are written in stone, those of the fishermen are analytical to a variety of elements particular to each event. A few examples will help to understand this. As regulated by the management institutions, there is a minimum size for Yellowtail Snapper and a closing season for Red Hind Grouper. While the fishermen agree with both, in the sense that no respected fishermen will target juvenile Yellowtail Snapper, and that they also understand that Red hind closure is good since it provides this grouper with the opportunity to spawn undisturbed, other considerations come into play. If an ‘illegal fish’ is caught and it is in condition to be released successfully the fishermen would not have a second thought on doing it. On the other hand, if the
fish gets to the boat bloated by the changes in pressure cause by the fight, the fish will be kept on board. This is a clear violation to the regulation law since any undersize or out-of-season fish has to be released either alive or death. The fishermen just cannot comply, nor understand such measure.

There is logic behind both parties’ views on what to do with ‘illegal fish’. The agencies thrive on high levels of standardisation, there is no space for bending the regulations. If they take into consideration all particularities such as survival percentage of discarded fish or the health of the fish when it gets to the boat, it will represent a level of flexibility that they are not willing to accept. If the argument, “the fish was dead, there is no use on releasing it”, is taken into consideration, there is a possibility of having irresponsible fishermen provoking casualties. On the other hand, the fishermen see as a capital crime dropping back to the water a fish that is already dead. For the fishermen it makes no sense from a management perspective since the dead specimen will not get back to the stock, and from a social perspective it doesn’t makes sense either since the fish can be sold; or in the event of being a fish too small to be sold it would be given to underprivileged community members. It is obvious that the fishermen’s conservation ideas and its practices are done in situ, their decisions are made by judging each particular case, while official regulations do not observe these particularities.

Another aspect that works as a management tool, in the sense that it prevents the fishermen from harvesting large numbers of fish, is their material limitations. The size and type of vessel and the techniques employed do not promote an intensive exploitation of the resource. As mentioned before, Puerto Rico’s fishermen utilise occupational multiplicity as an economic strategy. The intensity of use of the marine resource is dependant to the existence, or lack of, economic opportunities out of the fishing activity. To achieve this elasticity the fishermen have kept their means of production as simple as possible to cut off operational costs, however, these strategies have also limited their harvesting capacity at sea. In short, this is a type of fishermen whose fishing activity is very small in scale. In addition to this, the number of practitioners at a national level is very limited with less than a thousand commercial fishermen, so this is an activity that not only is small in scale but also in numbers. The commercial fishermen are clear about the practical connotation of this. The recurrent comment of “we are an endangered species” evidences it. In many occasions the commercial fishermen complained about the burden
of the fish stocks decline being placed on their shoulders. They made clear that they see the root of the marine resource problems elsewhere (e.g. coastal development, deforestation, coral reefs deaths due to global warming) and that a small group of commercial fishermen, fishing onboard of 20 foot in length boats, using hand lines are not the culprits of fish stock’s depletion.
Chapter 7

The Curious Case of Culebra’s Marine Protected Area

This Chapter explores stakeholders’ ideas regarding Culebra Island’s Marine Protected Area (MPA) at the Canal Luis Peña. I argue that MPAs that are flagged as community-based are iconic examples of how participatory environmental management approaches operate as ‘boundary objects’. I also argue that the ways in which ‘boundary objects’ operate regarding environmental management can only endure when paired with ‘ignorance’. The fact that serious representational effects are embodied in participatory environmental management makes them perishable efforts for the most time. However, in Culebra’s MPA case, a calculated balance of ignorance by all actors involved has made the project durable. In fact, this MPA has been successful, and it has become a symbol of Culebra as well as source of pride for its residents. Discourses surrounding the MPA have reassured Culebrenses’ identity, as well as their ideas about nature and the environment. It is the synergy between these elements what made possible its creation in the first place. I follow this argument by expanding how Culebrenses’ identities and their ideas about nature, the sea, and tourism have helped in the shaping of, or at least the welcoming of, the MPA.

I propose that Culebra’s MPA operates as a boundary object because given that Culebrenses express an urge for preserving the environment have made possible a degree of agreement among the actors, which have made possible its implementation. The primary stakeholders have ignored the representational effects of the project and aligned themselves around the ‘community-based’ MPA by not contesting the authenticity of the ‘spokespersons’ or the participatory process. Regardless of the fact that some of those involved in the process felt like the project was kidnapped, remade and then imposed, they decided to become ‘passive recipients’ of what they understand to be a good environmental measure. The residents’ final goal is the conservation of the resource, and they understand the MPA as a step in that direction. Therefore other considerations were put aside. This contrasts with the marine management process where commercial and recreational fishermen openly debate the legitimacy of the
participatory processes and of those representing them. As I stated before, commercial fishermen in Fajardo have also appealed to ignorance as a mechanism to deal with fishing regulations that they do not support. However, ignorance among commercial fishermen in Fajardo has taken the form of completely disregarding the management apparatus while reaffirming their local ways to interact with nature as a more sound approach. On the other hand, the Culebrenses, believing in the importance of the MPA, have ignored only the representational effects of its implementation while acknowledging the project.

Although the MPA project was portrayed as a Culebra fishermen’s effort, in reality it has become a symbol of Culebra. Regardless of the unison acceptance of the MPA, serious representational effects are part of this conservationist’s effort. Categories such as ‘Culebra’s fishermen’ and ‘the community’ have played a central role in the creation and marketing of the MPA. Different than in Puerto Rico’s fisheries management scenario, the fishermen category in Culebra seems to be more elastic. In Culebra, only two fishermen possess valid fishing license; as seen in Chapter 2, having a commercial fishing license is pivotal for the agencies categorisation. Then, to be classified as one, the fisherman needs to meet the institution’s criteria which are based on income. The same set of criteria applies to Culebra; however, when the discussion revolves around the MPA, the fishermen category seems to be boundless. The DNER states that the MPA was originally proposed by the commercial fishermen of Culebra, which based on their standards, should mean a group of two people. It is obvious, that regarding the MPA, the agencies recognised as commercial fishermen a wide range of actors that exhibit different degrees of involvement with the marine resource. In this particular case, the agencies have acknowledged, at least temporarily, the existence of irregular, casual, subsistence and emeritus fishermen; especially the latter. It seems like most of the interactions and consultation process took place with emeritus fishermen. The remaining type of fishermen, although at the moment of this study were supportive of the MPA, were not really convinced about the statement that the idea of closing an area from all fishing activities was gestated by any of their colleagues.

The creation of the MPA can be classified as mysterious. A plethora of actors have diverse and sometimes conflicting memories about the events that finally made its implementation possible. The project being categorised as a success and as a source of Culebrenses’ pride explains the fact that diverse actors are claiming its intellectual authority. If
the results were adverse and the project considered a failure, a reverse effect would have been the probable outcome. But, in light of it being considered a major accomplishment for the Culebrenses, the account suggests that the MPA from an orphan project became a beloved child. Almost every actor involved claims the project’s paternity, which inevitably has have created a thick Rashomon effect.

The final section of the chapter exposes that confusing field experience of having conflicting stories regarding the creation of the MPA. Just as ethnographers can be in disagreement regarding a subject of study, informants’ may express different perspectives of a particular event. Much ink has been spilled regarding anthropological representations and the need for multivocality. However, less emphasis has been paid to the collaborators’ representations of their own experiences. And even less explored has been the practicality of what to do when there are as many accounts as peoples interviewed.

**Culebra Island**

The island of Culebra is located 17 miles East off Fajardo shore. Culebra is a small island with a land area of only 10 square miles and a population of 1868 inhabitants (Census 2000). The island is one of the 78 municipalities that compose Puerto Rico’s political jurisdictions. Culebra shares the distinction with Vieques of being the only two island municipalities. Transportation from Fajardo to Culebra Island is possible via public ferry boat or small private airplane lines. In fact, the Ferry boat station, which is the preferred and most used route due to its price, is in Puerto Real area just where Maternillo is located. The station is on the same road as Pescaderia Maternillo, only about 200 meters away. The relation between these two places is not only based on their transportation link, but also on the fact that fishers form Maternillo have been fishing Culebra’s waters for decades and that some Maternillenses such as Silvia and Rey (both mentioned in Chapter 2) were originally from Culebra and years back settled in Fajardo. Culebra’s fishing grounds have been, and still are, the preferred fishing area of Maternillo’s fishermen. The fact that fishermen form both Culebra and Maternillo have shared the same
natural resource for a long period of time has created a sense of neighbouring between them, with all the camaraderie and frictions that it encompasses.

Culebra’s residents express a deep place attachment. When talking about the island, they say to be “celosos con Culebra” (jealous regarding Culebra). Culebrenses indeed show apprehension about extraneous elements. However, at the same time, Culebra, being a touristic destiny, is in a process of constant movement. In his Ph.D. dissertation, Cubero elaborates the interplay between insular and movement in the shaping of Culebras’ identity. These interactions create a process in which “the understandings of the local are shaped in a process of movement” (2006: 8). The interplay of such apparently opposing elements plays an important role in the construction of ideas about nature and environmental conservation. While the Culebrenses understand that the island’s economy needs a strong touristic flux, at the same time they dislike the eruption of tourists during peak seasons. Tourists and tourism is seen in a bipolar way. On the one hand, they are the economic motor of Culebra. On the other hand, they are the disruptive source of the tranquillity, peace and environmental balance. Ideas about the Culebras’ nature and its environment reflect the tensions between views of ‘outside’ and ‘local’. Culebrenses claim to have “higher environmental consciousness” than the rest of the Puerto Ricans. In this regard, they see the main islanders as a form of pollutant.

The ideas of outside and local, and their relation to nature and the environment are expressed in different forms. Regarding the marine resource, it is evident that the Culebrenses see the sea life as their property and therefore as a resource to be exploited only by locals. They were disgusted by the fact that “everybody comes to fish in Culebra”. But the disapproval of ‘outsiders’ using ‘their resource’ is not based on the mere fact that it is not locals using their resource; it is also that outsiders, in Culebrenses’ views, use the resource in an unsustainable manner. Culebrenses argue that the residents will fish only enough to satisfy the necessity, this being true even regarding commercial fishermen. Vieques’ fishermen were used constantly as a contrasting example. In the residents’ minds, a commercial fisherman from Culebra would extract only as much fish as the limited local market can consume, letting the resource renew for at least half a week. Unlike them, the rest of the commercial fishermen, Culebrenses argue, would fish intensively until the resource is scarce. These views about environmental use create serious tension about ideas of outside and local. In the light of these views, the MPA created a
sense of resource property for the Culebrenses. Marine organisms are considered open-resources that can be used at will by anyone. Regulations such as quotas and size limits impose restrictions on users while keeping accessibility. On the other hand, the closure of a piece of the resource on Culebra’s sea and the discourse of being a ‘community protected area’ has indeed given them a sense of control over ‘their’ resource and of secluding the area which is seen as susceptible to foreign wrongdoings.

The ideas about different outside and local views on the environment are not created in a vacuum. Culebra exhibits a sense of conservation that is not matched by other places in Puerto Rico, at least not by any other place in the East coast. “Save what is left” is a phrase present in many locations. Restaurants, stores, road signs, and most of the cars show a bumper sticker with the conservationist statement; showing that the Culebrenses do not only praise the less impacted status of their natural surrounding when compared to the main island, but also believe in keep in it as it is. In an informal conversation, a few residents energetically stated that “we want to keep Culebra as it is...Burger king and K-Mart can stay on the main island, we just do not want that kind of development here.”

These declarations also show the fact that the Culebrenses understand that the ‘pristine’ status of the island is an assessment. Tourism in Culebra, different than that in Fajardo, is small in scale, based on small inns and restaurants that benefit the population at large. For Fajardeños at low-income coastal communities, the wellbeing of the touristic industry is detrimental, since gentrification is the main outcome they experience from it. In Culebra, tourism equals economy. The fishermen of Fajardo have not being able to find a niche for their products in the touristic industry. On the other hand, Culebra’s fishermen are dependant of tourism. This point was made clear by Aldo, a constant fisherman who is one of the only two fishermen holding a commercial fishing licence in Culebra. He argued that his fishing activity is absolutely dependent on touristic fluctuations. During the touristic season dominated by international visitors, he modifies his fishing target to pelagic species that are normally consumed in fillets (i.e. King mackerel, Mahi Mahi and Yellow Fin Tuna). Aldo explained that he does this because that is what the restaurants will be buying based on customer demand. Now, during the touristic season of local tourists, he fishes for plate-size fish (i.e. Snappers and Groupers). And during the low season, he just takes his yola out of the water, stops fishing and works as a gardener. Aldo’s fishing movements show
the importance of the tourism for the fishing activity. When asked about the MPA, he said that, regardless of the fact that commercial fishing is his main income, he supports the MPA and even the creation of a few more, since commercial fishing is subordinated to tourism.

Culebra’s Marine Protected Area

The Marine Protected Area (MPA), officially designated in the 1st of June of 1999, is located in the Canal Luis Peña in the Southwest coast of Culebra. The MPA consists of 1,208 acres extending from the Peninsula of Flamenco to Punta Melones (DNER web page). MPAs are marine management tools in which an area that is considered to be a primary habitat is protected by restricting, the activities allowed. There are many different management arrangements when it comes to MPAs. It varies from seasonal closure, gear restrictions, specific species closure, to complete closure. Culebra’s MPA is the strictest of these formats being a complete closure ‘no-take zone’ where all extractive activities are forbidden.

This type of management has been implemented in many places with mixed results. Phillipines (Pollnack et al 2001; Pomeroy et al 1996), Indonesia (Christie 2004), Oceania (Johannes 2002), and Saint Lucia (Smith and Berkes 1991) are only some of the places that have witnessed the benefits and flaws from the implementation of community-based MPAs. Tensions over ‘property rights’, responsibilities, and restrictions are some of the contentions surrounding the outcomes of MPAs implementation.

In the case of Culebra, the creation of an MPA has given the stakeholders a sense of ownership over a resource that otherwise is to be considered an ‘open-access’ resource. It is important to discuss the reach of the ‘stakeholder’ concept in Culebra Island when compared to the main island of Puerto Rico. In Puerto Rico, the stakeholders are a select group of people somehow directly involved in the fishing activity. These are: commercial fishermen, recreational fishermen, fishing charters, and the management apparatus (marine biologists/experts, enforcement agents, agencies, and institutions). These primary stakeholders are a small sector of the population of Puerto Rico, and even a fraction of the population of the coastal municipalities.
There is a marked difference when compared to Culebra since the residents at large seem to be not only interested, but also involved in the status and management of their surrounding environment. In the case of Culebra the vast majority of the residents are very opinionated regarding their ideas and views about the environment and its management and in particular about the sea and the marine resource. Attachment to landscape, and more significantly to the sea, is a Culebrenses’ condition, while in the case of Puerto Rico’s coastal municipalities, attachment is a very local aspect restricted to sectors in direct contact with the ocean such as fishing communities. Such communities in Puerto Rico are picturesque and folkloric places that to some extent show distinct cultural, economic, social and environmental ideas than the rest of their municipalities. In the case of Culebra, it can be argued, while assuming the risk of being self-contradictory, that the whole island is a fishing/coastal community. As documented by Cubero (2006), the Culebrenses commonly express that “todos somos pescadores” (we are all fishermen), which neatly shows the idea of the island being a fishing community. “We are all fishermen” is a common and expectable self-image of a fishing community, but there is a need for some clarifications: 1) As mentioned before, the narrative of Culebra being a fishing community emerges from a difference in scale. Discourses of fishing communities on the main island, although very important for some sectors, operate at micro-regional levels. Comparable discourses to “we are all fishermen” exist as well (in the main island is expressed in different ways), but only in what is considered a fishing community, such as Maternillo. In political unit terms, the fact that the Culebrenses identify themselves as fishermen is the equivalent of Fajardo considering itself as such, instead of only Maternillo or Las Croabas which are small regional jurisdictions within the Fajardo municipality. 2) In Puerto Rico, fishing identities are not necessarily linked to the fishing activity per se. The intensity or economic importance of fishing activity is not the only element that nurtures the identity of fishing communities. Tradition and cultural expressions fuel those identities, regardless of the fact that fishing is not (and perhaps never was) a central source of income. 3) The rhetoric of being a fishing community is a malleable artefact used as a powerful weapon against coastal development. As I exposed in Chapter 3, ‘Fishermen’ and ‘fishing community/village’ are concepts that awake romantic ideas among Puerto Ricans. Members of such fishing communities evoke these categories that create a sympathetic public opinion which, more often than not, helps in advancing their political struggles.
The Rashomon Effect: Claims Regarding the Creation of the MPA

Haider’s (1988) article about disagreements among ethnographers studying the same social group brought into attention the question of what elements operate in making an ethnographer create a particular ethnographic representation. However, it has been less explored what to do when those that experienced the event under study disagree on how it happened. Do the same elements influencing ethnographers affect informants’ perceptions? Can it be argued, then, that ethnographies are representations of informants’ representations? And in a more practical note, how should the ethnographer deal with contradictory stories? Regarding his ethnography about economic transformations on south Puerto Rico’s fisheries, Perez (2005) suggests (addressing John and Jean Comaroff’s work) that “partial fragments of memory” collected in the field are insufficient to create anthropological knowledge and that it needs to be framed in a historical context. However, when dealing with relatively current events, supporting documents may not be easily available, or the ones available may respond to the officialism. In the case of Culebras’ MPA, being a state supported project, all which is available is the DNER propaganda. The existing documents do help to understand how the MPA is portrayed by the environmental management institutions. But it sheds little light on the controversy of who were the original proponents.

The importance of this question lies in the fact that the MPA is a ‘no-take zone’ that is supposed to be community-based and originally proposed by the fishermen. If it were really the fishermen who originally proposed a ‘no-take zone’ Marine Protected Area, we are dealing with a much different type of fishermen than those in the rest of the island. However, if it was not the fishers who proposed it and instead they were convinced through meetings with the agencies, then institutional argument of being the fishers the proponents is marked with representational effects which at the same time defy the predominant state’s discourse of the Tragedy of the Commons.

Whatever the case maybe I think, it is far more important to expose and explore the disagreements than to find who was the ‘patriarch’ of the MPA. Trying to understand what those
disagreements can teach us about the implementation of marine conservation is more productive than to put the informants on trial to find the truth. For those reasons, I proceed now by pointing out which actors are seen or self-proclaimed as the proponents.

**The Commercial Fishermen**

From a centre-perspective it seems apparent that the ones that originally proposed and lobbied for the creation of the MPA were Culebra’s commercial fishermen. The official literature states that “the Fishing Association of Culebra proposed the MPA for the fish stock propagation and to protect the coral reefs” (DNER brochure). The document, suggesting co-management, shows the logo of the Fishing Association of Culebra (FAC) with those of the DNER, CORALATIONS (a coral reef conservation NGO) and Culebra’s municipal emblem. This theory was backed by the members of the FAC board of directors. The fact that present members of the fishermen’s association corroborated this should be enough to confirm that it was the commercial fishermen who originally proposed the MPA. However, things get more complicated as the FAC seems to be an agonising association whose representation of its constituency is under debate. Active fishermen in Culebra do not play part in any of the FAC’s activities and do not seem to trust it. It can be argued that during this ethnography the FAC was a symbolic association for political purposes such as saying that the fishermen support or deny a particular project such as the MPA. When active fishermen were interviewed, they said that the FAC has seen better days, and that they are not involved nor support the association.

Active fishermen, not having the advantage of relying on selling their catches to a fish house, operate independently. There seems to be a tradition of fire-fighters getting engaged in commercial fishing. During an interview at the fire station, I witnessed a fish sale transaction during the fire fighter/fisherman working hours. This was evidence of the occupational overlapping occurring on this island. The event shows that the lack of a fish house has forced the fishermen to market the fish on their own. Similarly, other fishermen showed the same strategies. I was invited to participate in a fishing trip, in search for Red hind grouper, with fishing partners Tomas and Gerard. I was able to witness how this duo had a network of buyers waiting to buy
the fish. When we got back to the dock, after having cleaned the harvest, I hop on Tomas truck to go around Culebra to distribute the beforehand sold fish. The fishermen rearrange the sales the day before to assure that the captures will be sold. A small restaurant bought 32 pounds of shark fillets, around 20 pounds of the groupers were distributed between 4 different households, and the remaining 57 pounds of grouper were sold downtown to one of the main restaurants. In the case of Tomas, just as all the other fishermen in Culebra, he fishes to supply local households’ and restaurants’ demand for fresh fish. However, Tomas’ case is somewhat different as he also fishes to supply his own restaurant. Although Tomas’ place is better known for his burgers and chips and it is far from specialising in seafood, surplus of the fishing activity will figure as the day’s special. During our fishing trip, although the targeted species was Red Hind Grouper, a considerable amount of Triggerfish and Sharks were caught. The next day, Tomas’ restaurant was offering Triggerfish fillets and Shark ceviche. The fishermen in Culebra, as exemplified by the above accounts, are less dependent on the fishing revenues than those in Maternillo. All of the active fishermen could be classified as irregular or casual fishermen based on their higher occupational multiplicity. While constant fishermen are not present today in Culebra and the number of fishermen in general is relatively low, the status and generalised respect of emeritus fishermen compensates for the fewer numbers. According to a powerful figure in Culebra’s politics and fisheries history, it was the fishermen who “invented” the MPA. Don Taso is an emeritus fisherman and former City Mayor of Culebra. He served as Culebras’ mayor from 1980 to 1996 and fish commercially for 67 years. He also founded the FAC in 1965. According to Don Taso, he came up with the idea of a system of MPAs for Culebra since he realised years ago the need to protect important habitats to ensure fish stock sustainability.

I proposed the creation of an MPA to the Caribbean Fisheries Council (CFC). The original idea is mine and from the FAC, given that I explained to my colleagues the necessity to protect the marine resource. The CFC saw it with good eyes, but the Department of Natural and Environmental Resources (DNER) was against it...We created the idea of an MPA cyclic system to be moved through the different important reef areas every five years. As always, the DNER, being the vermin they are, spoiled what could have been a real amazing project. They kidnapped the idea, selected the area and made it permanent instead.

Don Taso not only accused the DNER of kidnapping his idea of the MPA, but, he also blamed the agency of obstructing any citizen’s initiative. Don Taso brought as an example a
project he proposed for the creation of a mooring system in Culebra. He explained that the idea was based on the fact that recreational boats visiting Culebra have a negative impact due to anchoring on reefs and the disposal of rubbish into the sea. He said that the project considered charging a daily fee for the use of boat moorings (anchoring buoys) and the sound disposal of vessels’ rubbish, while banning anchoring elsewhere. Don Taso argued that the project was welcomed by the US Army Corps of Engineers, The US Coast Guard, and the US Environmental Protection Agency; but that when it came to the DENR consideration, it was put on hold because the agency had to rewrite and be a partner of the project. Since then, his project has been sitting in a drawer. Don Taso felt sorry about how it ended up, not only because he believes that it is something that needs to be done in Culebra, but also because he is sure that by taking control the DENR will never move the idea forward.

Don Taso’s views on the DENR are shared by Culebra and Fajardo’s fishermen. There is a general consensus about the agency being a source of troubles and adverse environmental impact. DENR actions directly affect the fishermen who are prone to manifest their discontent in all forums.

Don Taso’s words make it clear that he and his colleagues created the MPA, but despite such a bold statement, other fishermen disagree with the fact that they (either Don Taso and his mates) were the ones proposing the MPA. Don Héctor, another emeritus fishermen and retired fire fighter, who was the president of the FAC at the moment the MPA was created, has a different memory of the event. According to him, the agencies talked them into the benefits of creating an MPA for fish stock conservation to keep a sustainable resource for future generations. He recalls that people from different agencies showed them videos of fishermen’s testimonies regarding the increase of captures in places where MPAs are running. According to Don Hector, a process of ‘exogenous orientation’, combined with the fact that Culebra’s fishermen were aware of the decrease in landings and the need to protect the resource, triggered the FAC’s decision to get on the MPA’s boat and helped to convince fishermen and non-fishermen about the creation of a no-take zone. I tried to get Don Hector to say exactly whom he was referring to when he said “the agencies”, but he could not remember the actual agencies or people involved. However, Don Hector assured that the MPA idea was neither from the FAC board nor from his colleagues, including the aforementioned Don Taso.
So far I have brought to the table the disagreement of two emeritus fishermen (for more on emeritus fishermen see chapter 3) whose memories on the MPA’s creation are not in accordance. One of them, Don Taso, an 82 years old retired fisherman and former city mayor who claims the ‘intellectual property rights’ over the MPA and insists that the idea flourished in the FAC. On the other hand, 62 years old Don Hector, who was the president of the FAC at the moment of the MPA’s creation and who maintains that the idea came from elsewhere and that Culebra’s fishermen showed some resistance at the beginning, but shortly after were convinced about its benefits.

The active six ‘irregular fishermen’ coincided with Don Hector. Their memories of the MPA’s proceedings, although vague in details, point to the fact that the idea came from outside Culebra and that originally they were not all welcoming about the idea of restricting an area that they have harvested for generations. However, they said that based on the fact that “quality fish can be found in lots of places in Culebra” and that they understood the need for fish stocks’ conservation, they decided to give it a try.

It is still unclear if Don Taso and the FAC were the original proponents of the MPA. Some accounts and documentation seem to agree with this while others disagree. Given that a wide Rashomon effect is present among the fishermen’s memory of the creation of the MPA, it would be irresponsible for me to state my opinion on its ‘ownership’. However, one thing seems to be clear, no matter who came up with the idea, Culebra’s fishermen and the FAC played a significant role in persuading people to create a ‘no-take zone’. Apparently, an important process of peer persuasion made possible the MPA’s implementation. This in itself is a singular event in Puerto Rico’s fisheries management history and exposes that, different from what most actors involved in fisheries’ management perceive, fishers are keen to protect their resource when they understand that the management measures are sound.
Officialism

The official documents regarding the creation of Culebra’s MPA acknowledge the FAC as the proponents. Both the informative brochure produced by the DENR and the Document of Designation clearly state this. However, those involved directly with the MPA do not agree. Lieutenant Villanueva of the Cuerpo de Vigilantes, the maximum authority in Culebra when it comes to the enforcement of environmental regulations, including providing surveillance to the MPA, clearly stated that the MPA was an idea of the DENR. According to him, right after the US Navy stopped bombing Culebra, the DENR, following its mandate of protecting the island resources, did a study of the area to assess the impact of the Navy manoeuvres on the coral reefs.

As they found deep adverse impact on the coral reefs, the DENR thought that total closure of the base was the best action to guarantee the wellbeing of such a valuable ecosystem. Villanueva stated that later, after analysing the DNER’s idea, a group of citizens (including the fishermen) welcomed and supported the idea. “It was the DNER who created the MPA and later on the FAC supported it.

A different and more controversial memory of the events was exposed by city mayor Abraham Peña. During an interview, Peña stated that he was the one responsible for the creation of the MPA. The mayor reconstructs around him the events leading to the MPA creation. He argues that he came up with the idea, as a conservation measure, when he was the Director of Culebra’s Conservation and Development Authority (CCDA). He insisted that he proposed the Canal Luis Peña area (where the MPA is located) because the location is easy to patrol and enforce, and it is ecologically sound since it homes a wide variety of coral reefs.

Mr Peña’s account contests that of former city mayor Don Taso. Both men claim the authorship of the project. However, Don Taso mentioned that although it was his idea, it was a collective effort between him and his fellow fishermen. Peña disagrees with this as well; he claims that “the fishermen were against the MPA until the end, now that it has become a reality, they are called the proponents, which is far from the true. We had numerous educational meetings for the purpose of educating the citizens, we taught them the importance of preserving an area for future generations, basically we convinced the people.” So, according to the city
mayor, the fishermen were against the creation of the MPA. This story is partially aligned with Don Hector who said that originally the fishermen showed some resistance to the project. However, Hector explained that they understood that the idea was good and thus they supported it. While, on the other hand, city mayor Abraham Peña stated that the fishermen were always against the MPA and that they only supported the project after its implementation and after experiencing its positive results.

The Experts

I am including the experts in a separate section although in appearance experts seem to be part of the officialism. Since most of the environmental management decisions are expert-led, and since scientific knowledge outweighs primary stakeholders’ knowledge, experts play a dominant role in policy making. It can be argued that, in the environmental management arena, experts’ knowledge shapes (and its shape by) the normative. However, the fact that the experts involved in the shaping and scientific knowledge creation regarding the MPA are in disagreement with how the agencies have dealt with it, they can be considered as dissidents. Two prominent figures from the scientific community played a predominant role in the early stages of the MPA, and, to some extent, they are still involved in it, but they have positioned themselves on the boundaries of the MPA politics. After the DENR took control over the MPA (that is, once the consultation process was over), those providing the expertise felt unhappy with the actions of the agency. Disruption of citizens’ involvement, unilateral changes in the size of the MPA, allegations of DENR employees poaching the MPA, and enforcing laxness made them distance themselves from the official actors in the project.

The experts I am referring to in this particular case study figure in the official documents and are categorised as ‘sectors of the academia and NGOs’. A predominant actor in this group is Dr. Edwin Hernandez, a marine biologist who specialises in coral reef ecology. Hernandez has been doing research in the area under consideration for more than a decade. During my ethnography in Culebra, he visited the island twice with a group of students to perform water quality tests and reef monitoring. Although we had some informal conversations during my stay
in Culebra, the tightness of his work schedule forced me to interview him at his office in the Biology Department at the University of Puerto Rico.

According to Hernandez, the MPA was an idea of the commercial fishermen. He categorised the creation of the MPA as “community action”. Hernandez claims that after the US Navy left Culebra Island, around the 80s, the FAC, “without access to scientific literature”, came up with the idea of closing marine areas from human activities in an attempt to rehabilitate their fishing grounds. However, at that point, the FAC’s idea was not taken seriously by the government nor the environmental agencies, which Hernandez relates to the fact that during the 80s MPAs were not popular management strategies. It is not until the mid-90s that the MPA gets some attention from the DENR, but there was no scientific data on the marine ecology of the area under discussion. This is when Hernandez gets into the MPA’s management process. He happened to be doing research since 1994 in the area where the MPA is today. His research included measurement of coral reefs growth and fauna census. The fact that Hernandez was the warden of the available scientific knowledge about the MPA area made him one of the main actors during the consultation process. Hernandez insists that, when he got involved in the process, there was a consensus among the fishermen about the need to protect the marine resource through the creation of a ‘no-take zone’. He even mentioned that the closure of nine areas was one of the considered proposals, an idea that the DENR immediately discarded due to the agency’s incapacity to manage such a vast area. When I enquired Hernandez about who were those fishermen present in the consultation process, he mentioned “the old fishermen” alluding to what I have called emeritus fishermen. Only one of the fishermen mentioned as part of the consultation process is an active irregular fisherman today. This event seems to be common along all consultation processes on marine resource management. The question of how representative are the spokespersons involved is certainly valid in most participatory approaches, and Culebra’s MPA creation is no exception. Hernandez is positive that the fishermen were part of the process. It can be argued that the process was definitively more inclusive and participatory than the usual top-down fashion existing in the fisheries management in general. However, it would be a long stretch that those actually going out to fish and complementing their incomes with the sea harvest were the ones proposing the MPA is a long walk. Keeping in mind that the President of the FAC during that period stated that the fishermen showed some initial resistance to the MPA creation, makes it look as a case of scientific/conservationist’ views looking for
support on a sector within those called ‘primary stakeholders’ to validate a marine management measure by making it look ‘socially sound’.

Hernandez was emphatic about how the DNER and Culebra’s Municipal Government disrupted what in principle was a collaborative effort between the agency, Culebra’s Municipal Government, the CCDA, and the FAC. Hernandez said that he was in charge of the ecological monitoring of the MPA and that, without previous notice and unilaterally, he was cut off the project by Culebra’s city mayor, and afterwards, the funding for his monitoring was cut off. These actions pushed him officially out of the project and the technical research and the monitoring of the MPA was taken up by Technical Services (Servicios Técnicos), a company that was providing different services to the Municipality. Hernández argued that his removal from the project was one of the first violations to the ‘collaborative’ spirit of the incipient MPA since it was agreed that decisions were taken between all those involved (Municipality, CCDA, CFA, and the DNER), but his redundancy was a unilateral decision made by the city mayor. Hernandez believes that the MPA was a laudable community effort that was co-opted by the DNER and the government. He said that, based on his ecological research, the MPA was “biologically sustainable while it was socially sustainable”. He adduces that, while collaboration was in place, the people complained with the MPA and this translated into a healthy MPA. But, on the other hand, when the agencies started violating peoples’ trust, the primary stakeholders lost their love for the project. Poaching done by DNER officials, selective enforcement of environmental laws, and abandonment of the participatory approach lead to “the revival of the Tragedy of the Commons” Hernandez stated.

Another actor to be analysed here is the NGO Coralations which played a significant role in the MPAs early days. This NGO, which is composed of only one person, main objective is to preserve the coral reefs in the Culebra region. Lucking, just as Hernandez, with whom she collaborates in marine ecology research of Culebra’s waters and in the creation of artificial coral reefs, strongly believes that the MPA came from the “local people”. This point was made clear in the posters posted in strategic places such as the gas station where recreational boats fuel their boats (and where the desert FAC building is), the ferry boats, and the boarders of the MPA. The poster, made by Coralations, states that the MPA was proposed by the fishermen. In this regard, Lucking said that “the poster had to be enforcement driven; it also had to be pungent about the
fishing prohibition, but at the same time, it had to make it clear that the voice came from the local people, from the fishermen.” The poster reads like this:

MARINE PROTECTED AREA ---ALL FISHING PROHIBITED

The Canal Luis Pena Natural Reserve was proposed by the Fishermen Association of Culebra to replenish local fish stocks and protect coral reefs. This is the first NO TAKE MARINE PROTECTED AREA designated in Puerto Rico. The health of our coral reefs directly depends on strong reef fish populations. Similarly, fish and other animals such as lobster and shellfish depend on the health of their coral reefs. The livelihood and culture of the people of Culebra depend on healthy coral reefs. The people of Culebra thank you for helping to conserve their natural heritage by respecting this reserve area.

ALL OF THE DIVERSE FLORA AND FAUNA FOUND INSIDE THE NATURAL RESERVE ARE PROTECTED FROM REMOVAL BY LAW.

Indeed, although being enforcement driven, the poster is very suggestive in terms of how the Culebrenses feel about the MPA and about the Culebrenses’ identity. The idea of the coral reefs being part of the livelihood and culture of the Culebrenses is sustainable. Culebrenses express a deep attachment with the marine environment, and they understand that keeping a pristine environment is a big part of their touristic offer, which plays a substantial role in the islands’ economy.

The Citizens

In an attempt to dissipate the Rashomon mist surrounding the MPA, I did a random survey to collect the feelings and memories of ‘the citizens’. The design of the survey was very simple and short consisting of only nine questions. The sample selection was random; I wanted to survey the ideas of citizens who were not directly involved in the marine management process. Basically, the survey’s target was those not considered as stakeholders.

I did the survey in two sections. The first one was done in the early morning in one of the two bakeries available in Culebra. The reason for choosing this location is that most of the locals go to get fresh pan criollo (Puerto Rican style baguette) for breakfast. The second section of the
survey was done in the centre of town. In total, 44 people agreed to take the survey. The results confirmed the data collected from interviews and informal conversations. 22.7 percent (10 out of 44) of those interviewed were non-residents, two of them were tourists from the USA while the remaining eight were Puerto Ricans visiting from the main island. The remaining 77.3 percent (34 out of 44) were residents of Culebra who have lived there from 15 to 71 years. Only one of the respondents has lived in Culebra for less than eight years (when the MPA was enacted).

When asked about having knowledge about the existence of a ‘no-take zone’ MPA, a revealing 95.5 percent (42 interviewees) responded that they were aware of the MPA existence while the remaining 4.5 percent (two interviewees) responded not having knowledge about the MPA. The latter were Puerto Ricans visiting the island. The two tourists from the USA had knowledge about its existence. Out of those 42 people aware of the MPA, 100 percent responded that they support it. Even those tourists who were visiting for a short period of time, including those from the United States, were emphatic about the importance of preserving the ‘natural status’ of the island. The answer among Culebra’s residents was emphatically affirmative, followed by their ideas of Culebra being a natural reserve in itself.

When asked about how they felt about the MPA and if they support it, 100 percent of them (excluding the two who did not know about it) said to be supportive. The Culebra residents showed not only support, but also pride in it. They even said they believed in creating new protected areas and natural reserves, both marine and land based. A commonality among those living in Culebra seems to be that the whole island is a flora and fauna ‘sanctuary’. However, when it came to the events on the creation of the MPA and their memories about the citizens’ participation process, the consensus was not as impressive. 32 people (Culebra’s residents) answered the question on participation; the remaining 10 (non-residents) said they did not have enough information to answer the question due to lack of knowledge of on the processes that led to the MPA creation. 62.5 percent (20 out of 32) said that the residents were involved in the process, 25 percent (8 out of 32) said that there was no participation, and 12.5 percent (4 out of 32) answered that they did not know.

Those claiming that citizen participation did take place referred to it as consultation process and mentioned public hearings as the consultation forum. They said that the Culebrenses, having a ‘higher environmental consciousness’ than the rest of the Puerto Ricans, welcome and
get involved in projects like the MPA since they want to preserve Culebra. Those who said that there was no participation argued that the MPA was imposed ‘from above’, meaning from the government and the agencies. They added, however, that in spite the imposition, the MPA was aligned with the Culebrenses’ environmental ideas, so in the end it all worked out without major incidents.

The survey showed consensus regarding the Culebrenses’ knowledge and support of the MPA. In fact, most of the interviewees expressed being proud about the existence of this Marine Reserve and were inclined to support the creation of more areas like it. And although the vast majority of them (62.5 percent) said that there was a consultation process, a small but significant group (12.5 percent) said that it was imposed from ‘above’. The importance of such a small group derives from the fact that, when it came to knowledge and support, the respondents answered in a categorical 100% affirmative. Thus, despite the fact that 12.5% of the interviewees said that the MPA was imposed and that there was no participation, the fact that the universe of those interviewed was supportive of such environmental management explains the relative ease of the MPA implementation when compared to the enactment of Puerto Rico’s fisheries regulations in general.

A second group to be analysed in this section is what was known as the Commission for the Touristic Development of Culebra (CTDC). The group was composed of collective of citizens who wanted to promote the development of Culebra and at the same time were concerned about marine resource degradation. According to Kike, a Culebra businessman, the MPA is the result of a collective effort with the CTDC and the Fishermen Association of Culebra (FA C) as pivotal actors. He argued that “we as simple citizens thought that we needed to protect the coasts in order to develop businesses related to the rich marine life of Culebra.” Kike said that the idea of creating an MPA was twofold: on the one hand, its creation would guarantee commercial fishermen with good landings; on the other hand, MPAs do serve as touristic attractions, which is the motor of Culebra’s economy.

Kike’s group can be classified as conservation/business oriented. Their idea about the MPA was more drastic, and, originally, they wanted to create a one mile ‘no-take zone’ all-around Culebra, arguing that commercial fishermen fish over one and half miles from shore. The CTDC idea was to develop the island as a sport fishing and scuba diving destination. His
thoughts on this were fuelled by an incident that happened years before the MPA’s creation. He remembered that during the 80s, a writer from Saltwater Sportsmen Magazine (one of the most recognised international fishing magazines), after fishing Culebra’s waters, wrote a four page article about sport fishing there. According to Kike, the island saw a flux of elite sport fishermen only a few months after the magazine hit the stands in the United States. However, those fishermen got to Culebra only to find that the island’s infrastructure could not fulfil their expectations. They were looking forward to finding fishing charters and tackle shops services which were (and still are) inexistent on the island. The fishing tourists could not reach the fishing grounds nor buy fishing flies or tackle. After those incidents, the initial fortuitous spark of a sport fishing industry died quickly, as he remembered, but that made him confident that Culebra’s commercial fishermen could diversify their aquatic ventures into the economic attractive sport fishing industry and scuba diving. However, not much has happened in that direction. He, as the vast majority of the Culebrenses, praises the existence of the MPA, but classifies its actual status as a ‘limbo’ because no community involvement has taken place and because its economic potential has have not been exploited. Seeing the MPA in a ‘limbo’ is common among the Culebrenses who think that enforcement and education are precarious and that their its potential is still to be seen.

In this section, I have presented the views of different groups that, although they are in agreement with the benefits of the MPA, they disagree on the events and actors responsible for its creation. The presence of multiple ideas of how it happened, and who made it happen, is what I have described as a Rashomon effect upon informants. I have proposed to let the informants narratives flourish with the least intervention possible, since the multiplicity and diversity of voices is a rich phenomenon in itself. Far from attempting to find the truth, as if there was one, presenting the conflicting stories without too much filtering is of more value as it shows the existence of what Kaplan (2002) has called “many paths to partial truths”.

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Conclusion

This research project is the product of my own personal and academic interest in understanding the dynamics of fisheries in Puerto Rico. The topic has been a constant in my life; thus, in some sense the analytical process has been simultaneously anthropological and introspective. Having participated in the field in diverse ways for a long period of time prior to this research I felt the need to conduct an enquiry on the encounters and avoidances of the different actors involved. Although it is evident that the perceptions and world views of commercial fishermen, recreational fishermen, scientists, and those floating between these categories, are conflictive, it was surprising to me that their intersections were seen as unproblematic. The arena of environmental management is by necessity an uncommon ground where tensions and representations are the principal outcome. Little attention is placed on the apparent goal of conservation since management efforts get diluted in the processes of actors’ for space to manoeuvre. The proceedings, then, spend most of the energy in the creation of spokespersons, immutable objects, obligatory passage points, and boundary objects. In the search for stability of such mechanisms, the marine resource and its conservation fall a few steps in the priority list. In light of such tensions, the actors involved have found the so much desired stability (or at least the image of it) through the employment of ignorance. It is ignorance which has made possible that in such tempestuous interfaces the illusion of stability can endure.

I have paid special attention to the “encounters at the interface” (Long 1989) where social actors meet in the fisheries management arena. Long’s concept of social interface is useful for understanding those processes of negotiation between the actors involved in fisheries management. Norman Long describes social interfaces as social discontinuities that occur based on differences in knowledge, perspectives and objectives between different social actors. Long’s analysis refers mainly to development planning and policy making, especially when interventions are done by different actors at regional, national and international levels. Nonetheless, social interface works well to illustrate the convergence of different actors in the environmental management process. The metaphor of ‘encounters’ taking place at ‘interfaces’ is a good description of fisheries management, where diverse actors from diverse social groups meet. If we understand an interface as a common point or boundary between two subjects, it is
clear that fisheries management and its claims of participation can be described as such. Now, the interplay between ‘common point’ and ‘boundaries’ is important. The interface’s constant shifting nature between common points and boundary is of most relevance when talking about environmental management as a social interface. While it is a common ground, it is a boundary, it is an encounter point, but at the same time it keeps epistemic cultures separate. It is that distinction between the values, ideas, worldviews, knowledge, and access to power what is common between the actors. The border is the common ground. Environmental management and any participatory approaches that could adorn it are shared grounds, since after all, they operate as boundaries. In this sense, it can be argued that participatory approaches on environmental management are encounters happening at interfaces as much as they are ‘boundary objects’.

The idea of boundary objects was first proposed by Star and Griesemer in an attempt to understand how it is that diverse epistemic cultures cope with the central tension in science between “divergent viewpoints and the need for generalizable findings” (1989: 387). Science production, they argue, entails a wide variety of actors and of viewpoints. In order to achieve the needed stability (or at least an image of stability), for science to be consistent through different ‘communities of practice’, a number of artefacts are needed to keep the actors bound. Those artefacts need to be durable, yet plastic enough to be adaptable to divergent viewpoints.

Green applies Star and Griesemer’s concept to her analysis of participatory approaches in Tanzania’s development planning. Green states that the rhetoric of participation has several representational effects which are comparable to my own analysis of the outcomes of participation discourses on fisheries management in Puerto Rico. Among those representational effects described by Green, these two are of particular relevance for this study: 1) the “impression of community engagement…which delineate the relation of local communities as villages to higher ties of government” and 2) “the association of communities with poverty and hence with constrains on national development.” (2010: 1243)

I have stressed throughout this dissertation that participatory approaches have the immediate effect of creating the illusion of fishing communities’ engagement with fisheries management and marine resource conservation. In chapter 4, I included a translation of Law 278 which supports fishing regulations. The rhetoric of fishing communities recognising the need of “new strategies for the better use, management, and conservation of fisheries resources” seems a
far cry from my field work experience. However, the discourse does help in creating an impression of community engagement. The same document also states that the fishermen believe that their relationship with the DNER should be one of cooperation. The consolidation of the relations between local fishing communities and the state’s institutions seems to be carved in stone according to this.

I have also emphasised the fact that discourses of fisheries management in Puerto Rico creates a representation of commercial fishermen as troublesome agents in fisheries conservation. Just like the association of Tanzania’s communities with poverty, and therefore with constrains to development, the fishing communities are associated with environmental degradation and hence portrayed as a limitation to fisheries conservation. I have demonstrated that the rhetoric of fisheries management in Puerto Rico overemphasises on fishing activity as the environmental problem while it disregards environmental issues related with coastal development. The discourse, similar to the one in Tanzania, relates fishing communities with poverty and, given these material constraints, the helpless fishing communities are doomed to overexploit the resource. Puerto Rico’s discourse on fisheries management brings to mind Hardin’s (1968) classic The Tragedy of the Commons. I have also made clear that such institutional stance is easy to understand when the gap of economic significance of the competing activities is contrasted. Fishing is a very important activity only at very local levels, while coastal development, in the form of vacation apartments, hotels and recreational tourism is promoted as a major national economic activity. Furthermore, the same state agencies creating the fishing regulations have signed the permits for construction projects in critical coastal areas and buffer zones. When looked closely, it becomes evident that institutions’ discourses and actions are equally inconsistent when it comes to environmental conservation discourses and actions. While the local government shows diligence in regulating fishing activity, it shows laxness in regulating other coastal activities.

It has been my contention that government coastal development planning has a direct impact on the articulation of discourses about fisheries management and stakeholder’s participation praxis. I have placed most importance in the interconnections between coastal development, tourism, gentrification and sanitisation with participation on fisheries management. I have argued that since the state’s interests on the coast go hand in hand with coastal
recreational tourism, fishing communities are seen as an obstacle to economic development. I have made the distinction that in Puerto Rico historical and social tourism is almost non-existent. Places like Scotland benefit from a substantial number of tourists that seek an ‘authentic experience’ in a fishing village (Nadel-Kelin 2003). This type of tourism, although subject to gentrification due to city dwellers acquiring houses in the villages, lets the continuation of the fishing communities, at least in appearance. In Puerto Rico, where the tourism industry is characterised by ‘mass tourism’ and ‘beach sun and sex’, limited benefits reach local low-income communities. I have noted that the strategy when it comes to coastal communities can be described as sanitisation. Gentrification takes its most dramatic form in these situations. I have used the term sanitisation to refer to the act of relocating a whole community clearing down all structures and building from scratch. Then, the process of gentrification here means the total extinction of fishing communities. The term sanitisation also makes reference to ideas about what these communities entail. Historically, Puerto Rico’s government has depicted fishing communities as ‘unhealthy’, ‘unsafe’, ‘dirty’ and ‘pestilent’ in both physical and social terms (Brusi-Gil 2008; Valdes Pizzini 2001).

After having exposed the state’s economic interests upon coastal resources, I did not find it surprising that the outcomes of participatory approaches, instead of creating common areas of exchange and dialogue, become mechanisms through which the government perpetuates the hierarchy over local organisations. I have provided punctual examples of how it is that participation becomes an artefact which solidifies hierarchies by not recognising local organisations. I documented how those participating in the DNER Advisory Panel were not recognised as representative spokespersons by any of the fishing community leaders. The advisory panel did not have representation of the grassroots organisation FEPDEMAR which was created by commercial fishermen in an attempt to unify the fishing communities. FEPDEMAR, being composed of over 100 fishermen from all over the island, is, without doubt, the most representative group of the fishing communities. Not having a single delegate of FEPDEMAR in what is supposed to be the foremost participatory approach in Puerto Rico’s fisheries management doesn’t need further explanations.

In this light, it is necessary to question if the spokespersons taking part in the participation processes are representative. Furthermore, I have questioned if any of the
spokespersons are representative of the whole spectrum of actors involved in Puerto Rico’s fisheries. By doing this I have attempted to commit to the concept of ‘generalised symmetry’ (Callon 1986). If the representativeness of fishermen’s spokespersons is questionable, it is necessary to scrutinise the remaining spokespersons under the same lens. I have provided examples of how it is that fisheries science ‘experts’ may not represent the divergent views regarding the resource and the different management approaches they imply. I explained the two principal scientific standpoints to fisheries conservation: Fish Stock Assessment (FSA) and Marine Ecological Management (MEM), and their different approaches towards understanding marine ecology. I have showed that fisheries management institutions have been inclined towards FSA due to its ease of implementation. However, I have made it clear as well that MEM is a more comprehensive approach that considers factors outside the single species to be managed. The consolidation of the experts, who become spokespersons of the fisheries scientists, have muted the voices of those who are not in accordance with the FSA approach. There is a popular belief, among non-scientists involved in fisheries, that institutionalised fisheries’ scientific ideas are monolithic and universal. I have suggested in chapter 4 that those ideas about the fisheries resource have not been exempted from contestation. However, the appearance of consensus has survived in the eyes of those watching. In this respect, the fisheries scientific knowledge has achieved a good deal of ‘immutable mobility’.

Following Callon’s idea of generalised symmetry, I have also questioned the representativeness of an unusual, but central, spokesperson: the fish. I have documented how it is that fish presences (and absences) are manipulated through a long chain of representations. I have vastly showed with ethnographic data the abundance of appropriations and reinterpretations done by a number of different actors. These marine animals suffer a long list of transformations before they reach their status of spokespersons. Indeed, those transformations are a prerequisite to become spokespersons in the form of the Laboratory of Fisheries’ Annual Report. The document becomes the representation of Puerto Rico’s fish stocks. Those scientists involved in fisheries management make reference to the document as a reflection of the fish; those fish documented (and translated) in the Annual Report are, as I have shown, a distant representation of the actual fish stocks. Just like those few scallops’ larvae at St Briecs that got anchored to the collectors became the official representatives of the uncountable scallops that escaped from captivity (Callon 1986), the fish landed by Puerto Rico’s fishermen become the ‘official
representatives’ of an unknown number of fish lurking the ocean bottom. Even worse, in the Puerto Rican case, as I have shown, those captured fish suffered from a number of reinterpretations by different actors, which means that they are not representative of the fish swimming free in the ocean, nor of those that were actually landed. In sum, the natural commodity that is the centre of this discussion has also been misrepresented.

But how is it that despite the aforementioned misrepresentations, the fisheries’ apparatus endures as many translations and yet keeps its status? When scrutinised as a whole, it is evident that ‘boundary objects’ are weakly structured, but they become “strongly structured when in individual-site use (Star and Griesemer 1989: 393). When the weak and mutable pieces that compose fisheries science reach the laboratory, they achieve a stronger structure and their ‘immutability’ strengthens as well. The fisheries’ management institutions, through scientific documents, regulations, legal documents and the definition of the actors, have claimed a central position within the fisheries’ network. It has solidified itself as the custodian of the fisheries’ (social and bio-physical) knowledge and it has ‘become indispensable’ since the interests of the actors lie in complying with the proposed plans. As I mentioned in chapter 4, the management institution has defined and fixed the identities and interest of the actors. First, the fishermen’s economic constraints leave them with no options other than overexploit the resource. If they want to survive the ‘fish stock crisis’, they need to follow the regulations that management institutions have created for sustainable fishing. Second, the fragile fish populations are near a total collapse due to fishermen’s unsustainable practices. If the fish want to survive, those regulations must be observed. And third, the state’s fisheries scientists own the ultimate knowledge, the expertise and technology to decipher the status of fisheries. The previous actors need to follow them if they want to subsist. In this scenario, it is obvious that fisheries management institutions have become an ‘obligatory passage point’ through which the wellbeing of the actors can be possible and where they should rest their faith. In Star and Griesemer’s words, they have become the ‘gatekeepers’. As gatekeepers, they are the ones who have the authority to name the actors, elicit their cooperation and grant those few chosen with the honour to participate in a process that ironically underlies an economic constraint to the livelihood of the fishermen.
Those effects (representations, definition of the actors, and obligatory passage points) are not free of contestation. In every possible forum, commercial fishermen deny those ideas that portray them as helpless resource-dependent communities that, based on their social and economic constraints, are doomed to deplete the oceans. Any audience willing to listen will receive the message that participation is unreal and resource management a means to higher interests. But in the face of unequal access to power, ignorance has become a useful tool. Ignorance has been used at the institutional level as well to give the illusion of stability to a system that, as we have seen, is unstable. Therefore, it can easily be argued that the institutionalisation of ignorance is fundamental and is what gives stamina to Puerto Rico’s fisheries management. I have borrowed the concept of ignorance as proposed by Hobart (1993) and Quarles van Ufford (1993). Ignorance does not mean only “to not know”; it also suggests an attempt to dissemble social systems (Hobart 1993: 19). In Puerto Rico’s fisheries scenario, ignorance relates to mindful strategies by which two conflicting social systems avoid each other. It can be argued that Puerto Rico’s fisheries management encounters are articulated within power relations while the avoidances are mediated possible by intentional ignorance. I have provided many examples of how the perpetuation of both social groups’ practices are made possible by mutual ignorance. Lack of enforcement, inefficient forms of communication, not obeying the regulations, disregard for local organisations, interdefinition and de-problematisation of the actors are just some examples of how ignorance takes shape.

In contrast to how it is that fisheries science organises and constructs its knowledge, I focus in chapter 6, Fishers Knowledge and Practice, on trying to unpack the commercial fishermen’s views and knowledge about the sea and its marine resource. An important contribution of this section is that of exploring non institutional forms of environmental management as understood by resource users themselves. In this chapter I documented forms of social and natural management that the fishermen recognise. The weather, Moon cycles, the small-scale and local market nature of the industry, the relatively low demand for sea food products, the fishermen’s ethics, and the occupational multiplicity of the fishermen are seen, by those who fish commercially, as non-institutional forms of environmental management. The importance of having documented the fishermen’s ideas of non-institutional fisheries management is multiple. First, it opens for consideration what are the real implications of such natural and social mechanisms in terms of Puerto Rico’s fisheries being auto-regulated and
perhaps an autarkical system. Second, acknowledging such non-institutional management mechanisms adds to the fishermen’s sense of over-management. I have explained the coexistence of federal and local fisheries management and the fishermen’s discontent with what they consider to be a meta-bureaucratization of fisheries activity. Third, these ideas of local mechanisms that interact with them contributes to the fishing community’s identity in the sense that they, as fishermen, understand those mechanisms as other social/natural elements that are part of the daily affairs and struggles of which they are part. Just as dealing with the rough seas, or with pejes malos, or feeding Jaime are part of that fishing identity, coping with local natural and social constraints is articulated in what it means to be a member of a fishing community.

Lastly, I devoted the first two chapters of this dissertation to the description of the fishermen and of their fishing communities. My interest in the field has lured me to put emphasis on descriptive accounts of how it is, and why, that commercial fishermen do what they do. The purpose of this descriptive narrative is twofold. On the one hand, it helps those unfamiliar with the topic to understand what it means to be a commercial fishermen and how fishing communities operate. On the other hand, it should contribute to the understanding of a social group that with counted but important exceptions (Griffith and Valdes Pizzini 2002; Perez 2005; Garcia Quijano 2007) has been overlooked in Puerto Rico. Although it is near to impossible to agglutinate the eclectic set of practices, beliefs, and perceptions of such a diverse and resilient group, I have tried my best to provide with the closest description of what I observed and experienced during (and before) the ethnography. It is my perception that most of the ideas and accounts about fishers are surrounded by either an aura of folklore and idealism, or, by dark and pessimistic notions. Somewhere between these two notions a more representative description of the fishermen can be found; it has been my intention to achieve this.

As part of this detailed description of the fishermen and their fishing activities, I have suggested five types of fishermen (i.e. constant fishermen, irregular fishermen, casual fishermen, subsistence fishermen, and emeritus fishermen). The categories of the commercial fishermen that I have proposed, far from being a contribution to the long list of imposed typologies, is an attempt to better conceptualise them based on how they self-identify and how they interact with the resource. I have proposed these categories in opposition to those used by the management agencies (i.e. full-time commercial, part-time commercial and beginner). It is my contention that
the categories derived from this study better represent the commercial fishermen since they take into consideration social and cultural elements, whereas those used by the agencies are exclusively based on income and in complete disregard to aspects that are crucial for the fishermen.

Another important contribution in this section is the description of the fishermen’s relation with animals. For the first time, attention was placed on animal classifications inside a commercial fishing group in Puerto Rico. Making reference to Morris (1998), Ingold (1987, 1984) and particularly Theodossopoulos (2003) I demonstrate how the fishermen conceptualise animals. Although mainly utilitarian and anthropocentric in their approach, I provided material that also shows a great component of a sense of kinship and empathy towards marine life. I have argued that the relations and ideas about animals surpass the strict concept of their usefulness. In Theodossopoulos’ words it “extends beyond the narrow conceptual calculation of its material value” (Theodossopoulos 2003: 165). It needs to be noted that all human societies have multiple, diverse and even contradictory attitudes towards animals (Morris 1998) and the fishermen are no exception. I have also made clear the important distinction between societies that are strongly inclined towards agriculture and animal husbandry vis à vis those that fish or hunt. Societies that have an important component of animal husbandry and agriculture seek order and control of the natural world. On the other hand, fishing communities are surrounded by a higher degree of uncertainty and therefore exhibit probabilistic views about nature and more ‘egalitarian’ attitudes towards animals.

In sum, I have focused in this dissertation on the encounters and avoidances in Puerto Rico’s fisheries management; and on how the intersections between the different stakeholders, have developed into a tokenistic participation process. I have showed that tension created by the differences in goals and perceptions between the various actors have resulted in two mechanisms that made possible the endurance of the fisheries management apparatus: the institutionalization of ignorance and the use of participation as a boundary object. As part of this dissertation, I have reviewed widespread ideas about small-scale fisheries and the fishermen that were in need of problematisation. Concepts such as fishing community, fishing village and fishermen have been revised in this thesis, as well as their connotations at local, regional and national levels. As well,
the interactions between these concepts and other concepts like development, gentrification, the natural environment and science have been explored.

**Final comments and future research**

An inclination towards overemphasising the commercial sector has been a tendency in all anthropological studies about fisheries; I have to admit being guilty of it also, at least to some extent. However, I see this tendency in fisheries’ studies, more than as a flaw, as an incentive to pursue new research topics that are still in need of being explored. Anthropological research focusing on the recreational sector should be done to complement the more extensively available studies on commercial fishing. In this study I touched on the topic in relation to the interplay of leisure and work, but the recreational sector deserves to be developed further in future research. Another topic that needs to be researched further is that of how fisheries’ scientists gain their knowledge. Certainly, I devoted chapter 4 to this topic, but the bulk of my analysis revolves around ethnographic material from the data’s transformation before it gets to the scientist’s office. Although I do work the translations taking place at the office, to make the ‘mutable’ ‘immutable’, this is based on scientific documents, not on ethnographic research. It will be auspicious to follow the fisheries scientists, à la Bruno Latour and Steve Woolgar in Laboratory Life (1979). It will also be of importance to pay attention and dedicate a study to subsistence fishing. This group has been mostly overviewed by agencies and scholars alike, especially when the studies take place in places that are not considered as ‘developing countries’. The apparent invisibility of subsistence fishermen in the so-called ‘developed world’ is an interesting phenomenon in itself, deserving a study which may shed light on how ideas about development interact with the conceptualization of natural resources use. Not to mention that their practices should be of interest to those concerned with conservation. To finish these reflections on the areas related to this study that are waiting to be researched and expanded, I need to mention the roles of women in Puerto Rico’s fishing communities. This topic has been largely neglected from the studies of fishing communities. Some studies have broken with this tendency (Busby 2000; Thompson 1985), but androcentrism still dominates anthropological studies of fishing communities.
It would be impossible to compress all of the research angles mentioned above in a single study. It is my contention that acknowledging them is enough for the purpose of this study. By briefly proposing how they relate to this thesis, a plethora of new research ideas rapidly flourish, but they will need to be addressed in future research.
Appendices

1. Map of Fajardo, Puerto Rico
2. Map of Maternillo and Mansion del Sapo
3. National Geographic Image of a Puerto Rico’s Fishermen

A MORNING’S CATCH: PORTO RICO

4. *Yolas* at the Fajardo River in Maternillo
5. *Pescadería El Relincho*
6. Banner against Recreational Boat Marina’s Constructions
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Maps