Exploring governance in Galapagos Marine Reserve

By

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Abstract

The image of Galapagos has been communicated by the conservation rhetoric as the paradisiacal and pristine destination for tourism and science in the last decades. This discourse has served to motivate, convince, and persuade audiences about why and how Galapagos Marine Reserve (GMR) has been a positive outcome in marine conservation. However, the role of humans in the GMR agency has intentionally been left unnoticed, disregarding its influence in the GMR governability.

In recent years, the visibility of the human element in the GMR management has been raised by developing more social-science-based research, mainly linked to economic assessments. Although these initiatives have brought positive outcomes for local interest groups, in many cases, this research-transition has proven to be insufficient to address (and solve) the challenges in GMR governance. Consequently, the ruling bodies' and interest groups' frustration, and the natural environment's degradation have deteriorated the mutual interactions, compromising the MPA long-term viability.

Generally, the success or failure of the Marine Protected Areas (MPAs) is attributed to the governance model placed to govern it. In GMR, the challenges to its governance have remained unsolved along the years as issues linked to current events, when in reality, GMR success or failure was incubated even before the reserve was created. In fact, its current condition has been endorsed to the co-governance mode, to the availability of funds, to the fulfillment of regulations, and to the enforcement of law. This idea has disregarded the relevance of the institutional structure, the interactions

between interest groups, the meta-governance elements (e.g., images of users), and their attitudes toward the area governance.

This dissertation recognizes that alternative perspectives and instruments to look at this MPA agency are needed and argues that a shift from the managerial framework towards a governance paradigm to rule the GMR is urged in order to addresses high complex, diverse, and dynamic governance issues occurring at multiple scales. This thesis is inspired by the interactive governance theory and the governability notion, both of which highlight the importance of the three governance dimensions (i.e., first, second-, and third-order governance) and their mutual linkages, in addressing conflicts and suggesting alternatives. Here it is argued that the horizontal model of governance (or co-management) used in GMR has extensively been promoted as the solution for problems with marine resources, MPAs, and fisheries. However in reality, it is shown that it has been far from being "the" example for marine conservation and the panacea to solve these challenges. Central questions arisen by this dissertation explore "how governable is GMR?", "what factors influence the quality of GRM governance?" and "what can be done to address the governability challenges?".

The usage of the interactive governance framework to tackle MPAs' matters in Ecuadorian context is novel. This constitutes the first research addressing GMR issues by relating the social and the natural systems with the system that governs them, and their mutual interactions. Human features (e.g., images, attitudes, and histories) emphasized within this theoretical and methodological framework greatly contributes to enhance the intellectual and scholarly debate about marine resources, purely tackled by a hard-core science approach, so far.

This thesis calls for further attention paid first, to the quality of governing interactions between the interest groups, and second, to the outsider elements of GMR. Additionally, this study suggest that higher emphasis must be applied to institutional assessments, including structures and processes, as a way to weight the users (e.g., fishers, tour operators, managers, scientists, and maritime transport companies) as active agents implementing changes. The conclusive thought highlights the relevance and central transformative role of the natural-, social-, and governing systems and their interactions as pieces influencing the governability gear assembly. Only recognizing it, the conservation rhetoric can be bridged to the action of natural and social wellbeing in Galapagos, towards the GMR sustainability.

Key words

Galapagos Marine Reserve, interactive governance, governability, Step Zero, small-scale fisheries, tourism.

Dedication

To my son, the June boy

Acknowledgments

This dissertation has been concluded as a shared vision: part a life dream, part an academic endeavor. I want to thank to my co-supervisors Dr. Ratana Chuenpagdee and Dr. Alistair Bath for their support, dedication, guidance, and patience to encourage my academic development. Thank you, Ratana, for helping me to put this work within a perspective. You are a wonderful mentor, and I am fortunate that I have been able to work with you: you have stretched my mind. I will always be grateful to you, Alistair, for bringing me to this place and opening this new world to me. I am sure that I never would have gotten to this point if you both hadn't had the confidence in me that I could do this. I also thank to Dr. Evan Edinger and Dr. Christophe Grenier, members of the Supervisory Committee, for their advice in this journey.

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Table of Contents

List of Tables

List of Figures

List of Abbreviations and Symbols

CDF	Charles Darwin Foundation
CDRS	Charles Darwin Research Station
FAO	Food and Agriculture Organization of the United Nations
GNP	Galapagos National Park
GNPS	Galapagos National Park Service
GMR	Galapagos Marine Reserve
GMRR	Galapagos Marine Resources Reserve (precursor of GMR)
IMA	Inter-institutional Management Authority
INEC	National Institute for Statistics and Census (Spanish acronym)
INEFAN	National Ecuadorian Institute of Forestry, Natural Areas & Wildlife (Spanish acronym)
INGALA	Galapagos National Institute (Spanish acronym)
INOCAR	Oceanography National Institute of the Ecuadorian Navy (Spanish acronym)
INP	National Fisheries Institute (Spanish acronym)
LOREG	Organic Law of Special Regime for the Conservation and Sustainable of the Galapagos Province (Spanish acronym)
MPA	Marine Protected Area
NGO	Non-governmental Organization
PMB	Participative Management Board
SRP	Subsecretary of Fisheries Resources (Spanish acronym)
UICN	Unión Internacional para la Conservación de la Naturaleza
UNESCO	United Nations Educational, Scientific, and Cultural Organization
WWF	World Wide Fund for Nature (previously World Wildlife Fund)

Glossary

Key terms in the development of this research are related to the activities within the sectors sampled. The explanation of those terms is relevant, because their definitions are not associated to the Galapagos context. Therefore, it is necessary to adjust them to the local situation. To ensure an accurate usage of those terms, a brief glossary has been prepared.

- Governance: two definitions are used,
The one coined by Bavinck et al. (2005, p.30)[1]:

"*Governance is the whole of public as well as private interactions that are initiated to solve societal problems and create societal opportunities. It includes the formulation and application of principles guiding those interactions and care for institutions that enable them*".

And the one provided by Graham et al (2003, p.2)[2]:

"*The interactions among structures, processes and traditions that determine how power is exercised, how decisions are taken on issues of public concern, and how citizens and other stakeholders have their say*."

- Small-scale fishery

According the Special Law for Galapagos (Fisheries section)[3]

"Small-scale fishing is the fishing activity destined to the catch, extract, and collect aquatic live resources. It must be executed by authorized small-scale fishers and registered, by the Galapagos National Park Service, by using authorized small-scale methods, modalities, fishing gears, and boats. Their produce is destined to the self consumption or commercial trade".

- Marine Protected Areas (Kelleher, 1999:xi)[4]

"*Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment*".

[1] Bavinck. M., Chuenpagdee, R., Diallo,M., van der Heijden,P., Kooiman,J., Mahon,R. and Williams,S. (2005). Interactive fisheries governance, Delft: Eburon Publishers.

[2]Graham, J., Amos, B. and T. Plumtre (2003) Governance principles for protected areas in the 21st century. A Working paper prepared by for the V World Parks Congress in Durban. Prepared by the Institute of Governance, Parks Canada Agency and the Canadian International Development Agency. Institute on Governance. Ottawa.

[3] Special Regulation for the Small-scale fishery activity in the Galapagos Marine Reserve.

[4] Kelleher, G. (1999). Guidelines for Marine Protected Areas. IUCN, Gland, Switzerland and Cambridge, UK. xxiv +107pp.

Co-authorship Statement

The candidate is the principal author of all chapters. **Chapters 2, 3,** and **4** share co-authorship with one of the co-supervisors (Dr. Ratana Chuenpagdee), whereas **Chapter 5** has shared co-authorship with the other co-supervisor (Dr. Alistair Bath). **Chapters 1** and **6** are authored by the candidate, solely. In addition, the candidate formulated research questions, conceived study design, collected and analyzed primary and secondary data, and prepared initial drafts. All these steps were guided by the co-supervisors and supported by the committee members. The preparation of final manuscripts incorporated critical input and editorial suggestions of the supervisors and the committee members while the candidate was mainly responsible for literature review, and revision of the manuscript in response to the reviewer´s comments.

List of Papers

This thesis is based on the following papers, which are referred to in the text as Chapters.

Chapter Two

Barragán, M.J. and Chuenpagdee, R.

Step Zero in Galapagos Marine Reserve: how has pre-implementation influenced the present and future of this MPA?

Target journal: Coastal Management.

Chapter Three

Barragán, M.J. and Chuenpagdee, R. (2014)

Governability Assessment of the Galapagos Marine Reserve.

Submitted to: Maritime Studies Journal, currently under revision.

Chapter Four

Barragán, M.J. and Chuenpagdee, R.

How is paradise imagined? Underlying images of users about Galapagos Marine Reserve.

Targeted journal: Ocean and Coastal Management.

Chapter Five

Barragán, M.J. and Bath, A.J.

Attitudes of Galapagos Marine Reserve Users.

Target journal: Journal of Outdoor Recreation and Tourism Management.

Chapter 1 Introduction

There is no research that falls within a social and historical vacuum, and research focused in Galapagos is no different. To the eyes of many in the world, this archipelago is in good condition, and represents what the western-minded society thinks is a wild and pristine paradise, synonymous with untouched nature and wilderness (Broadus, 1987; Diegues, 2005; Celata and Sanna, 2010; le Corre et al., 2011; Hennesy and McCleary, 2011). In some people's imagination, the Galapagos Islands are a place where science has its own "life laboratory"; it continues to be the pilgrimage destination for ecologists, natural historians and travelers interested in nature (Sauer, 1969: Honey, 2008; Hennesy and McCleary, 2011). To others, however, Galapagos represents a mass tourism destination, a place that more than 30,000 inhabitants (INEC, 2011) call "home," where traditions and culture are shared, and where the desire to sustain a mainland life style predominates, creating an ever increasing demand for goods and services. For some, the islands are damaged with too much impact from tourists, threatening to strip them of their UNESCO World Heritage Status. Galapagos is all of these things and more. For myself, an Ecuadorian interested in marine resource governance issues, Galapagos Marine Reserve (GMR) has been chosen as my study area to explore the complex interactions between people, and their relationship with this marine environment.

The archipelago was officially discovered in 1535, and is currently one of twenty-four Ecuadorian provinces, ruled separately by a special law (i.e., *Ley Orgánica de Régimen*

Especial para la Conservación y Uso Sustentable para la Provincia de Galápagos, LOREG[1] by its Spanish acronym). After tumultuous periods of political negligence and corruption until 2006, Ecuador has experienced a new political trend, enabling significant progress in poverty reduction during the last ten years (OECD, 2013a, b). This trend is seen through the improvement in the quality of life of the most deprived sectors of the population, which, in Escobar´s (2010) words, demonstrates an unprecedented "biocentric turn," in political, social, and economic features. This new model of development claims to favor solidarity over competition, and sustainability over economic growth (Lind, 2012), which fulfils the "*Buen Vivir*" (i.e., "*sumaq kawsay*" in Quichua or "living well" in English) principle that acts as the dominant philosophy of the existing governing mode.

Operating under this approach, the state has played a critical role as the main driving force for the social wellbeing achievement during the last decade in Ecuador, and Galapagos is no exception. With an average income nearly twice as high as on the mainland (Jones, 2013), the archipelago shows strong economic growth (Hoyman and McCall, 2013), as seen by rising investment in infrastructure, the proliferation of the service industry, and the blossoming of some productive sectors (e.g., building and transport).

Due to this development, the "paradise" for many is now under siege. While it is widely recognized that GMR was created as a technical fix to improve marine resource management by using a participative management model, it is also known that GMR is facing governance challenges. Perhaps, in the eyes of some sectors all is going well, but to others, management may have strayed too far from the aims that MPAs must target: wellbeing for nature and social elements. Therefore in order to document the nature of these challenges and find solutions, better understanding of the views of various sectors

[1] This legal body is currently under revision

within GMR is needed. For instance, the reasons for this MPA creation have not been discussed and have remained masked under conservation discourse against threats like the industrial fisheries. In reality, this objective was only one of several, like the development of tourism supported by the scientific sector (Camhi 1995, Oviedo 2000, Lucas et al., 2000, Ospina 2001, Celata and Sanna, 2012). The competing claims between GMR users and their perception of the threats have deeply influenced this MPA performance and have compromised its governance in the short and long-term. The dominance of knowledge about natural systems over the social features in GMR and their rapports are unevenly developed. These relationships are restricted and expressed mainly by law fulfillment, regulations imposition, violations prosecution, and social elements of the system. In that sense, managers have underestimated the importance of human dimensions, which remains the driving force for a successful MPA. Although studies in Galapagos have extensively examined physical-environmental issues (Banks, 2002, 2007, 2009; Banks et al., 2006; Bustamante et al., 2002; Edgar et al., 2004a,b, 2008; Vinueza *et al*., 2006;Cane, 1983) and socio-political aspects (McDonald, 1997; Ospina, 2001; Kerr, 2005; Heylings and Bravo, 2007; Viteri and Chávez, 2007; Epler, 2007; Grenier, 2007; Taylor et al., 2003, 2006, 2009), a broader understanding of the main issues in GMR from a resident's perspective is lacking. Rarely has a study deliberately tackled the multiple pieces of the puzzle as a comprehensive human-natural system examining aspects of human dimensions, governance, and the connections between institutions faced with working within the GMR. On the contrary, this dissertation research describes linkages between social-natural systems, based on the Interactive Governance framework (Kooiman et al., 2005; Bavinck et al., 2005; Kooiman et al., 2008; Chuenpagdee, 2011; Kooiman and Bavinck, 2013; Bavinck et al., 2013). It

investigates to what extent (how and where) the interactions between human and natural systems within an MPA context influence GMR governance.

Tackling issues and interactions between elements of the system in the GMR would be a daunting task. Therefore thresholds for this research were defined around geographic settings, variables, methods, and theory in order to clearly set the realms where this study falls. For example, geographically, the spatial context is restricted to only one of the four inhabited islands (i.e., Santa Cruz).The variables studied were selected items linked to human activities allowed by the LOREG within the GMR (i.e., tourism, small-scale fisheries, management, scientific research, and maritime transport) and directly connected to the marine resources use. A mixed methods approach was taken to collect data for this case study. While qualitative and quantitative data was collected through personal interviews, the intent was never to generalize populations but instead to explore themes and patterns of discourse suggested by various interest groups that are the key actors within the GMR system. Finally, the theoretical overarching foundation for this dissertation is informed by the Interactive Governance, which concisely illustrates different standpoints to tackle GMR governance issues.

Thesis scope, research questions, and dissertation outline

The superior aim of this dissertation is to enhance GMR governability, by improving its governance. This research intends to contribute to the scholarly and managerial debate by addressing the GMR governance through descriptive lenses about the story behind the GMR creation, the GMR systems, the users' images about the GMR, and the attitudes of users about GMR. By using this theoretical framework at these four instances, we suggest first, that early stages of MPAs creation greatly influence their current performance. This notion

emerges from one of Foucault´s (1988) ideas that "we need a historical consciousness about our current circumstances." Second, by applying the Interactive Governance approach we explore the GMR systems by describing the Governing System (GS), the System to be Governed (SG), and the Governing Interactions (GI) between and among them. This analytical framework utilizes four dimensions to describe the systems' quality: diversity, complexity, dynamics, and scale (Kooiman et al., 2005; Bavinck et al., 2005). Third, this analytical perspective suggests that images are the cornerstone of actions, which are at the first order of governance. Therefore, by illustrating the images of GMR users, appropriate actions, and consequently opportunities, can be better understood. Finally, by exploring perceptions and attitudes toward issues occurring in GMR, especially concerning small-scale fisheries and tourism, the users' interactions and responsiveness to regulations, management actions, and conflicts can be explored.

This dissertation suggests that an interest group's role is worthy of research attention, as it directly influences the quality of governance, and determines the level of governability that the systems enjoy. For that reason, by using a case study type of inquiry framed under a mixed methods approach, I explored some implications of the interactions between humans and environment illustrated within a GMR context.

Following a manuscript format, this thesis is divided into articles that each addresses one of the following objectives, linked to four research questions leading this inquiry.

How did GMR come to be? Objective 1: To describe what happened prior to GMR creation that may influence the current status of the MPA.

How does GRM work? Objective 2: To describe the GMR systems including the natural and social domains and the interactions between them and examine the effects that these features have on GMR governability.

How do people imagine GMR? Objective 3: To illustrate the images created about GMR and how they influence its sustainability future.

How do people connect to GMR? Objective 4: To explore interest group attitudes toward GMR, as an indication for future directions.

Organization of the dissertation

The dissertation contains four papers, in addition to the introduction and discussion chapters. The four papers (**Chapters 2 to 5**) tackle the issue of GMR governance and are integrated under the Interactive Governance framework as follows. Figure 1 illustrates the scope of each chapter and the relationship between them.

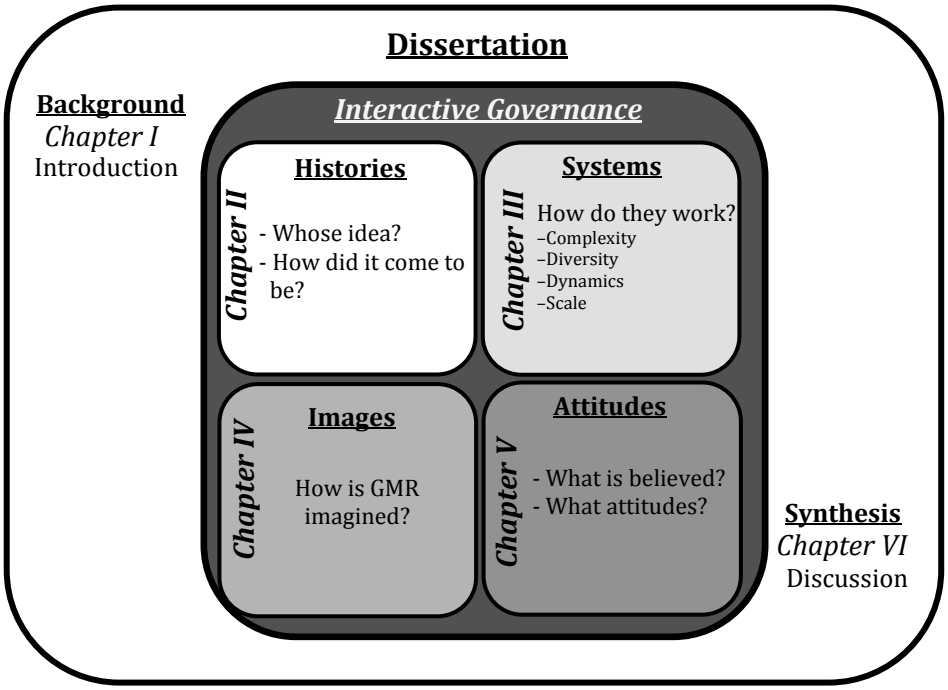

Figure 1. Study context, thesis structure, and paper outline.

Chapter 1

Introduction

In the introduction, the overarching context of the dissertation through the problem statement, the research relevance, its main contributions to the scholarly realm, and the general objectives underlying this endeavor are presented. It briefly explores the islands' geophysical, oceanographic, and biological features to situate the research area context geographically.

This section provides a general background for the reader who is unfamiliar with the Galapagos setting so to better understand the GMR systems. The introduction further describes the structure and composition of the dissertation.

Chapter 2

Step Zero in Galapagos Marine Reserve: how has pre-implementation influenced the present and future of this MPA?

Targeted journal: *Coastal Management*.

This paper addresses Objective 1 through the "*Step Zero*" (Chuenpagdee and Jentoft, 2007; Chuenpagdee et al., 2013) approach by illustrating the very early stages in the GMR conception, negotiation, and discussion.

Through this exploration, a better understanding of the current situation of the GMR is created by linking key events that occurred in the past to the current stage in GMR governance.

Chapter 3

Governability Assessment of the Galapagos Marine Reserve

Re-submitted to Journal of Maritime Studies, currently under review.

This paper focuses on the functioning of the GMR illustrating the systems' complexity, diversity, dynamics, and scale. This article deals with Objective 2 by exploring the GMR systematically, within the natural and social realms and their relationships through the description of the Governing System (GS), the System to be Governed (SG), and their correspondent interactions (GI). These characteristics are discussed in the context of governability, which is the overall quality of governance.

Chapter 4

How is paradise imagined? Underlying images of users about Galapagos Marine Reserve

Target journal: *Ocean and Coastal Management*

This paper tackles Objective 3 by exploring images as the core operational concept at meta-level governance. In this regard, we examined GMR images as ways to understand how users' imaginations about this MPA, based on their knowledge about it, influence its governability.

Chapter 5

Attitudes toward Galapagos Marine Reserve: insights from marine resource users´ perspective

Target Journal: *Journal of Outdoor Recreation and Tourism Management* (submitted and under review).

This paper uses a mixed methodology of quantitative and qualitative data to explore interest group attitudes toward GMR in the context of the main issues influencing GMR governance, thus addressing objective 4.

Chapter 6

Discussion

The final chapter highlights the key findings from each of the papers, sets the context of these findings amongst the literature, and provides direction for further research. There are challenges that lie ahead and the need for significant discussion amongst all interest groups about the roles of tourism and small-scale fisheries within the GMR. It might be time to stop focusing only on the small-scale fishery given some of the feelings from various respondents.

The study area

The Galapagos Islands are one of the most charismatic archipelagos in the world (Sullivan and Bustamante, 1999). Its fame is associated with the visit of Charles Darwin, and the launching of Evolution Theory based on Natural Selection (Darwin, 1859) after his visit to the archipelago in 1835. The brand "Galapagos" is also supported worldwide by its attractive geophysical and oceanographic features, and its remoteness and isolation that have determined its high levels of biological diversity and endemism (Olson and Dinerstein, 1998; Sullivan and Bustamante, 1999; Olson et al., 2002; Bensted-Smith et al., 2002; Edgar et al., 2004a), which attract several thousands of visitors per year.

Politically, the Galapagos archipelago is Ecuadorian territory and is constituted by 124 terrestrial emerged units, including 19 bigger islands and 107 islets and rocks which

represent a total area of *ca.* 8,000 km^2(PNG, 2006; Baine et al., 2007). Despite being one of the twenty-four Ecuadorian provinces, and being ratified as a Special Territory by the special law, the islands enjoy a different treatment from other Ecuadorian provinces and are ruled under a dissimilar administrative, legal, environmental, and political model. Compared to the legal instruments in force in mainland Ecuador, local regulations are based on special competences that authorities use to rule the Archipelago (Figure 2).

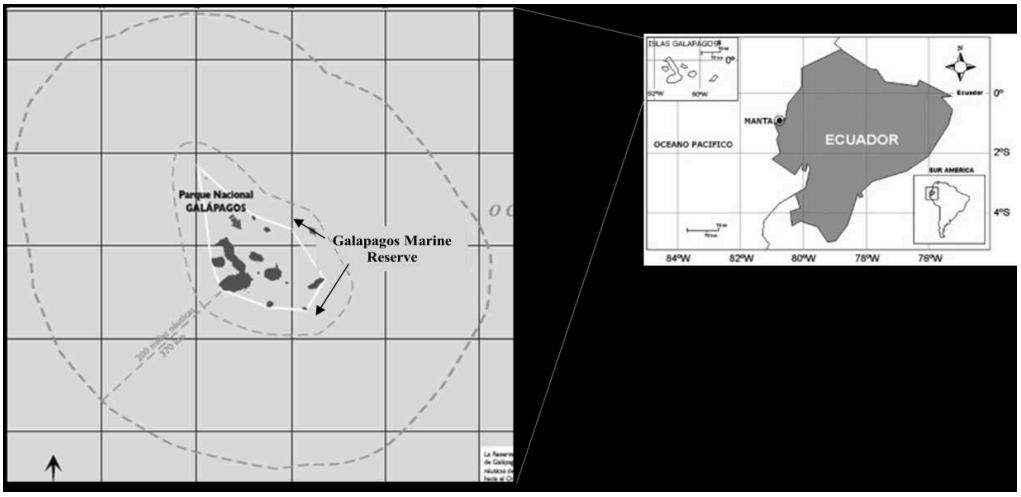

Figure 2. Archipelago of Galapagos (Modified from ECOLAP and MAE, 2007)

The flora and fauna of the archipelago have been under the scientific scope since the early 19th Century when the islands were targeted by intellectuals and naturalists to pursue scientific explorations. Three of the most prominent guests in Galapagos were Charles Darwin (1835), Luis Agassiz (1872), and Thomas Wolf (1875 and 1878), who came to Galapagos intrigued by academic inquiries (Latorre, 1999; Kasteleijn, 1987). Since the visit of these outstanding scholars, Galapagos has been widely and deeply investigated primarily regarding its natural and physical attributes.

The human presence in Galapagos and their interactions with the marine resources have not been addressed to the same degree. One possible explanation is the scientific effort

that has mainly had a positivist approach in the fields of inquiry (Santander et al., 2009). Another possible reason is argued to be that humans have been made invisible within the "authentic nature" package offered to tourists (Andrade et al., 2010; Cairns, 2011). Consequently, during the last two centuries, the Galapagos human societies have not achieved the fame that the flora and fauna populations enjoy.

In 1959, the Galapagos National Park was declared in 97% of the provincial territory (*i.e.,* 7,995.2 Km^2) (PNG, 2006). In 1986, the Galapagos Marine Resources Reserve (RRMG – its acronym in Spanish) was created as the protected marine section adjacent to the national park, including a water column and sub-tidal floors of 15 nautical miles off the coast (Baine et al., 2007).

Much has been written about the Galapagos natural world (Snell et al., 1996, Danulat and Edgar, 2002; Bustamante et al., 2002; Edgar et al., 2004a, 2004b, 2008). Therefore it becomes difficult to write something new about this archipelago in that realm. In the following section, I explore the most outstanding characteristics of the natural systems to provide a biophysical context for this project that has focused on understanding the role humans play in this complex and unique environment.

Geo-physical and oceanographic features

Galapagos Islands are an oceanic archipelago under continuous volcanic and seismic activity as a response to the west-east movements of the Nazca tectonic plate (Baine et al., 2007; UNEP, 2011). The islands are located on the Galapagos Platform, *ca.* 200 to 900 m. below sea level, surrounded by oceans 3,000 m. deep in average (Stewart, 2009), and *ca*. 1,000 Km. off Ecuador in the Pacific Ocean (89º14' - 92º00' W and 1º40' N -1º24' S) (PNG, 2006).

Geological evidence suggests that Galapagos is formed of volcanic deposits from eruptive processes causing the crust to melt in certain places and giving rise to volcanoes (Baine et al., 2007). Additionally, the Islands are thought to be "young," of *ca.* 60,000-5.6 million years (Baine et al., 2007; Castrejón, 2008) old. The youngest, more active islands (e.g., Fernandina *ca*. 60 – 300 thousand years old) and volcanoes (e.g. Fernandina, Wolf, and Cerro Azul) are located in the West (Geist, 1996); whereas the oldest and less active islands (i.e., San Cristobal and Española, *ca*. 2.8 – 5.6 millions of years old) are in the East (Danulat and Edgar, 2002; Castrejón, 2008).

Galapagos has a seasonal climate influenced by geo-biophysical characteristics and by the convergence of three major oceanic currents systems: the Peru Current (northern extension of the Humboldt Current), the Cromwell Current (Equatorial Undercurrent, EUC), and the Panama Current (extension of the North Equatorial Counter Current)(Sullivan and Bustamante, 1999; Baine et al., 2007; Xie, 2009; Stewart, 2009; Castrejón, 2011). These special geophysical features, oceanographic regimes, extreme isolation, and great range of temperature and nutrient regimes occurring within a small geographic area are responsible for the high density and endemism of marine species in Galapagos (Edgar et al., 2004a; Baine et al.,2007; UNEP, 2011).

Ecological features

Habitats

The Galapagos archipelago is a group oceanic islands, hence its habitats are described within two dimensions: terrestrial and marine. The marine environments of Galapagos are diverse due to the presence of nutrient rich upwelling zones, high primary productivity,

decreasing differential temperatures that facilitates the presence of diverse species, and a great range of habitats fostering endemic species (Hockins et al., 2012; Sullivan and Bustamante, 1999; Castrejón, 2011). Most relevant marine habitats in Galapagos are mangroves, coral reefs, hydrothermal caldera, macro algae *beds*, and rocky reefs of volcanic origin (the latter forming *ca.*80% of intertidal and sub-tidal habitats) (Banks, 2007).

Flora, fauna and endemism

Galapagos claims to foster a unique marine flora and fauna and to possess a high variety of species for an area of its size worldwide (Bustamante et al., 1999). Plant groups include 560 native plants of which approximately 33% are endemic, and approximately 50% threatened by extinction due to the introduction of alien species (Constant, 1999, 2009; GCT, 2013). At least 99% of the vascular plants in Galapagos are derived from the South American mainland with 1% from Mexico and Central America (Constant, 1999).

Social features

The social component is the main transforming agent in Galapagos. Despite recognition for many years that this human component is an important factor in GMR conservation, management and governance, and the role that humans play in the current and future status of the GMR is scarcely known. While Galapagos has always attracted biophysical scientists, it is only recently that social scientists have discovered Galapagos (Ospina, 2001, 2006; Grenier, 2007; Quiroga, 2009; Hennessy and McCleary, 2011). Within the relatively recent occupation of humans in Galapagos (*ca.* hundred-and-eighty-two years (Grenier, 2007; Quiroga, 2009; Andrade et al., 2010; Hennessy and McCleary, 2011), the archipelago has been transformed.

Despite the already complex relationships between the GMR marine environments and the societies in Galapagos, as it often occurs, (Linneweber et al. 2003) their implications in the MPA status has not been properly documented, even if the human population has proliferated as direct consequence of tourism and migration (Ospina, 2001; Grenier, 2007; Watkins, 2008; Walsh et al., 2010; Hennessy and McCleary, 2011; Celata and Sanna 2012).

The Galapagos Islands became a UNESCO World Heritage Site in 1971, and a UNESCO Man and Biosphere Reserve (MaB) in 1984. The islands are also considered within the world's natural treasures recognized worldwide because of their exceptional, universal, and inestimable character, equally like the Grand Canyon and the Norwegian Fjords (Laroussinie, 2008). Unfortunately, these categories and nominations have not exempted the archipelago from stress caused by the multiple human activities that become triggering factors of major biological processes like species reduction, population loss, and finally extinction (Bensted-Smith, et al., 2002; Hockings et al., 2012).

In the GMR, the human activities are permitted under the Special Law´s regulation within the MPA but are limited to: small-scale fisheries, tourism, scientific research, management, and maritime transportation, with high emphasis being placed on tourism and fisheries as they are perceived as the main economic engines within the islands economy. Their development, however, has followed different paths. Tourism began in the 1960s with the support of the CDRS and the Ecuadorian Government (de Groot 1983; Tindle, 1983; Kenchington, 1989; Epler, 1993, 2007; MacFarland, 2000; Hennessy and McCleary, 2011). Since then, the tourism industry has increased and become the driver of the local economy and of human population growth (Epler 1993, 2007; MacFarland, 2000; Grenier 2002, 2007; Watkins and Cruz 2007). Subsistence fisheries occurred in GMR from the late 1940s until

the 1950s when the increasing demand for fish converted this activity in a profitable one. Later, the boom of the sea cucumber fishery in the late 1980s triggered an unparalleled bonanza period (Marder and Arcos, 1995; Ramírez, 2004), which paradoxically impelled fishers into cycles of debt when the highly lucrative sea cucumber market in Asia significantly raised economic aspirations and liabilities of the fishing sector (Heylings and Bravo, 2007).

During the last two centuries, the interactions between humans and the marine resources in the GMR have not been free of confrontation. Clashes over marine resources are frequent and have been identified as the main conservation issue in Galapagos Islands (Bremner and Perez, 2007), mainly due to the competing claims of sectors for their right to use the GMR resources. The various levels of disagreement and confrontation have created difficulties for the MPA governance (Jones, 2013) based on the access to the resources and on who exercised that access based on their status. This is illustrated by the"get-rich-quick" (Camhi, 1995) "gold-rush" (UNEP, 2011) mindset in the marine resource use, commonly found in GMR users since the 1990s. This approach was characterized by minimum investments and maximum expectations (Merlen, 1995). Additionally, fragmentations on the already heterogeneous local community were established, rooted in a migration-based pattern categorizing the inhabitants between pioneers and new comers. Those categories clearly identify the "true *Galapagueños* or *colonos*" (senior islanders); the "residents"–either locals (born in the islands) or migrants (legally established); the "neo-migrant or outsiders" (coming from somewhere else during the last decade); and the "illegal ones" (who arrived and remained out of law) (Ospina, 2006; Celata and Sanna, 2010; Emory 2012; Orrantia, 2013).

Additional clashes originated in the undefined jurisdictional authority and in the legal gap to control the marine area. Finally, another example of difficulties is the controversy between the purist conservation-and-management-oriented practices by scientists and managers *vs*. the development-and-growing-oriented policies by the Galapagos provincial authorities. Within this perspective Galapagos is forced, in Guha's (2005) words, to host at the same time what is expressed as, "the benefits of an expanding economy and the aesthetic benefit of an unspoiled nature."

In short, the debates challenging GMR governance are originated neither in biological nor in ecological attributes. Instead, like in other natural resource cases, these disagreements fall within human dimension realms, under cognitive (*i.e.,* the understanding of the situation), values (*e.g.,* in different judgements about the ends to be achieved), interests (*i.e.,* disagreement about cost/benefit distribution), and behaviour (*i.e.,* about personalities and circumstances of involved parties) (Dorcey, 1986) contexts.

When people are recognized within the solution side of the equation and not just as an adjunct element in a commoditized "unspoiled" natural ecosystems traded with western tourists (Adams and Hutton, 2007; Neumann, 2004; Watkins, 2008; Zimmerer, 2009; Andrade et al., 2010) alternatives to improve GMR governance can be found.

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Chapter 2 Step Zero in Galapagos Marine Reserve: how has pre-implementation influenced the present and future of this MPA?

Target journal: Coastal Management

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Abstract

The Galapagos Marine Reserve (GMR) was not "born" on March 18th, 1998, as it is officially dated. Like other protected areas around the world, many processes took place prior to its formal declaration. What happens during this "step zero," as variedly argued, often determines the outcomes of these initiatives. Through empirical research involving document analysis and key informant interviews, this paper examines the origin of the GMR, from its early inception at planning, negotiating, and consultative stages, including direct and indirect events influencing the MPA declaration. The analysis reveals that the GMR did not arise within a social and political vacuum. Instead, its establishment was driven largely by complex geopolitics, economics, social, and environmental circumstances, from within and outside of the Galapagos society. The process was convoluted, with hidden interests and political agendas, which triggered conflicts between users. Rather than a strategy for marine resources conservation, the GMR has proven to be more of a social construction, used as an instrument to benefit some interest groups, to the detriment of others. Knowledge about the pre-implementation phase, and the positive and negative factors and conditions at the initialization of the GMR offers a needed perspective to address the current problems and challenges, and to improve its future performance.

Key words

• Galapagos Marine Reserve • MPAs • step zero •pre-implementation • geopolitics

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1. Introduction

On March 18th 1998, the Galapagos Marine Reserve (GMR) was declared by the National Ecuadorian Congress, after the approval of the Special Law for Conservation and Sustainable Use in Galapagos (or *LOREG* by its Spanish acronym). Considered the fifth biggest marine protected area (MPA) of the world (Wood, 2008), it has been perceived as an example of marine conservation strategies and good practices for several reasons. In addition to the apparent sound conservation and tourism strategies, the relative inaccessibility, the diligent monitoring practices, the suitable training for guides, and the level of awareness of local communities have all been viewed as essential elements for its success (Honey and Littlejohn, 1994).

Our study aligns with the controversy around MPAs concerning not only the "what are they created for," but also regarding "how they are created." MPAs are defined as societal institutions produced through social processes (Pomeroy et al., 2007) and implemented as popular management tools and strategies (Bohnsack, 1993; Sobel, 1996; Capitini et al., 2004; Mascia et al., 2010; Ban et al., 2011), based on principles of constrained use, regulation, restriction, exclusion, and limitation of human behavior (Blount and Pitchon, 2007). Their origin, as conceptual and methodological approaches, go back to the early 21st Century with the Great Barrier Reef MPA creation (Morning Post, 1906); however their proliferation as a scheme for ecosystems and marine biodiversity conservation took force in the 1990s (Pomeroy et al., 2007). Celata and Sanna (2012:980) argue that despite being called a "politically neutral and largely technical" approach, MPAs imposition greatly disregards universal ethical and moral principles, and maintains the domain of expertise and scientific knowledge. This powerful cognitive influence of science on how the

environment is perceived in the modern world (Lemons, et al. 1997) has deeply influenced PAs-MPAs creation.

Officially, 97% of the terrestrial area and 40 nautical miles surrounding the Galapagos Islands correspond to a national park and a marine reserve established especially for the natural environment protection. However, issues of concern have arisen during the last decades regarding the conservation status of these ecosystems. Evidence of that was their temporary addition to UNESCO's [United Nations Educational, Scientific and Cultural Organization] list of World Heritage in Danger in 2007 (Karez et al., 2006) and the resulting emergent Decree No. 270, 10 April 2007, issued by President Correa, recognizing the troubles affecting the islands. In fact, threats conspiring against Galapagos' sustainable economy, equity, governance, ecosystems, and resources conservation are varied (CGREG, 2011). Lack of strategic and opportune regional policy implementation are major issues that are evidenced by the increasing marine pollution; underground aquifers contamination; illegal migration; uncontrolled and disordered urban growing; introduction of invasive alien species; high risk of extinction for some taxa,, and an expected increase of tourism industry to 150% by 2020 (Constant, 1999; Watkins and Cruz, 2007).

In this paper we argue that unsolved conflicts between users are consequence of what happened at the early stages of the GMR, before it was even conceived. In that context, this research is inspired by the "step zero" approach (Chuenpagdee and Jentoft, 2007), which addresses the pre-implementation stages in co-management fisheries and MPAs context (González and Jentoft, 2011; Chuenpagdee et al., 2013). It proposes that previous phases are equally relevant as the implementation of MPAs (i.e., declaration), and post-

implementation (i.e., MPA management and governance), and that inattention to those steps can potentially be sources of failure (Chuenpagdee and Jentoft, 2007).

The rationale of this study circulates around fundamental questions. Why was the GMR proposed? where the idea come from? and when did GMR start? Partially, the GMR Management Plan (PNG, 2006:5) answers them by saying their goal is "to protect and conserve the coastal-marine ecosystems and biological diversity of the archipelago [...]." However, intriguing derived reflections remain unsolved such as conservation by who, or conservation for whom? In that regard, this paper draws on Foucault´s (1988:4) idea that "we need an historical consciousness about our current circumstances." He further argues that a revision of the conceptual necessities is needed using not only the theory of the object, but also knowing the historical conditions that motivates our conceptualization of it. His reflection about historical consciousness fits with the idea of interactive governance (Kooiman et al. 2005, 2008; Bavinck et al. 2013), which attributes the overall quality for governance, or governability, to interactions between all actors (state, market, and civil society), at all stages of governance, including the pre-implementation of MPAs.

Throughout this paper, we tackle a major governance research issue (Chuenpagdee and Jentoft, 2007), not as a knowledge gap that needs to be filled, but instead as a subject that invites intellectual debate. Thus, this study first addresses drivers of the GMR establishment, by documenting the socio-political conditions at the time the idea was conceived. The following section briefly illustrates the process of its implementation. Issues pertaining to the past features influencing on the present and the future of the GMR are incorporated throughout. Finally, some conclusions about how to move forward are presented toward the end.

2. Study Area

The Galapagos Islands are an oceanic volcanic archipelago located 1,000 km off Ecuador in the Pacific Ocean. The islands have about 30,000 inhabitants (INEC, 2011) who live permanently in Isabela, Santa Cruz, San Cristobal and Floreana. Galapagos hosts only small-scale fisheries, which is considered a "late" event in the islands because no fishing communities were established in early settlement periods (Quiroga and Orbes, 1964). Fisheries developed after farming, agriculture, and cattle ranching, which were the main productive activities then (Marder and Arcos, 1985). However, despite the increase of fishers' population from *ca.* 200 in the 1960s (Bustamante et al., 2000) to *ca*. 1,023 in the 2000s (Castrejón, 2011), small-scale fishing has lost its stronghold in the economy due to the blossoming of the tourism industry. This business started in the late 1960s and has been widely recognized as the primary driver of Galapagos development and one important source of incomes for the state (Kerr, 2005; Epler, 1996, 2007; Grenier, 2007a; Taylor et al., 2003, 2006, 2009; Heslinga, 2003; González et al., 2008; Watkins and Cruz, 2007; Hoyman and McCall, 2013). Consequently, Galapagos' dependency on tourism has grown at the same pace as its reliance on fisheries has diminished.

3. Methods

The research used the triangulation approach (Clifford and Valentine, 2003). Guided conversations (Walmsley, et al., 2005) with local, national, and international representatives of interest groups were conducted. It also integrated field observations at numerous public meetings, consultation sessions, and informal conversations and was supplemented by review of relevant grey literature, academic publications, local newspaper and television programs.

The sampling combined the "snow-ball" sampling technique (Goodman, 1961; Biernacki and Waldorf, 1981; Babbie 1989; Hernández-Sampieri, et al., 2006) used as a referral process, to approach previously referenced contacts in order to increase the set of interviews. And the "key informant interview" approach (Walmsley, et al., 2005) used as a central participatory technique for gathering insights on subjects of interest within this research's context. Only knowledgeable local users considered themselves as GMR stakeholders were included. That condition was confirmed by firstly asking "Which is your/your institution relation to the GMR?", and by their subsequent response about their direct relation to the MPA as scientist, manager, fisher, tourism entrepreneur, NGO representative, academic, provincial authority servant, and local municipality employee. In total, twenty-eight people participated, and only one declined to participate, claiming lack of time.

The guided conversations followed Chuenpagdee and Jentoft (2007) protocol, which asked the people about the conditions and drivers leading to the establishment of the GMR, along with their understanding of how it was conceived and inspired. They were also asked about how the idea was communicated, who participated in the discussion, and their reflections about the experience. The data collection involved five and a half months of fieldwork distributed between 2010-2012. The conversations were face-to-face and each lasted about one hour. Written notes were typed with detail within 1-2 hours after the interview ended. All interviews were conducted in Spanish and were subsequently transcribed into English. All translations are the first author's own.

We used the thematic analysis technique (Braun & Clarke 2006) with a data-driven inductive approach (Boyatzis, 1998). This framework was used to identify common

emerging themes or patterns within data that could describe the phenomenon under study. Consistency in observation and interpretation was emphasized to increase reliability as suggested by Boyatzis (1998). Analyzed data is presented with a narrative analysis, following MacDonald (1997).

4. Step Zero Analysis

This exercise illustrates the pre-implementation phase of the GMR by describing the five steps previous to it. Each includes events that despite being described consecutively were indeed interconnected processes taking place at multidimensional dominions.

4.1. Conditions and Drivers

The GMR creation circulated around both, concern for marine resources due to their heavy exploitation, and political agendas dictated by sovereignty and economic interests. Despite officially discovered in 1535 (Latorre, 1999), humans already visited Galapagos in pre-Hispanic times (Heyerdahl and Skjölsvold, 1956). In 1832, the first permanent inhabitants settled in Galapagos, after the official annexation of the archipelago to the Ecuadorian territory (Eibl-Eibesfeldt, 1975; Hermida-Bustos, 1987). During those early times, practices were mainly linked to terrestrial environments (Ospina, 2005; Grenier, 2013; Castrejón et al., 2013). For around two hundred years, pirates and whalers visited Galapagos, searching for refuge, food, water, and products to trade (e.g., sea-lions skins and whale oil); for preparing their next trips; and as a burial site for stolen treasures (Kasteleijn, 1987; Lucas et el., 2000; Ospina, 2001, 2007; Grenier, 2007a; González et al., 2008; Tapia et al., 2009). During the 19th Century, the exploitation of *guano*[1] thrived after its high demand by the

[1]Term for sea birds´ excrements, used and traded as organic fertilizer due to its high nitrate concentration.

North American agriculture sector (Luna Tobar, 1997), whereas on early 20th Century U.S. and Japanese fleets started to fish in Galapagos (Reck, 1983). Additionally, geopolitical interests in the Pacific Region during WWII influenced the installation of a U.S. Navy Base in Baltra Island, operative until late 1960s (Grenier, 2002; Finley, 2009, 2011; Hennessy and McCleary, 2011).

The increasing demand and high prices paid for fish products by the military crews motivated local fishers to lessen the subsistence fisheries (mainly lobster) and prompted the development of new commercial profitable fisheries (Marder and Arcos, 1985; Ramírez, 2004; Stewart, 2009; Jobstvogt, 2010). In the 1970s, fisheries in Galapagos was conducted at small- and large-scale (Camhi, 1995) by foreign tuna fleets which fished in Galapagos without competition until late in that decade, when the first Ecuadorian tuna-fishing vessels visited Galapagos (Reck, 1983; Bustamante, 1999). The sea cucumber fishery commenced in Galapagos during late 1980s and early 1990s, following the collapse of the same fishery in the mainland, and became the major force attracting migration to the islands (Marder and Arcos, 1985; Bremner and Pérez, 2002; Molina et al., 2004; Salcedo Andrade, 2008).

In the meantime, by mid 1960, organized tourism started in Galapagos and expanded significantly in the following decades, surpassing traditional farming and fishing activities as sources of employment (de Groot, 1983; Celata and Sanna, 2012; Hoyman and McCall, 2013). At the early stages, tourism companies had a shared origin between foreigner and also mainland-based tour operators (e.g., Lindblad Expeditions and Metropolitan Touring). Between 1973 and 1982, the established number of 12,000 visitors/year increased to 25,000, and the offer included mainly ship-based cruises around the archipelago (Broadus, 1987), whereas the number of tourists arriving between 1969 and

2011 increased sixty-one fold, from *ca.* 3,000 to 185,028 (UNEP/WCMC, 1981; de Groot, 1983; Broadus, 1987; Taylor et al., 2003; Celata and Sanna, 2012; Denkinger et al., 2013). In the last decades, nature-based tourism (e.g., scuba diving) became a popular offer within tourism operators around the world, who offer "pristine diving sites" attracting diver´s interest overseas.

4.1.1. The origin of Galapagos' protection

The idea of giving Galapagos special treatment is not new. The earliest protective action was contemplated in the National Ecuadorian Constitution of 1883. It called for "special laws for the Colon Archipelago" (the official name of Galapagos) by recognizing its special status (Pérez-Camacho, 1997). Later, given the position of Galapagos as an strategic point within inter-oceanic maritime routes between Central and South American toward Asia, Polynesia, and Australia (Luna Tobar, 1997), the islands were object of considerable geopolitical interest by imperial maritime powers (Celata and Sanna, 2010).

To unravel the international pressure over the islands, influenced by North American and Ecuadorian scientists (Tapia et al., 2009), and supported by the tourism sector, the Ecuadorian government declared Galapagos as a "National Reserve" in 1936, (Lucas et al., 2000; Celata and Sanna, 2012) and as the Galapagos National Park (GNP) in 1959. By doing so, the Ecuadorian sovereignty in the archipelago was formally recognized and scientific endeavor in the so-called "laboratory *in situ*"(Celata and Sanna, 2010) was prompted. The newly created GNP was under the control of the Charles Darwin Foundation (CDF) until 1968, when it became an autonomous operative unit. Since then, Galapagos was set as a research ground and viewed as a place with high potential for economic

development, under controlled resource extraction and tourism industry expansion (Grenier 2007a,b; 2010; Hennessy and McCleary, 2011).

On May 13th, 1986, the water column, sub-tidal seabed, and subsoil to 15-nautical miles offshore (Pérez-Camacho, 1987; Baine et al., 2007) were declared Galapagos Marine Resources Reserve (GMRR) through the Executive Decree 1810-A (Official Record 434). It became the marine protected area in Galapagos, adjacent to the existing terrestrial portion (i.e., GNP) and was the former version of the present GMR. The GMRR was tactically utilized to tackle illegal fishing conflicts with foreign industrial fleets, and as a strategy to protect fishing resources limiting their exploitation, at least, for the exclusive use of national fleets, either artisanal or industrial (Reck, 2014).

In the absence of a management plan for the newly created GMRR, the Ecuadorian Government signed a ministerial agreement in 1989 (Executive Decree 151, Official Record 191) banning 1) shark fishing and marketing, 2) nocturnal and spear fisheries, and 3) zoning a 5-15 nautical miles area offshore from the baseline for industrial fishing. Six years later, in 1992, the Management Plan for the GMRR was approved (Executive Decree 3573, Official Record 994) including a new zoning scheme and governance framework (Heylings and Bravo 2007), which were unfeasible to be implemented because no legal instrument supported them (Castrejón et al., 2013).

4.2. Inspiration and Conception

In Galapagos, conflicts preceded collaboration and protection. Disagreements entrenched competing claims for the right to use and/or control marine resources, and were enhanced by a shift in common resources use from a free-open- to a controlled-restricted-access

(Oviedo, 2000). However, according to Ortiz (2005), the main conflict was at a structural level, produced by contrasting visions for Galapagos. One was the environmentalists' discourses of "protection and conservation" that uses disincentives mechanisms for migration (e.g., border controls, quarantine system, higher national park entrance fee). The other was the developmental dialogue that promotes growth by "greening" the traditionally-conducted tourism as eco-tourism that greatly needs labor force. These inconsistent paths compromise the conservation aims, for example, by increasing migration attracted by higher wages, and subsidies (e.g., reduced prices for fuel, domestic gas, and airfare tickets).

Institutionally, conflicts were evidenced by power asymmetries among interest groups especially between local authorities and mainland institutions (e.g., industrial fisheries) and within local authorities (e.g., conservation, fisheries, army, and police bodies) (Coello 1996; Oviedo, 2000). This disproportion in power execution was evidenced by decisions taken on powerful groups' behalf, with claims of the less influential groups about their unequal access and re-distribution of tourism-related benefits; rivalry for scarce development public funds; competing interests for fisheries resources; and clashes for the archipelago management (de Miras, 1995; Salcedo Andrade, 2008) gave origin to institutional disagreements. For example, the discrepancy between Galapagos National Park Service-GNPS and the Navy based on competing claims for jurisdictional competence, authority, and responsibility over the marine area control (Heylings and Bravo, 2007).

Individually, disagreements occurred mainly between small-scale fishers and tour operators, and between conservationists and fishers, due to two main reasons. First, the perceived unspoken alliance between the conservation and tourism sectors (locally and from the mainland) against fishers, who argued having been displaced from traditional

fishing grounds by scuba diving companies (Oviedo, 2000; Ospina, 2001). Second, the unexpected closure of the sea cucumber fishing season opened in 1994, after the initial Total Allowable Catch (TAC) set in 500,000 units was passed after a two months-period, with more than 6,000,000 pieces caught. Then, based on data from the experimental season, strongly influenced by national and international conservation and scientific bodies, and sponsored by media campaigns against fishing in Galapagos, the GNPS declared a five-years technical ban for sea cucumber (Oviedo, 2000; Molina et al., 2004). It has to be noted that since those early years in sea-cucumber fishery development, this species has only be used for exportation to Asian markets. In fact, the customary consumption of sea cucumber as a food source has never been linked to Ecuadorian traditional gastronomy and up to now is restricted to foreign markets.

The moratorium on sea cucumber fishery escalated existing conflicts of complex origin, and triggered violent riots perpetrated locally and nationally, by fishers, claiming to be one of the more vulnerable sectors. They argued over the absence of consultation about the ban and a lack of compensation alternatives (Oviedo, 2000). They alleged systematic restrictions in their access to fisheries resources, and the application of excessively strong fines and sanctions to illegal fishing infractions, which paradoxically, were perceived by conservationist groups as "too soft" (FN/WWF, 1998). Finally, despite threats by fishers of kidnapping tourists and setting the GNP headquarters on fire the ban was not derogated until 1999, when other management measures (e.g., catch quotes, zoning, and season bans) imposed by the newly created *LOREG* replaced it (Molina et al., 2004).

These latent political conflicts in Galapagos (Heylings and Bravo, 2007), enhanced by the gap in lawful jurisdictions about illegal fishing control and the GMRR administration,

became the breeding ground where the co-management model was incubated (Oviedo, 2000). Thus, by urging for solutions to the conflicts, two main outcomes were achieved. First, the spurring of local collective action and organization (Cairns, 2011), and second, the intention of collaboration and cooperation of local actors, lead by GNPS and CDRS. Both instances prompted the dialogue and the participative process for the GMRR-Management Plan revision. The major achievements came in 1997, with traditionally opposed sectors sitting in the same table for the first time, and the *Grupo Núcleo* (i.e., core group including eleven sector members) being fostered.

4.3. Initialization and Communication

Co-management processes (e.g., in fisheries) are generally driven by conflict and crisis (Chuenpagdee and Jentoft, 2007) and that precisely is what happened in the GMRR. The conflicts described in the section above explain "why" this co-management mode for marine resources was conceived. Additionally, "who" was this MPA communicated to is referred by these authors when say that it normally targets the experts and the normal public. Finally, "how" was it was achieved is explained below.

The idea of an MPA in Galapagos was not initialized and communicated within a local social and cultural context. Instead it was heavily influenced by politic and tourism-based economic interests, masked under environmentalism discourses. In 1974, the initial pressure for Galapagos marine conservation referred to the dependence of many land-breeding protected marine vertebrates (e.g., reptiles, birds, mammals) on the sea for food (Reck, 2014). Later, the natural value protection, and its potential to pursue scientific endeavor and tourism development were arguments used for its declaration. In that sense, science and scientific production were strategically and successfully used as communication

mechanisms for the message regarding the need for the GMRR establishment. The role of science in this achievement is illustrated by the key players deeply involved in the negotiation, communication, and declaration. According to Reck (2014) it included twenty eight names some of them with multiple affiliations: Charles Darwin Research Station (12 affiliations), Charles Darwin Foundation (8) and GNPS (7). Other governmental sectors had nine representatives, whereas fisheries-related institutions were represented by only two names. Only one between twenty-eight names was a woman.

Communication to the experts took place through several official and unofficial messages sent by government bodies and representatives in the form of Executive Decrees, Official Records, and Ministry Agreements. Additionally, varied versions of management plans were produced either by scientific staff before the GMRR (e.g., Master Plan for the Protection and Use of the Galapagos National Park, anonymous, 1994) or by government bodies after its declaration (e.g., GMRR Management Plan, by Presidency of the Republic, 1992).

Communicating the GMRR was an intensive process of consultation and participation within the *Grupo Núcleo*, as the working operative unit (Reck, 2014). Representation of the interest groups was enabled by their attendance to facilitated workshops and meetings, with emphasis in consensus-based outcomes. Additionally, training courses (e.g., negotiation and conflict management), intensive media campaigns (especially before the final negotiations) (Heylings et al., 2002), and the best conflict resolution and negotiation techniques available were used by the hired team to communicate the MPA (Reck, 2014).

The communication was initially accompanied by distrust of the political-oriented bodies and by misinterpretation and lack of knowledge from the non-scientific groups. Supporters and opponents to the MPA creation reacted and decided about the establishment of the GMRR over assumptions rooted in misunderstanding, confusion, insufficient, and inaccurate information (Reck, 2014). For instance, the arguments against industrial tuna fishing in Galapagos were claimed to be based on political and economic pressure and on mass media campaigns of misinformation, but not on technical reasons (Bustamante, 1999). In fact, it had been recognized that before 1997, information regarding status, abundance, availability trends of fisheries resources, impacts, and effects of the industrial fishing fleet in marine biodiversity of Galapagos was scarce (Reck, 1983; Camhi, 1995; Ben Yami, 2001). In the end, these mislead ideas reinforced structural power asymmetries between the local, national, and international groups.

Despite the support provided by the government to that process, the participation was initially conducted as a mere initiative of the *Grupo Núcleo,* supported by the marine department of the CDRS, and GNPS (Reck, 2014). This "informality" was a determinant in the later refusal of some interest groups to recognize the process' legitimacy (Heylings et al., 2002; Reck, 2014). For example, some loose ends were left in the air for years after the GMRR was created, when critical inquiries–like the one arisen by the industrial tuna fleet about the unfeasibility to guarantee the protection of the fish resource in Galapagos–remained unanswered.

4.4. Participation and Preparation

Contrary to the notion that the final stage before implementation (i.e., co-management implementation) is perhaps the easiest part, provided that the ground for discussion and

implementation is well prepared (Chuenpagdee and Jentoft, 2007), participation and preparation for GMR implementation were far from being easy. Indeed they happened in a messy scenario full of mismatches and confusion left after its precursor MPA establishment occurred.

After the former version of the GMR (i.e., GMRR) was declared, one *ad hoc* Inter-institutional Commission formed by the Agriculture-; Industry and Fisheries-; Energy and Mines-; Foreign Affairs-; and Defence Ministries; Harbor Authorities; and the Galapagos National Institute (INGALA) (Pérez-Camacho, 1987) was created. Their task was to produce a Management Plan (Official Record 434)(PDR-CPIG 1992) that in the end proved to be practically inoperable due to the lack of political willingness and legal inefficiency that made the GMRR unmanageable. To address these jurisdictional impasses, the environmental authority (INEFAN), unilaterally and without previous consultation, relabeled the formerly named GMRR as "Biologic Reserve for Marine Resources" in 1996 (Resolution 058) (Oviedo, 2000; FN/WWF, 1998). In that way, the marine area surrounding Galapagos was incorporated to the Ecuadorian State natural patrimony and the legal gap for its jurisdiction was thought to be solved.

Later, new conflicts and rivalry evolved when the GNPS became legally entitled to control the area, though its authority was recognized neither by the state fisheries authority nor by the fisheries industry (Heylings and Cruz, 1998; Heylings and Bravo, 2007). On that same period, a sort of Governor Authority (*Concejo Provincial*) was created to lead planning and development provincially, and to appoint Galapagos with two deputies at the National Congress, and thus increasing the political parties' inherence in the islands. Additionally, in 1997, the Management Authority Unit was created as a new body exhibiting shared

authority to control, survey, and regulate the GMRR. Within that scenario, the MPA governability got reduced by the overwhelming abundance of institutions commissioned for GMRR management and control and, so neither aim was achieved successfully (FN/WWF, 1998).

The new MPA required a multi-purpose zoning plan in order to mitigate overlapping of coexisting activities within the same area. This two-stages process took place between 1997- 2000 and included first, the institutionalization of a provisional "general zoning agreement," and second, a finally approved provisional consensus-based "coastal zoning proposal" (PNG, 1998; Heylings et al., 2002; and Edgar et al.,2004). It was pursued by the *zoning group*, with representatives of GNPS, small-scale fishers, tourism, and NGOs (Castrejón and Charles, 2013). In order for this new plan to become operative, the management plan elaborated by the *ad hoc* commission in 1987 needed a revision. The exercise was conducted by the *Grupo Nucleo* and lasted fifteen months, including workshops, *ca*. 74 meetings, and two fisheries summits (PNG, 1998; 1998; Reck, 2014). Differently from previous participatory events, mostly conducted in Quito, these meetings were developed in Santa Cruz Island (Heyling and Cruz, 1998).

This initiative was effective in promoting alliances between national and international environmental groups and in coordinating lobbying strategies to support the GMR creation, by attracting extensive media coverage and public interest. The consensus-based documents produced included a) the principles to rule the MPA management, b) key points to include in the Management Plan revision (IEFANVS-SPNG 1995), and c) elements to include in the new legal framework to implement the Management Plan (Heylings and Cruz, 1998). The superior aim of the interest groups involved was finally achieved when the

National Congress approved the GMR Chapter of the *LOREG* in March 1998. By this approval and by removing their claim to be stakeholders, the industrial fisheries sectors from the mainland were controversially excluded from Galapagos waters (Heylings and Cruz, 1998). This unexpected event (Reck, 2014) symbolized the victory of "local" interest groups against the "others" and constituted one of their few unifying common grounds (Ospina, 2001).

Interestingly, despite the common "unifying" feeling, the group cohesion was threatened along the process by varied aspects. Conflict of interests, disagreements, disputes for economic exclusion *via* users' segregation, ethic apprehension, and mutual mistrust were expressed, especially by local fishers. This sector uttered concerns about the alliances between the conservation and tourism industry, which fishers claimed were benefiting them (i.e., tourism sector, scientists, and local elites) in detriment of their own interests. Additionally, disputes for power asymmetry between rival groups were present and were illustrated, for example, by the differentiated levels of participation, between direct participants or users (e.g., fisher's cooperatives, fish-middlemen, tourism representatives, conservation sector, harbor authorities, army, etc.), local observers-and-authorities (e.g., city mayors, *prefectos*, governors, etc), and national observers (e.g., governmental representatives related to Galapagos, some NGOs) (Coello 1996; FN/WWF, 1998; Heylings and Cruz, 1998).

Whether the process was successful or not was a matter of disagreement and thus, critics to the reviewed Management Plan came from all the sectors. Detractors of the process argued that despite its participatory nature, the scheme was not always perceived as so by all the interest groups. In fact they claimed that due to the unbalanced dominance of interests (institutional or individual) and positions of some sectors over others,

participation by all the users was not equal. On the contrary, supporters of the process claimed that even if not perfect, it was the first evidence of participatory process in decision and policy making regarding MPAs in Ecuador, and perhaps in Latin America (Oviedo, 2000).

4.5. Reflection and adaptation

4.5.1. Collaborative experiences

Late 1997 was a period of a severe national political crisis. After a long process of lobbying, negotiation, political arrangements, and society agreement (Ospina, 2001; Grenier, 2007a), the Ecuadorian President signed an Executive Decree giving a 60-day period to produce the Final Project for the Special Law for Galapagos (Oviedo, 2000). It called the local users' participation in the National Commission set for the MPA creation, where small-scale fishers, tourism organizations, conservation groups, and local municipalities took part in the proposal construction. The process was guided by the recently created Environmental Ministry, which after an algid period of clashes for jurisdictional autonomy, was easily accepted as a mediator by all parties and played a strategic role in the process which ended on January 11th 2000 with the regulation for *LOREG* implementation being dictated (Official Record 358).

Initially, the *LOREG* was perceived as a modified form of colonialism (Ospina, 2001). Small-scale fishers complained about concessions given to the tourism sector supported by conservationist pressure. They contested the GMR as an illegitimate creation imposed by powerful conservation groups from mainland and from overseas. However, as an adaptive strategy, their resistance shifted and the newly created GMR was afterwards recognized as a

subtle translation of “protecting ourselves against mainlanders” (Ospina, 2001). Finally, the resentment about the alliance “conservation-tourism” remained with the small-scale fishers (up to now), though it has subtly been recognized that this associative image could potentially be of benefit for locals, including fishers themselves.

4.5.2. Exclusion, rights limitation and anti-participation

During the Management Plan revision, external influence (e.g., industrial fishers, provincial government officers) was limited. To emphasize the local quality of the process, they were present as observers, but counted with no voice (Heylings and Cruz, 1998). On the contrary, according to Oviedo (2000) scientific and tourism sectors clearly leaded and influenced the analysis, discussions, decision- and policy-making. It was partly due to their linkages to local, national, and foreign bodies' interests who openly intervened by counting with the right to do and say everything in Galapagos (Celata and Sanna, 2012).

Within the participative-related processes, fisheries issues were given highest priority within discussions (e.g., bans, fishing permits, fishing season, fishing tools, illegal activities, etc.), than those concerning to tourism (e.g., illegal activities, growing tourist numbers, foreign investment masked under local´s names, etc). Consequently, both sectors were unequally weighted, and thus necessity and difficulty to control and regulate both of them were not explicitly mentioned, which in Grenier's (2007a) words corresponds to the Special Law´s main failure.

5. Discussion and conclusions

Research in natural resources management has increasingly recognized that designing and implementing MPAs must consider both social and ecological dimensions (Berkes and Folke,

1998; Pollnac et al., 2010). By documenting the pre-implementation of the GMR could be one way. It has shown the high complexity of issues involved in the process, and the low engagement at earlier stages of the groups affected by this MPA implementation. Consequently, as recognized by McClanahan et al. (2006) and Pollnac et al.(2010), it has been demonstrated that the lack of involvement of the interest groups directly linked to the GMR has, partially critically determined its current status, regarding the willingness of users to support and obey regulations and limitations.

The "lack of support and participation from the local population toward the management actions by the park authority" (PNG, 2006:76) was found as one of the macro problems threatening GMR's sustainability. However despite an accurate appreciation, the proposed solutions to address it (i.e., regarding environmental education and interpretation; participation, social integration and island identity; and communication and public relations programs) certainly did not recognize the linkage between current problematic conditions with events that occurred even before the MPA was created. Broadus (1987:9) mentioned that the "*declaration of the GMRR grew up within a master planning*" which confirms the "linear" kind-of approach used for this MPA's creation. Instead, based on the evidence given by the simultaneous and interconnected nature of the events, we posit that the pre-implementation of GMR (or Step Zero) followed a non-linear-multi-dimension path, which better represents the diversity, complexity, and dynamics of the area' governance (Figure 1).

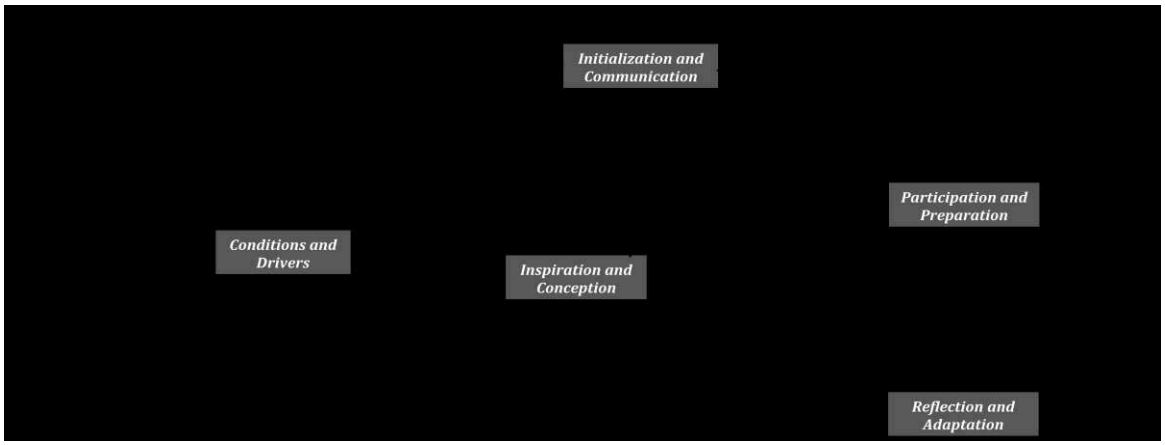

Figure 1. Causal loop diagram of the GMR pre-implementation

The major lesson learned from this exercise coincides with Fiske (1992), Kelleher and Recchia (1998), McClanahan (1999), and Blount and Pitchon (2007) who claim that conserving resources is not only a bio-ecological process but a socio-cultural one, and that social variables, not biological, neither ecological, nor physical are the primary determinants for MPAs success or failure.

As anywhere else, in the GMR, the systems and their relationships have certainly been not in a social and political vacuum, but instead fully immersed in historical connotations. In that context, the current challenges to GMR governance have links to the institutional-administrative issues affecting the GNP, even before the GMR was created. In Galapagos, the problems found in governing the state-controlled resources that are locally managed are not technical, but political (Celata and Sanna, 2012) and they likely rely on the institutional failure (or success) to achieve changes, and to re-edit the conceptualization of the human-nature relations in the islands (Acheson, 2006).

Our main argument considers two premises: 1) That the GMR creation did not come about with its official declaration, but instead it was conceived and promoted earlier, and 2) That the GMR's creation was based in principles of restriction, exclusion, and rights limitation, with arbitrary and unilateral intention. Consequently, it has been shown that the GMR governability has been compromised since its inception; the complexity and diversity of the challenges after GMR's creation have accelerated; and the situation has worsened. Reasons are varied. One is the jurisdictional duality (or limbo) of certain competences in Galapagos, at being a National Park and a Marine Reserve. Another is that the archipelago is a Special-treated Ecuadorian Province, which, as the rest of the national territory, is still governed under the National Constitution, which calls for "indivisibility" and "wholeness" of the national territory. Moreover, despite the fact that the Ecuadorian National Constitution of 2008 was the first in the world to proclaim nature's rights as legally enforceable (Whittemore, 2011) in practice, the rights of nature to "exist, persist, regenerate, and be respected" (Ecuadorian National Constitution, 2008) are not always fulfilled and sometimes dominated under economic development outcomes.

The shift experienced in marine resources use from a free-open access toward a restricted access by a co-management approach was critical. That variation, sixteen years later, still plays a decisive role as a mindset barrier for the users to neither fully recognize nor accept (or even ignore) the limitations imposed by the GMR. It can be said that the dilemma regarding the competing discourses of "conservation" *vs.* "development" (i.e., how much to conserve and how much to develop) in Galapagos is rooted in the origin of the MPA itself. Labeling Galapagos as a Marine Reserve was misleading and created confusion. The recognition that marine reserves are strictly "no-take areas" (Sumaila et al., 2000; Hilborn et al., 2004) was not explicit as neither were the implications of that category. The awareness

of being closed to human uses, to sources of pollutants entering the systems, and to immigration, for instance, were not sufficiently expressed at those early stages, and thus correspond to the delayed acceptance of living within an MPA.

Thinking in a "simulated" (Accordino, 2013) future for the GMR and given that humans will not be excluded from the islands, it would certainly help to rethink alternative labels for this area. Why, for instance, not recall it a zone with "controlled use," or a "zoning-based management area" or a "marine managed area" (Jameson et al., 2002). However, to do such would imply major changes, like resetting of practices occurring in the GMR (e.g., traditional tourism labeled as "ecotourism") and the reconsideration of looking at Galapagos as "mostly *de facto* wilderness" (Wallace, 1993:38).

Finally, future research must search for evidence that shows power relations and transactions that elicit interest groups' performance. By illustrating where they lie, where they are inscribed, where they are applied, and methods used by them (Foucault, 1988) would be an innovative illustration of what is needed to brake the vicious and dangerous circle for GMR sustainability, which was initiated in the GMR's Step Zero.

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Chapter 3 Governability Assessment of the Galapagos Marine Reserve

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Abstract

The Galapagos Marine Reserve is one of the most recognized marine protected areas in the world, due mainly to its unique natural features. Little is known, however, about its social counterpart. This research aims to explore the Galapagos Marine Reserve governance by following the governability assessment framework, which is based on the interactive governance perspective. We claim that improved governance and incresed governability of this marine protected area, ruled under a co-management mode of governance, cannot be achieved without comprehensive understanding about the Galapagos Marine Reserve´s governing system, the systems that are being governed, and their interactions. Semi-structured interviews with a range of stakeholders were conducted as part of the study to illuminate the characteristics of the systems and how they interact. The analysis reveals a high degree of variation between the formal and operative structures of the systems, due largely to the complexity, dynamics, and diversity of the systems, and the multiple scales at which they operate. Further, our findings highlight that governing decisions, and thus the overall governance performance, are influenced by certain quality of the systems (e.g.,

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inefficiency, vulnerability, misrepresentation). Along with the understanding of potential complementarity with other governance modes (e.g., hierarchical), the research identifies that the governability of the Galapagos Marine Reserve can be improved by making governance processes more transparent and by better consideration of the social component in the governing system. In that way, the marine reserve sustainability would also be enhanced.

Keywords interactive governance • governability • Galapagos Islands • system analysis • social system

Introduction

Different assessments of the performance of the Galapagos Marine Reserve (GMR) reveal that efforts put in monitoring the systems operation, reforming the organizational structure, and modifying practices of resource users and authorities still fail to fully respond to the its needs (Heylings and Bravo, 2007; CI and USFQ, 2010 unpublished; Hockings et al., 2012; Toral Granda et al., 2011; Jones, 2013). Threats to the marine ecosystem in the area continue, with several causes of the problem identified, such as illegal fishing, introduction of invasive species, marine pollution by chronic discharges, noise pollution, diving sites and marine-scape damage, biodiversity loss, and unsustainable practices in adjacent marine areas (PNG, 2006; Benitez-Capistrós et al., 2013). While these problems are acknowledged, they have not been properly addressed (WWF, 2003). This situation is considered to be critically limiting GMR's governability (PNG, 2006). In effect, the current state of marine ecosystem in the Galapagos suggests that governing GMRis more difficult than what it seems.

GMR has been governed to achieve managerial-based outcomes (Toral Granda et al., 2011). One possible reason for this is the lack of recognition that management and governance are not synonymous (Armitage et al., 2012; Chuenpagdee 2011). Perhaps, Ludwig (2001) is right in saying that the management age “is over”. Too much efforts have been expended in assessing management effectiveness (Toral Granda et al., 2011; Hockings et al., 2012), allocation and renewal of fishing permits, monitoring and controlling post-harvest activities, and dealing with other management duties (Hockings et al., 2012). While these ‘first-order’ governance tasks are important (Bavinck et al. 2005) they do not address the fundamental issues affecting the human and environmental health of the GMR. A shift

from resource management to ecosystem governance, with an understanding of human and natural sub-systems on their own and in how they interact, is required (Chuenpagdee, 2011).

From a governability perspective (Kooiman et al., 2005, 2008; Bavinck et al., 2013), it has been recognized that the limits to marine protected areas (MPAs) governability can be better understood by a careful examination of its systems. Moreover, Chuenpagdee and Jentoft (2009; 2013) posit that the "overall governance quality" depends first and foremost on the inherent characteristics of the human and natural sub-systems that are being governed and of the governing system. These scholars claim that the MPAs governability is influenced and highly dependent on the nature and quality of the systems interactions. Consequently, by exploring governance of GMR we could benefit of a comprehensive understanding of what are the factors affecting GMR governability.

Some studies addressing GMR governance (FN and WWF, 2000, 2001; CDF et al., 2008, 2010;Toral Granda et al., 2011; Hockings et al., 2012) have dealt with the roles and scopes of these bodies, as well as described interests, positions, and conflicts of interest groups associated with the GMR. Their deficiencies seem to be the lack of attention to the connectivity between the human and natural sub-systems and to their interactions with the governing system (in this case, the Galapagos National Park Service, GNPS). This has resulted in the GMR being managed according to the ability and capacity of the governing bodies, which is necessary but it may not be what those being governed, such as fishers and tourism operators, expect of them (see Song and Chuenpagdee, 2010). Our paper, on the contrary, focuses on the Interactive Governance (Kooiman et al., 2005; Bavinck et al., 2008) as the analytical perspective to address the governance of GMR, by systematically exploring

the three systems described by this approach: the governing system, the system-to-be-governed, and their mutual interactions. In order to do so, we posit three research questions: how is GMR governed? What features of GMR´s systems are influencing its governability? How can the governability challenges be addressed?

This research contributes to the discourse about governance of marine resources, and governability of MPAs and marine reserves, through the case study of the GMR. Its novelty rests in the application of acomprehensive, flexible and systematic governability analytical framework (Kooiman et al., 2005; Bavinck et al., 2013) that enables the illustration of the systems and their characteristics influencing governability. The premise of our argument is that GMR governance is challenged by simultaneous and multidimensional factors. For the most part, the natural sub-system has been studied with higher emphasis, whereas the social sub-system has been overlooked and underestimated, and thus issues surrounding it have not been tackled with the same intensity (Snell et al., 1996; Tapia et al., 2009; Santander et al., 2009). Since this paper is about the governability assessment of GMR, the manuscript structure follows the format proposed by this framework to illustrate the systems under analysis and their constituting elements: the natural sub-system-to-be-governed, the social sub-system-to-be-governed, the Governing System and their interactions. Implications of the systems quality in GMR performance and governability are discussed and some conclusions about future implications in GMR governance are presented.

2. Methods

Several methods were used to collect data and to analyze the systems, including in-depth semi-structured and open-ended interviews with GMR stakeholders, informal conversations

with key informants, field observations, attendance of local meetings, and review of secondary data (i.e., published governmental and non-governmental reports and grey literature). Informants included small-scale fishers, tour operator agencies, naturalistic guides, scientists, maritime transportation agencies, and GNPS staff members. They were approached through "snow-ball" sampling technique (Goodman, 1961; Biernacki and Waldorf, 1981; Babbie 1989; Hernández-Sampieri, et al., 2006) used as a referral process, to contact previously referenced names in order to increase the set of interviews. Further, the "key informant interview" approach (Walmsley, et al., 2005) was used as for gathering insights on subjects of interest within this research's context. Request of participation was made with potential interviewees either in person, by telephone or email. Sampling was theoretical (or purposive) (Mays and Pope, 1995), rather than random or representative (Kerr and Swaffield., 2012).

Interviewed respondents were self-identified GMR stakeholders, based on their answer to the initial question about their relation to GMR, either individually or institutionally (i.e., "What is your/your institution relation to the GMR?"). They were later asked to describe GMR current status. Additionally, they were invited to talk about the major issues happening in GMR at present and their influence in the current status. Finally, they were requested to share their thoughts about potential ways to address or solve those issues.

Following Mangi and Austen (2008) and Hamilton (2012), the interviews with fishers were at landing sites, on piers, or at their homes; whereas other participants were interviewed at their local offices or operating centres. In total, thirty-nine persons were interviewed, including eight tour operators, eight diving centers staff members, two

naturalistic guides, eight small-scale fishers, five scientists, five park managers, and three employees of maritime transport companies. Four people declined to participate, due in some cases to their admitted lack of knowledge about the GMR, while in other instances because of their mistrust and discomfort of being interviewed.

The data collection period totalled about six months during three field seasons (2010, 2011, and 2012) and took place mostly throughout the rainy period. The interviews lasted about 50-60 minutes on average. All interviews were conducted in Spanish, with the written notes subsequently transcribed into English. After transcription from raw data, interviews were coded for content following Braun and Clarke´s (2006) thematic analysis approach, which is an analytical process based on segmentation, categorization, and re-linking of smaller sets of data before its final interpretation (Grbich, 2007). It was used to identify common emerging themes or patterns within data that are important to describe the phenomenon under study. By carefully reading and re-reading the data, we examined, identified, categorized, analyzed, and coded datasets (Constas, 1992; Chi, 1997; Nicholas and McDowall, 2012; Zinda, 2012).

Coding implied finding common ideas, by examining, identifying, categorizing, and reporting data sets, as an iterative process of inductive line-by-line coding (Constas, 1992; Aronson, 1994; Chi, 1997; Braun and Clarke, 2006; Nicholas and McDowall, 2012, Zinda, 2012). After reading and marking the text, some significant passages were extracted (Seidman, 2006; Rubin and Rubin, 2005) and coded to conceptualize the ideas related to important aspects of the research (Rubin and Rubin, 2005). Certain judgement was exercised at this point while extracting “significant” segments from transcripts. Consistency

in observation, labeling and interpretation was emphasized to increase reliability as suggested by Boyatzis (1998).

Quotes from participants have been used as supporting evidence and include a referential code, written in brackets, that represents the participant number and the date when the interview was conducted. Results from the system analysis are interpreted in terms of governability of the GMR.

3. Results - *The GMR Systems*

3.1 The System-to-be-Governed

3.1.1 The natural sub-system

The Galapagos archipelago are volcanic islands located 1,000 km. off Ecuador, with a land area of about 8,000km^2, including 19 big islands,107 islets and rocks (PNG, 2006; Baine et al., 2007)(Figure 1). Despite early human presence on the islands (Heyerdahl and Skjölsvold, 1956), its official discovery occurred on 1535 (Latorre, 1999).The GMR fosters unique species of marine flora and fauna, compared to any area of its size worldwide (Bustamante et al., 1999), with almost 60% of the species endemic to the area (de Groot, 1983; Bustamante et al., 2002; PNG, 2006;UNEP, 2011). These geophysical and ecological features, along with the high biodiversity, productivity and endemism (Danulat and Edgar, 2002) of Galapagos marine environments, make the islands one of the most diverse and complex marine ecoregions in the world(Olson and Dinerstein, 1998; Olson et al., 2002; Bensted-Smith et al., 2002). The convergence of three major oceanic current systems in this area (i.e., Humboldt-, Panama-, and Equatorial Undercurrent) adds to the overall richness (Edgar et al., 2004; Baine et al.,2007; UNEP, 2011), creating three types of marine

ecosystems characterizing the GMR, i.e., coastal zone, shallow waters, and deep seas (Banks, 2007; Castrejón, 2011). The importance of the natural sub-system is well recognized, reflecting in the protection of the 40-miles zone of marine environments around the archipelago under GMR (Figure 1), after the special law declaration in 1998.

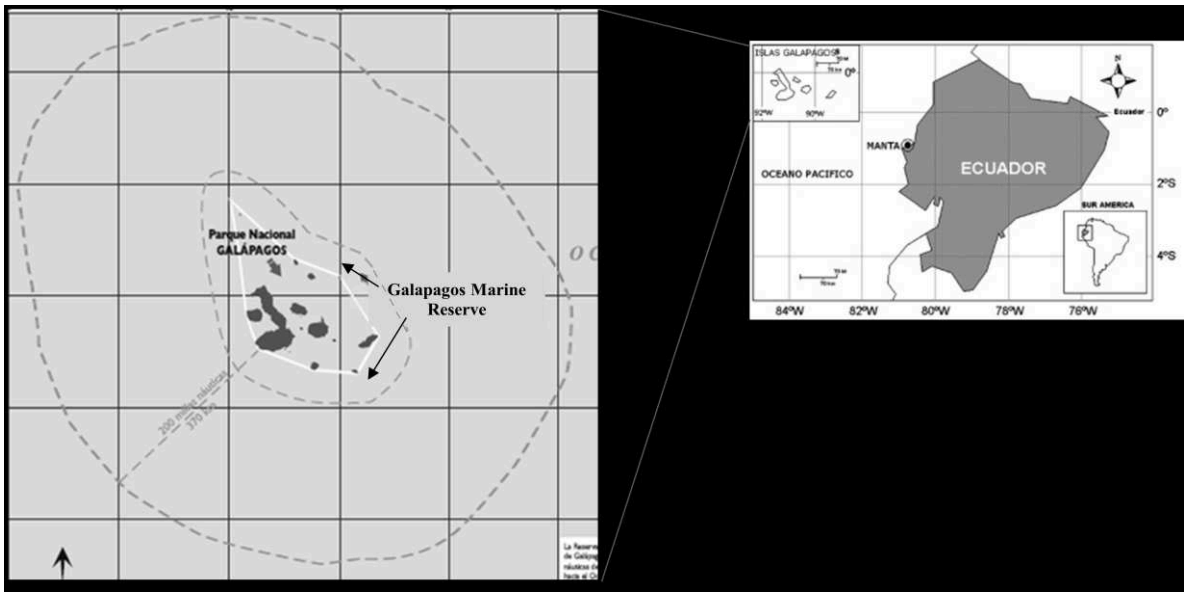

Figure 1. GMR natural system (Modified from ECOLAP and MAE, 2007).

Marine species in the GMR are either resident or transient, depending on the nutrient supply from the ocean currents, temperature, and current strength (GCT, 2013). Their distribution is uneven with high concentrations of marine taxa (e.g. sharks, stingrays, and sea turtles) in pelagic zones of deep waters depression and sea mounts around Isabela, Fernandina, and Wolf (Hearn et al., 2010; GCT, 2013). These marine species vary in their importance to different sectors, and in terms of how well they are managed, as shown in Table 1. These features of the natural sub-system of the Galapagos create governability challenges, resulting, for instance, in some species being better managed than others.

Table 1. Key marine species for fishing and tourism sectorsof Galapagos and their management and ecological status

Taxa	Scientific name	English name	Status
Invertebrates	*Isostichopus fuscus**	Sea cucumber	Managed[1, 4]
	*Panulirus penicillatus** and *P. gracilis**	Spiny lobster	
	*Scyllarides astori**	Slipper lobster	
Fishes	*Carcharhinus galapagensis*°	Galapagos shark	Vulnerable[1,3,4,5]
	Triaenodon obesus°	Requiem shark	
	Sphyrna lewini°	Hammerhead shark	
	*Mycteroperca olfax**	Galapagos cod	
	Rhincodon typus°	Whale-shark	
	*Thunnus obesus**	Pacific bigeye tuna	
	*Acanthocybium solandri**	Wahoo	
	*T.albacares**[4]	Yellowfin tuna	Nd
Reptiles	*Testudine* sp. °	Giant tortoise	Managed
	Conolophus subcristatus °	Land iguana	Nd
	Amblyrhynchus cristatus °	Marine iguana	Vulnerable[2]
	Chelonia mydas agassizii °	Green sea turtles	Endangered[2]
	Lepidochelys olivacea °	Olive-ridley turtle	
	Dermochelys coriacea °	Leatherback turtle	Critically Endangered[2]
	Eretmochelys imbricata °	Hawksbill turtle	
Birds	*Sula nebouxii* °; *S. sula*°	Blue-&red-footed booby	Nd
	Phoebastria irrorata °	Waved albatross	Vulnerable[2]
	Larus fuliginosa°	Lava gull	
	Spheniscus mendiculus °	Galapagos penguin	Endangered[2, 4]
	Phalacrocorax harrisi °	Flightless cormorant	
	Pterodroma phaeopygia°	Galapagos petrel	Critically Endangered[2]
Mammals	*Zalophus wollebaeki* °	Galapagos sea lion	Vulnerable[2]
	Arctocephalus galapagoensis °	Galapagos fur seal	
	Physeter macrocephalus°	Sperm whale	
	Megaptera novaeangliae°	Humpback whale	
	Balaenoptera musculus°	Blue Whale	Endangered[2]

Source: [1]Edgar et al., 2004;[2]Edgar et al., 2008; [3]Castrejón, 2011; [4]Luna et al., 2012; [5]Jobstvogt, 2010 unpublished; nd (no data). *Species with economic interest for the local small-scale fisheriessector (Danulat and Edgar, 2002; Castrejon, 2011). °Species with interest for tourism sector (Quiroga et al., 2009 unpublished)

3.1.2The social sub-system

Permanent human occupation in Galapagos dates from 1832, when the archipelago was officially annexed to Ecuador's territory. At that time, given the position of Galapagos as an strategic point within inter-oceanic maritime routes between Central and South American toward Asia, Polynesia, and Australia (Luna Tobar, 1997), the islands were object of considerable geopolitical interest by imperial maritime powers (Celata and Sanna, 2010). By then, the Ecuadorian State faced pressure to claim the islands as territory under its national sovereignty. Additionally, during the WWII until late 1960s, a U.S. Navy Base operates in

Baltra Island (Grenier, 2002; Finley, 2009). Currently, Galapagos Islands are one of the twenty-four Ecuadorian provinces and host over 30,000 inhabitants, both in urban and rural settings (INEC, 2010). This population has grown from thefirst important migratory movement, that thrived in the early 1990s, as a consequence of the sea cucumber fishery explotion (Ospina and Falconí, 2007; Grenier, 2007).

Currently, there are at least 1,100 fishers holding permits to fish in Galapagos, locally known as PARMA license (PNG Database, 2012; Palacios and Schuhbauer, 2012). Of these, only between 400-470 are commercially active (Palacios and Schuhbauer, 2012; Schuhbauer and Koch, 2013). The tourism sector includes tour agencies, diving centers, and naturalistic guide operations. Maritime transportation has dozens of speedboats (Denkinger et al., 2013), providing inter-island transportation services.The islands also host a number of scientists, although there is no official record of their number. Finally, the GMR management staff represents a sizeble sector of the island population, distributed betweenthe headquarters in Santa Cruz, two technical units in San Cristobal and Isabela, and a technical office in Floreana (PNG, 2014). Information about the key sectors that the study focused on are presented in Table 2.

Table 2. Demographic information of the key interest groups.

Sector	Island			Active
	Santa Cruz	San Cristobal	Isabela	
Small-scale fishers	262[1]	520[1]	241[1]	400[2]- 470[3] (1,035[4]-1,216[3] officially registered)
Tourism Operators[5]	53	25	9	87
GNPS personnel				238[6]-334[7]
Tourism boats' permits				89[4]- 90[5]

[1]Fishers associated with cooperatives (Source: Castrejón, 2011). [2]Schuhbauer and Koch (2013); [3]Palacios and Schuhbauer (2012); [4]PNG (2012);[5]Tourism Ministry Data Base (2011); [6]Rozzi et al. (2010); [7]PNG (2014). Numbers in the "active" column includes Floreana records.

The diversity, complexity and dynamics observed in the social sub-system of the GMR are to be expected given the characteristics of the natural sub-system. Small-scale fishers in Galapagos, target several pelagic and demersal species. Reports show that 25% of the total catch correspond to the Misty grouper (*Epinephelus mystacinus*); 16% to the Galapagos sail-fin grouper (*Mycteroperca olfax*);7% to the Wahoo *(Acanthocibium solandri)*; and 16% to the Yellow- and Black-tailed mullet (*Mugil galapagensis* and *Xenomugil thoburni*), and to the Yellow-fin tuna (*Thunnus albacares*) altogether. Less common species made 20% of the total catch including theMottled scorpionfish (*Pontinus clemensi*), the Whitespotted sand bass (*Paralabrax albomaculatus*), the Almaco jack (*Seriola rivoliana*), the Ocean whitefish (*Caulolatilus princeps*), and the Dog snapper (*Lutjanus novemfasciatus*). Finally, 16% were represented by other species (Molina et al., 2004). The sea cucumber (*Isostichopus fuscus*) fishery in 2004 involved 874 fishers and 446 boats (Hearn et al., 2004a),whereas the spiny lobster (*Panulirus penicillatus* and *P. gracilis*) fishery in the same year included 657 fishers and 309 boats (Hearn et al., 2004b).

Fishers in Galapagos apply diverse fishing practices and gears with varied effectiveness. For example more than 70% of the catches, mostly demersal species, are from *empate* (pasive gear with line and hooks); whereas 16% are obtained with the *señuelo* or *pluma* (active gear of line with hook) including mainly pelagic species, and 11% of catches correspond to gillnets and mostly include coastal-pelagic species (Molina et al., 2004). Sea cucumber and spiny lobster fishery are almost exclusively restricted to diving-collection practices (Table 3). Catches were once exclusively used for local consumption, but demand for salt-dried (cured) filets of the Galapagos-sail fin grouper triggered higher catches and increased exportation since the late 1980s.

Table 3. Gears and boats used in finfish fisheries.

Fishing boats		Fishing method	Frequency ofuse [a]	% of total landing caught with this gear [a]
Pangas[1]	3,8 – 8,3 m. long, open wood boats; 10-85 HP engines	Empate[2]	Very high	71
Fibras[1]	5- 9,6 meters fast fiberglass boats; 25-200 HP engines	*Señuelo/pluma* (Lure)	High	16
		Hawaiian spear	Medium	2
Boats	8 – 17,5 m. long wooden boats; 30-210 HP engines	Beach seine	Medium	11
		Chinchorro(Shore seine)	Low	2
		Hook and line	Low	2
		Diving (compresor)	High	*ca.* 100%

Source: modified from von Gaegern (2009 unpublished); Castrejón (2008 unpublished).

[a]Molina et al. (2004); Hearn et al., 2004a, b.

Maritime tourism is another key aspect of the GMR social sub-system. It is conducted by local, national, and international agencies and operates at different scales. The larger businesses are ship-basedcruises, while sailboats, daily-tour boats and transportation ships operate on a smaller scale. Additionally, a deluxe-type of tourism is represented by "mega yachts," five to ten of which arrive in Galapagos eachyear.

Other groups and individuals form a constellation of interest groups in the GMR. Officially, there are *ca.* 220 civil society and governmental groups in the area related to conservation, farming, sports, elderly people, religious, trade, and volunteerism (Watkins and Martinez, 2008). Some of them have been present in Galapagos for more than five decades, e.g., Charles Darwin Research Station, whereas others have been recently created (especially religious associations and volunteer agencies). Among them, conservation and volunteer-related groups are directly connected to the GMR.

[1] These two type of boats compose almost 85.5% of the registered licenses in GMR (Castrejón, 2008)
[2]Called "*línea de mano*" or "*cordel*" (Nicolaides et al., 2002); is a simple handline fishing gear (von Gaern, 2009) using a line with hooks joined at different levels in a vertical disposition

The complexity and dynamics of the social sub-system of the GMR are amplified by the disparity in contributions from each sector to the local economy and by the unequal allotment of funds within the interest groups. This unevenness generates tension and represents potential source for conflicts. One example is the influential role that the tourism sector plays locally, compared to other sectors, due to the significant amount of money circulating around it. Of about US$ 73.22 million in Gross Island Product in 2005, more than 65% came from tourism and tourism-related activities (e.g., equipment rental, locally and mainland-based cruiseship), with an average income of US$ 85 million per year (Epler, 2007; Taylor et al., 2009). Additional earnings came from fishing and fishing-related business (8%), commerce (8%), agriculture and livestock (5%), and services (e.g., restaurants, bars) (7%), with the rest coming from transportation, household resources extraction and processing (e.g., water), and other activities (Epler, 2007).

In this context, fisheries contributed to Galapagos economy with an average income of US$2-7million per year (Hearn et al., 2006), with the highest amount during sea cucumber season of 2005 when US$6 million were earned from this activity alone (Portilla 2005 unpublished, UNEP, 2013, Taylor et al., 2009). Furthermore, management (in 2001) and scientific sectors (between 2002-2006)have contributed to the local economy with US$5.3 millions (from GNPS entrance fees) and with US$11 millions (from national and international donors), respectively (González and Tapia 2005; BID 2006; Ospina 2006; WWF-USAID 2006; Castrejón et al. 2014).

With respect to funding allocation, between 1999-2005, 63% of the total national and international funding was invested in biodiversity conservation in Galapagos, whereas only 37% was alloted to human development (Salcedo-Andrade, 2008). The National Park

authority (DPNG, 2014) reports the distribution of the funds within Galapagos bodies as follows: GNPS (45%), Autonomous Local Municipalities (25%), Government Council (20%), Navy (5%), and the National Agency for Health and Harmlessness in Agricultural and Cattle-harvesting activities (AGROCALIDAD) (5%).

Such disparity generated sectoral conflicts, particularly with small-scale fisheries who felt that they were taken advantage of by the way funds were raised and allocated, as expressed by one interviewee.

> "They [conservation and research bodies] hide behind the small-scale fisheries sector to get funds. They invite us to participate, offer us coffee and spend thousands of dollars that were donated in name of the fishing sector" (P25, 26.05.11).

The social sub-system is further convoluted by scale issues associated with the lack of well-defined boundaries. For instance, the categories "residents" and "non-residents"used by government officials, according to the local rules, do not align with how local people recognize each other, which is based onthe time of their arrival to the islands, as suggested below.

> "[T]he population [is divided]into groups or segments, in order of arrival to the islands: the first settlers, the intermediate settlers, the new migrants. They [the first settlers] were at the beginning, the first opponent to the delimitation and formation of the protected area as GNP. Those who most support the conservation of the islands [at present] descend from them. The second are the *colonos* interested in doing business and earning money. They are business people who were little by little involved in the islands, and in the long run, through marriages with locals or children being born here, became "locals" also attached to the islands. The third group is the new migrants. They never had real attachment to the place; they regret having arrived here, and want to be back [tothe mainland] but cannot due to lack of money […]. They have not adapted to this placeand always intend to have a mainland lifestyle" (P05, 21.07.10).

This distinction plays a role in the perception that *Galapagueños*[1] and non-*Galapagueños* have of each other, which is likely a reflection of their vision about the sustainability of the islands.

On the whole, the above characteristics (i.e., complexity, diversity, dynamics and scale) of the natural and social sub-systems of Galapagos create challenges to the governance of the GMR, and contribute to lessen the overall system governability. While not much can be done to change some of the more inherent characteristics, certain governing interventions may result in changing some aspects of these systems, making them more governable. Whether and how this will happen will depend on the features and capacity of the governing system, as later discussed.

3.2 The Governing System

The GMR is governed by a co-management system, which is novel in Ecuadorian standards. It represents a shift from a traditional hierarchical approach toward a horizontal management model, operating under three key principles: participation, adaptive management, and precautionary principle (Baine et al., 2007; Heylings and Bravo, 2007). The two managerial bodies created in order to facilitate the co-management model are the Participative Management Board (PMB) and the Inter-institutional Management Authority (IMA). Both provided ground for the different interest groups in the GMR to legally participate indecision and policy making (Heylings and Bravo, 2007; Castrejon, 2008).

The PMB (locally known as "*La Junta"*) is the local executive forum for advice and consultation about concerns regarding the GMR. It comprises of representatives from the

[1] Demonym for people born in Galapagos.

local small-scale fisheries sector, the Galapagos Chamber of Tourism, the Naturalistic Guides Association, the Science and Education sector (initially represented by the Charles Darwin Research Station) and the management sector (represented by the GNPS serving as the executive arm of the GMR). Inside the PMB, the GNPS represents the executive arm of the GMR at implementing the management plan (Heylings and Bravo, 2002; PNG, 2006; Baine et al., 2007). It is within the PMB that interest groups can submit proposals about issues that require deliberations and consensus.

The IMA is a ministerial forum of decision making, based on Ecuador's mainland. It is formed by the Ministries of Environment (acting as President), Agriculture-Cattle-Aquaculture-and-Fisheries, Tourism, and Defence. Additionally, it invites representatives of the Ecuadorian NGOs Network (CEDENMA) and local sectors (i.e., the small-scale fisheries and the Galapagos Chamber of Tourism). Furthermore, it includes the Charles Darwin Research Station (acting as Technical Advisor) and the GNPS (acting as Technical Secretariat for the Environment Ministry) (see Figure 2).

In cases where consensus is not achieved at the PMB level, the proposal is still forwarded to IMA for resolution, accomplished through a majority voting system. The IMA resolution becomes binding and must be executed by the GNPS and/or its advisor(s). Additionally, when urgent actions are needed, GNPS can take decisions by direct resolutions independently from both boards (PNG, 2006; Baine et al., 2007).

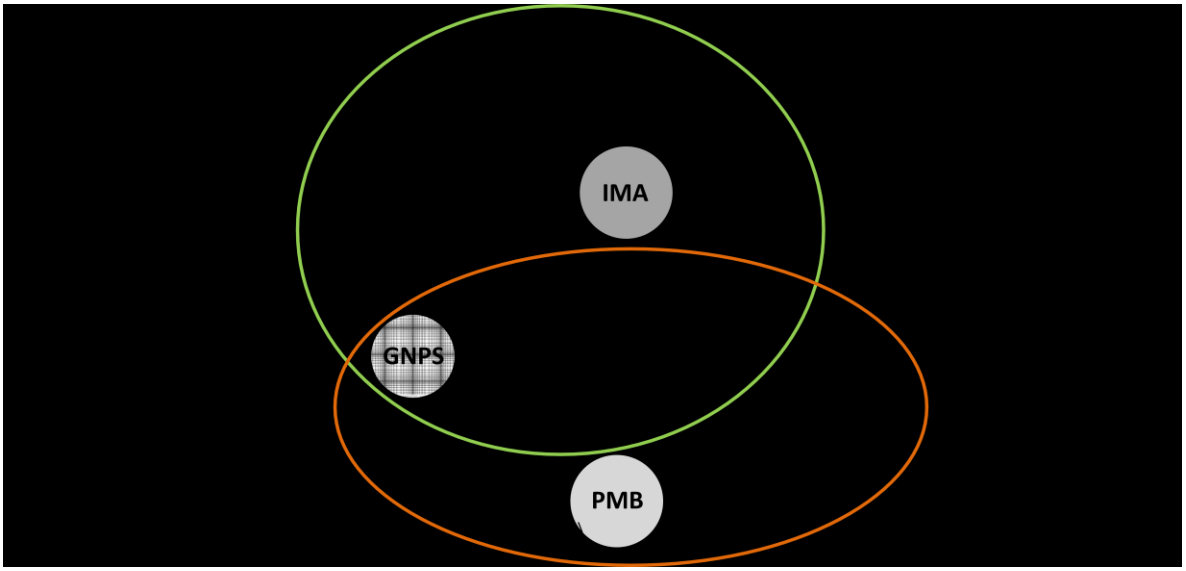

Figure 2. GMR´s Governing System (Modified from PNG, 2006; Heylings & Bravo, 2007; Baine et al.,2007).

One of the key management instruments employed by the governing system is zoning of the protected area with differentiated activities allowed within it (e.g., tourism, small-scale fisheries, scientific research, management, and maritime transportation). This zoning system describes three main areas: multiple-use zone, limited-use zone, and harbor-zones. Our study found, however, that despite the consensus about the zoning, disagreements regarding its implementation still exist.

> "They [GNPS] control the fishing sector chasing us [fishers]....the tourism sector has always had advantages over us [small-scale fisheries sector]. If we use a fishing site, then they [GNPS] come, displace us and give that site to the tourism sector. They [the tourism sector] are more powerful than us..."(P26, 07.06.11).

> "They [fishers]come to the diving sites and use the place to eviscerate their catches. This annoys us because they `*alborotan´* [whip] the sharks [up]...."(P35, 06.02.12).

These disagreements reflect the complex relationship between the interest groups in the GMR. For instance, sectors with representatives in the PMB are likely able to influence decisions at that level. Similarly, those with economic wealth and those with scientific knowledge are seen to have a stronghold in what goes on in the area.

> "Scientists, with their studies [the research done by them] and with their preparation, they are the ones who are able to give their opinion" (P31, 23.03.12).

> "Here, decisions are taken by NGOs, what they want... that is what is decided" (P21, 22.03.12).

> "Business owners from tourism and fisheries sector [boat owners] are those with high influence. Even more, some of the boat owners are based on Guayaquil or Manta" (P35, 09.04.12).

The co-management horizontal mode shaping the governing system of the GMR has undoubtedly created multiple opportunities for the social sub-system to take part in decision and policy making processes. However, despite its recognized value, there still are limitations of this management mode at improving the overall governability of the systems. Whereas it has managed to control and limit fishers' access to some marine resources, there is no evidence about what this governing system has done to set limits for the tourism activity. In fact, little progress has been achieved by the governing system in mitigating the push and pull effect of tourism over migration and the consequences derived from it.

The governing system is formally described as participatory in nature, under the co-management scheme. Our analysis shows, however, that in practice it follows a rather hierarchical characteristic. As shown in our study, while the co-management arrangement is effective in bringing traditionally opposed sectors (e.g., conservation, small-scale fisheries, and tourism) to the same decision-making table, operationally, the participatory quality of

the governing system is questioned. This sentiment is expressed by several people interviewed in the study.

> "Everybody says that it [the participatory process] works, but, does it really work? or at the end of the day is everything done as [one] person dictates?" (P23, 20.05.10).

> "The first and last word is taken by the GNPS. They meet, they decide, accept and publish everything before we are aware of it. They tell things to us only when everything is done. They do not take us into account…we are not part of the decisions" (P31, 13.06.11).

> "To take decisions, nobody asks for opinion. The [decision making] groups are only made by their own with the GNPS and private institutions" (P3, 01.02.12).

This perceived failure is related to three key aspects of marine resource governance, according to Jentoft (2000), Mikalsen and Jentoft (2001), and Buanes et al. (2004), i.e. legitimacy, power and urgency. In the GMR, legitimacy of some of the users' representatives in the governing body is contested. Furthermore, those being represented claim that leaders taking part indecision and policy making on their behalf are not fully entitled by their own sectors, but are instead enabled by their power and influence at higher levels (Marder and Arcos, 1985). Still, power within the PMB and IMA, are characterized by unequal power distribution among the different actors, often resulting in the marginalization of the less powerful of the sectors represented there. And urgency, considered as the degree to which stakeholder claims call for immediate attention (Buanes et al., 2004), in GMR is perceived to be defined by the interest of the most powerful actors within the PMB and IMA.

> "The problem is the bad administration of the small-scale fisheries sector…Those who are the ´heads` [the fishers cooperative´s representatives]only care about their own benefit …or their friends or relatives" (P26, 07.06.11).

> "There is not a good representation of the fishers by the administrators [fisher´s leaders]. They do not have accountability Nobody knows how much they earn, how much they spend, where they invest the money….Only when the people [fishers] get fed up, they [fisher´s leaders]are requested to render accounts. And because they are not able to do that, they are kicked out….but there are no changes, it is always the same" (P26, 07.06.11).

> "Another interesting factor is the legitimacy. What is legitimacy? What is legitimate or illegitimate? Legitimacy is the perception of the world. The basics here are the multiplicity of interests that are in play. What the actors are interested in, determines the form, level, intensity and trend in the participation. The determinant issue is what motivates their interest? How is the interest used? Is this interest legitimate or illegitimate? Is there a dominant interest?... If there is interest, there is participation" (P01, 22.07.10).

In sum, the co-governance arrangement of the PMB facilitates local discussion about important issues affecting local stakeholders while IMA provides additional avenues for decision-making. The multi-level governance structure, with the majority of actor groups involved in both local and national governance, offers some advantages and disadvantages. For instance, issues can be dealt with locally and timely, but actors can also influence decisions at the national level, if they find local-level decision unsatisfactory. Various governing interactions take place within the governing system, which may foster or impede governability, depending on their nature and quality, as further discussed.

3.3. The Governing Interactions

The interactions understood as "associated infrastructures" (Anderies et al., 2004) are characterized by the rapports taking place between and among the GS and the SG's sub-systems (Kooiman, 1993; 2003). In GMRthe interactions are diverse, dynamic, and complex. In general terms, interactions between the GS and the two SG sub-systems are influenced by two conditions: the excellent knowledge of the natural subsystem and the deficient quantity and quality of the social subsystem understanding. The reason for this is the overestimation

of the former against the underestimation of the latter. For instance, the GI, at decision and policy making between GS and natural SG, have been dominated by good quality and quantity of information regarding habitats health, marine resources status, and threats. Opposedly, the GI between GS and SG-social subsystem are almost restricted to the compliance and enforcement of the *LOREG*, via law observance, enforcement, and prosecution.

Additionally, some GI mechanisms taking place in GMR coincide with those illustrated by Song and Chuenpagdee (2010): participation (e.g., fishers taking part of priority issues identification at PMB); communication (e.g., through information published by research institutions); collaboration (e.g., by co-executed projects between GNPS and CDRS staff); and adaptation (e.g., by fishing quotas and/or ban establishment).

4. Discussion

Previous governance assessments of GMR (Heylings and Bravo, 2007) described the legally-based multi-stakeholder co-management regime currently responsible for all decisions on marine resources management within the reserve. They evaluated GMR governance based on quantitative and qualitative criteria provided by rankings given to issues addressed along the participatory processes. Furthermore, Castrejón et al. (2014) analyzed two local institutions (i.e., Galapagos National Park Service and Charles Darwin Foundation) as the key drivers of fishery science in Galapagos, illustrating the different periods in this scientific development. Finally, Jones (2013) tackled governance and management effectiveness by illustrating diverse strategies to achieve the outcomes (e.g., incentives) and some important issues occurring within the GMR area. Adding to this body of literature, our research takes the GMR governance analysis to another level,with the interactive governance and

governability lenses. We illustrate this with the discussion below, framed in the context of the research questions, i.e, how GMR is governed, features of the GMR´s systems that influencegovernability, and how to address the governability challenges.

4.1 Formal vs. operative nature of the GMR

Disparity between formal and operative nature of the GMR is found in all systems (Figure 3). Consequently, it can be argued that GMR is governed differently from what the theory calls and what the practice unfolds. While the natural sub-system claims relative "pristine" condition as its formal description, the state of the social sub-system is practically unknown. From the governing system perspective, the natural sub-system is formally managed as a territorial sea. Yet, in practice, a zoning system is used. On the social side, the human activities are formally described to be circumscribed to the sectors functioning with a bottom-up approach whereas operationally, they perform network-based features within top-down attributes (DPNG, 2014).

	System-to-be-governed		**Governing system**
	Natural system	**Social system**	
Formal	Territorial-provincial space	Sectors / bottom-up	Participatory
Operative	Zoning	Networks / top-down	Hierarchical

Figure 3. Formal and operative features of GMR´s systems.

The inherent attributes of the governing system and the systems that are being governed –in their formal and operative shapes–are compromising the governance quality of the GMR (DPNG, 2014). For the most part, the technical solutions employed by the governing system based largely on the natural scientific knowledge have insufficiently

addressed the challenges related to either the environmental sustainability or society's wellbeing (Jameson et al., 2002; Quiroga, 2009). One illustration of this is in fisheries where rules and regulations provided by the operative hierarchical governing system do not take into account the dependency of fishing people on the marine resources. In other words, the 'network-based' social sub-system requires a different governing system that is not zoning-based, which is what applies to the natural sub-system.

In addition, historically, prosperity in Galapagos came from small-scale fisheries but increased with tourism development, commerce and building construction. The formally described participatory governing system has emphasized fishing and fisheries as its main target. However, it has rarely acknowledged the implications of the extensive dependency of the local economy on tourism and its vulnerability to globalized mechanisms such as international markets, state-safety policies, and risk perception (Baine et al., 2007; Beck, 2011). Instead, this governance mode supports tourism, which as a network-based business of hierarchical nature, is closer to global geopolitics, economic trend, and to Ecuadorian national politics than to the sustainable practices needed in GMR.

It should be noted that in Galapagos, the dynamics of both industries are influenced by local and national fish markets and also tourism global demand, as direct exogenous influential factors. This globalized force has decreased the archipelago isolation and opened doors to the outside world (Grenier, 2002, 2007a,b; 2009; 2010). Naturally, globalization brings with it more complexity and dynamics, which may affect the system governability. The governability of the GMR would be deeply linked to how these global- or locally-based factors influence all the GMR systems.

4.2.Features influencing GMR governability

On a positive side, it could be argued that the currrent co-management governing mode contributes to the GMR stability, permanence, continuity, and credibility. Additionally, it can be seen as fostering participation of a great diversity of institutions and actors associated with a wide range of activities, origins, competences, and functions, each with different level of involvement and commitment. Finally, the double role that some of the governance actors play within the PMB and the IMA (e.g., GNPS, small-scale fisheries, tourism, and science as shown in the overlapping area in Figure 2) broadens their possibilities to influence decision and policy making. Nevertheless, the co-management system faces certain challenges. For instance, the members' participation is influenced by legal, ethic, and moral attributes, which are not necesarilly voided of competing interests, power position, and economic influence. Consequently, the governing processes depend on where, how,and by whom marine resources are used, managed, and governed, as well as whether they are based on short-term or long-term interests.

One key factor affecting governability of the GMR is the misalignment observed between the formal and operative features of the governing system and of the natural and social sub-systems-to-be-governed. In fact, the GMR governability is likely to be diminished when the participatory governing system operates hierarchically by dictating rules, compromising therefore ethical and moral realms of the social sub-sytem. For example, two of the three principles that provide the basis for the GMR creation, i.e., participation and adaptive management, are not fully followed, with the exclusion or restriction of access of local users to some marine resources (Baine et al., 2007; Heylings and Bravo, 2007). Fairness and justice question arises when local users are obliged to used damaged areas,

whereas the more pristine environments are kept for foreign divers or exclusively reserved for wealthy people visiting the area as tourists.

Additionally, the governance of the natural sub-system based on the imposition of regulations to only one segment of the social sub-system (i.e., fisheries) has been claimed not only to diminish the resilience of local fishers, but also to threaten the basic right of humans to access to a decent livelihood. Evidence of this is the occupation displacement when the first and second generation of Galapagos fishers could no longer stay in the fisheries. Neither could their children and other younger generations. Instead of fishing, some of them become nature guides or switch to other primary activities (e.g., agriculture), to services sector (e.g., tourism, transport, logistics), and even to administrative positions (e.g., politics, bureaucratic roles). Unfortunately, they do not always succeed.

Moreover, the interactions between GS and SG-natural and social sub-systems are not effective partly because the overwhelming existing knowledge about the natural sub-system *versus* the incomplete understanding of its social cunterpart. Consequently, GI are eventually built over knowledge gaps, addressing social dimensions as if they would be nature-based issues. That approach clearly reduces the governability of the system, and its governance quality, which in Watkins and Cruz (2007:4) words are due to the tendecy to "base decisions over assumptions and perceptions instead on solid information".

Furthermore, other human-related issues (e.g., food security) arise from the regulation ofthe natural sub-systemby the governing system, through the zoning system. For example, regardless of the limited access of local fishers to fishing grounds, the local demand for fish (e.g., by restaurants, hotels, and cruise ships) will remain and will be likely supplied by external sources, either from the mainland or from abroad. An example was

provided by an interviewee about octopus imported from the mainland for local consumption in Galapagos and being re-exported back to the mainland, with the label of "Galapagos' octopus". This situation implies that prices of fish products would increase, with access to fish by local residents reduced. Possible consequences of this would be malnutrition and mental health issues, including the emergence of feelings of unhapiness, exclusion, and marginalization. As seen in many places, the 'weak and unhappy' social sub-system could easily generate governability problems in the long-run (Axelrod, 1994; Blount and Pitchon, 2007). On the contrary, tourism has only slightly been recognized as an "indirect" driver (DPNG, 2014) for the effects on Galapagos environment, which disregards the real effect of this industry on the islands sustainability.

We argue that the current and future threats on the GMR create stresses on both natural- and social sub-systems. More emphasis is required to understand the latter and incorporate such knowledge in decisions and policy-making about the GMR. The study also highlights the need to recognize that neither co-management nor hierarchical governance models, on their own, provide solution to the GMR conflicts. Additionally co-management has demonstrated not to be the panacea but instead only one governing mode that needs to be adapted to the GMR system's own qualities and context. If this outcome is achieved, the systems would likely be more governable, their governance would improve, and the system's "long-term robustness" (Anderies et al., 2004) would increase. The co-existence of this co-governance mode with another (e.g., hierarchical governance) within the same nation-state (e.g., GMR and Ecuador mainland) does not taint the essence of the horizontal governance approach maintained in Galapagos.

Indeed, operating as harmonizing mechanisms under the "*Buen vivir*" (or good living) paradigm predicated by the Ecuadorian National Constitution, both modes could help to improve wellbeing and sustainability of social and natural sub-systems at a larger national (or regional) scale. A positive sign that GMR authorities may be keen to follow this recommendation is the shift experienced on the protected areas management approach presented by the new Galapagos Management Plan (DPNG, 2014). For the first time in its history, Galapagos has a unified management instrument for both terrestrial and marine protected areas. This initiative, despite its still dominating managerial-based focus, responds to a national vocation (and regional trend in Latin American countries) to give a sense of unity and comprehensiveness to the state-ruled institutions (e.g., Galapagos Protected Areas) within their corresponding nation-states.

4.3. How to address these challenges?

Within the nation-state context, the formally defined territorial-provincial design of the natural sub-system in GMR is a critical jurisdictional feature for its governance and governability. Due to the dual status of *"the province-protected area model"* (Salcedo-Andrade, 2008) and to the overlapping scopes of the bodies involved in the GMR governance (e.g., the institutions of the PMB and IMA, and those who are not members but certainly are related to GMR like local municipalities), governing interactions are certainly uneven. Galapagos is a Special Territory but still holds features of other Ecuadorian provinces; this dual condition escalates the dilemma between keeping the benefits provided by an expanding economy, or maintaining the aesthetic gains of an unspoiled nature (Guha, 2005). Failing in addressing these issues dangerously conspires against the GMR governance in the long run.

5. Conclusions

While the GMR governing system has shown to be stable, it is rather complex and inefficient due to the differences between its formal and operative design. Additionally, the system-to-be-governed includes two sub-systems, which have received differently attention. On the one hand, the natural sub-system-to-be-governed has been shown to be diverse, dynamic, well monitored but vulnerable due to the anthropologic threats coming mainly from tourism and derived activities. On the other hand, the social sub-system-to-be-governed is under-represented within the governing system. In that regard, the quality of the participatory process is contested, low legitimacy is an issue, along with concerns about strong influence of power at decision and policy making. Finally, the lack of compliance, disappointment, and dissatisfaction from resource users greatly contribute to limiting the governing interactions and making them ineffective.

Recognizing that governability is the overall governance quality, and that it depends, first and foremost, on the characteristics of the system that is being governed, on the capacity of the governing system, and on the quality of their interactions (Song and Chuenpagdee, 2010;Bavinck and Kooiman, 2013; Bavinck et al., 2013), our research shows that GMR governability is reduced.The mismatch identified between what is needed by the natural sub-system (ecosystem health),what is expected by the social sub-system (social wellbeing), and what the governing bodies expect to accomplish (e.g., the six basic objectives of the Galapagos management programs, DPNG, 1014:117) conspire against the improvement of the quality of these systems interactions. In that regard, on the one hand the decisions, policies, and assessment of the governing capacity are mislead. On the other

hand, the passive resistance of the social sub-system at ignoring, infringing or violating the GMR´s regulations, complicate governance of GMR.

Addressing these shortcomings would require enhanced transparency and improved participation. But at the end, increasing GMR governability must also involve addressing simultaneous and multidimensional factors like ongoing social problems (e.g. criminality, teenage pregnancy, drugs abuse). Their solution must have the same urgency as those regarding fishing quotas and tourism permits, recognizing that neither political indifference nor environmental fundamentalism will solve the challenges to the GMR governability.

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Chapter 4 How is paradise imagined? Underlying images of users about the Galapagos Marine Reserve

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Abstract

The Galapagos Islands is perceived by many as a pristine area of biological diversity. In reality, human migration, urban development, tourism infrastructure, and growing tourist numbers threaten them. These attributes create different visions for varied interest groups. This paper illustrates the underlying images being created, and how they are influencing the status of the Galapagos Marine Reserve (GMR) and the quality of its governance, under the interactive governance approach framework. Thirty-nine qualitative semi-structured interviews were used to find out that the sometimes-conflicting use of marine resources contributes to the formation of opposing but also common images of the reality by the leading characters. The pro-conservation and pro-development paradigms within Galapagos discourses are widened by the notion suggesting that knowledge and goals are central to images being formed. Implications of these findings involve reconsidering the divorced development and conservation agendas in the GMR, to find common ground for some mismatching images to be compatible. Challenges in GMR governance must be addressed by shifting current dominant discourses of wilderness, harmless tourism activities, controlled migration, and perceived successful consensus-based participatory process. Only by overturning those vicious images can wellbeing for the natural and social systems, higher governability for the governing system, and improved governance in the governing interactions be achieved.

Key words

• Galapagos Marine Reserve • users • images • governing systems • MPAs

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1. Introduction

1.1. Images of paradise

To the eyes of the majority, Galapagos is the closest mental picture of an "undisturbed, pristine, wild, and natural destination," synonymous with the "untouched nature" ideal, and "mostly the facto wilderness" (Broadus, 1987; Wallace,1993; Diegues, 2005; Celata & Sanna, 2010; le Corre et al., 2011; Hennessy & McCleary, 2011). Other frequent visions of the islands see the archipelago as an *in situ* laboratory for scientific endeavor and ecotourism experiments, as the oldest ecotourism destination in the Americas, and as the place where sound marine conservation is achieved through good practices and a successful consensus-based participatory management model for decision and policy making (Honey & Littlejohn, 1994; Taylor et al., 2009; Jones et al., 2011). Additionally, for other people, Galapagos means the hardship in colonizing a hostile, rough, and inhospitable land (Ahassi, 2003).

These clashing images illustrate that the Galapagos Marine Reserve (GMR) means different things for different people. In fact, the existence of multiple "GMRs" corroborates that, first, contrasting images are social representations originated within cultural contingents; and historical system of values, ideas, and practices that have been used by social groups to understand phenomena (Moscovici, 2000). Second, that GMR images are not set in a social and political vacuum and their construction is only possible considering a pool of values, images, and principles that belong to the Galapagos' society. In that sense, since the GMR's creation, these dimensions have evolved but have remained hidden enabling the concealing of the MPA humanity (Andrade et al., 2010).

Some of the existing images of the GMR currently project worrisome scenarios of uncertainty. These visions are not optimistic due to long-lasting threats and unsolved conflicts (Budowski, 1976; MacDonald, 1997; Oviedo, 2000; Lucas et al., 2000; Ramírez, 2004; Zapata, 2005; Watkins & Cruz, 2007; Karez et al., 2006; Salcedo-Andrade, 2008), which are rooted in the two outstanding contemporary discourses held within the islands' society: whether Galapagos should continue under the same conservationist rationality (Celata & Sanna, 2010) or, a paradigm shift in management, scientific agendas, politic, and governance practices must be implemented (Watkins, 2008; Tapia et al., 2009).

1.2. Theoretical insights of images in MPAs context

The governance images fall within four philosophical dominions that influence our understanding of nature: cognitive (i.e., epistemological), normative (i.e., ethical), expressive (i.e., aesthetical), and affective (i.e., emotional) (Swart et al., 2001; Keulartz et al., 2004; Stern 2008). The interactive governance approach (see Kooiman 1993, 2003; Kooiman & Bavinck, 2005; Kooiman et al., 2005, 2008; Bavinck et al., 2005, 2013), recognizes images, values, and principles as "meta-level" governance dimensions (i.e., what governs governance, Song & Chuenpagdee, 2014). Furthermore, images are considered the ground where the first- (e.g., where people interact, problems are solved, and opportunities are created) and second-order governance (e.g. the maintenance of institutions to solve the problems) lay(Bavinck et al., 2005; Kooiman et al., 2005).

Images function as key constituents and guiding lights responding to the “how” and “why” of governance” questions (Kooiman et al., 2005; Kooiman & Bavinck, 2005; Kooiman & Jentoft, 2009). Additionally, images represent what people believe, perceive could happen, and what they think should be based on interpretations of the reality that model the society

discourses (Kooiman & associates, 1993; Jentoft et al., 2010). This reality, or our view of it, and its social construction are provided by the cognitive realm of the images and are represented in our mental models of them as metaphors, assumptions, visions, and generalizations of such reality (Chen 2001; Jentoft, 2006). The images also show the normative (and cognitive) concerns of resource (e.g., fisheries) users (Kooiman et al., 2005; Chuenpagdee, 2011; Song et al., 2013; Song & Chuenpagdee, 2014). Additionally, images represent not solely solutions, intentions, and purposes (Bavinck et al., 2005) but can also express views, visions, meanings, ideas, representations, cognitions, knowledge, facts, judgements, presuppositions, hypotheses, convictions, ends, and goals (Kooiman et al., 2008; Kooiman & Jentoft, 2009; Buijs, 2009; Buijs et al., 2012). Furthermore, life experience generates and enriches meanings, and thus images too, and provides explanation and guidance for their construction (Chen, 2001).

But why are images (and their associated values and principles) of GMR users relevant? First, they have been recognized as extremely important features in dealing with natural resources conservation, management, and environmental issues (Axelrod, 1994; Stern & Dietz, 1994; Cothern, 1996; Ambastha et al., 2007; Pita et al., 2011; Jentoft et al., 2012; Wallace, 2012; Buijs et al., 2012); MPAs and fisheries (Mascia, 2003; Christie et al. 2003; Salas & Gaertner 2004; Mangi & Austen, 2008; Pita el al., 2011; Charles & Wilson, 2009; Jentoft et al., 2011, 2012; Song et al., 2013); and systems and resource governance (Kooiman et al., 2005; Chuenpagdee & Jentoft, 2009; Song & Chuenpagdee, 2014). Second, images are a useful mechanism to provide context to decision and policy makers about the current state of affairs (Bavinck et al., 2005), based on actions, behaviors and interactions of those governing and of those being governed, which can either facilitate or block governance. Third, making images explicit enhances the transparency of processes and

therefore increases the willingness of interest groups to participate (Chuenpagdee, 2011a). Finally, integrating heterogeneous images into comprehensive views of nature may enhance the understanding of conflicts between users, caused by diverging views of nature and nature conservation (Buijs, 2009).

1.3. Challenges in GMR?

Due to the dominant hard-science approach of the scientific endeavour in Galapagos (PNG, 2006; Tapia et al., 2009), images of users, like other human dimensions affaires, have not enjoyed enough attention in addressing GMR's challenges. In fact, management actions, decision, and policy-making practices have used scientific facts as the only instrument to manage marine resources, without recognizing the theory-, value-, and power-laden nuances of this approach (Longino,1990).

Although numerous studies have tackled Galapagos society (Sylva, 1982; Marder & Arcos, 1985; Hermida-Bustos, 1987; Grenier, 1996, 2007; Oviedo, 2000; Ospina, 2001, 2003, 2004, 2005, 2006; Ospina & Falconí, 2007; Salcedo-Andrade, 2008; Quiroga, 2008, 2009) and GMR governance (Heylings et al., 2002; Heylings & Bravo, 2007; CI & USFQ, 2010; Jones et al., 2011; Jones, 2013) little analytic attention has been paid to the connections between imaginations of GMR with its reduced governability. Examples of research dealing with users and GMR's governance issues are few. Macdonald (1997) found that fishers' sense of marginality regarding management and decision-making process, and the few incentives to respect the law–perceived as alien, imposed, and inaccurate–greatly contribute to rule violations and conflicts. Additionally, Wurz & Wallace (1994), Velasco et al. (2002a,b) and Montesinos (2002) encountered that visitors' knowledge about biophysical features dominates over their awareness about participation, and regulations (i.e., zoning scheme)

implemented in the GMR. Finally, Finchum (2002) found out that a decisive factor leading to conflict is the underlying distrust on GNPS and to a lesser degree on CDRS, by fishers.

The analytic focus of this research provides additional insights into Marine Protected Areas (MPAs) and marine resources governance literature by clarifying the rather obscure role that users' images play in GMR governance practices (Kooiman & Jentoft, 2009). It adds an innovative framework looking at GMR governing systems from the "insiders" point of view (i.e., the social system-to-be-governed) and enhancing the role that local community can or actually plays in the GMR agency. In that sense, their images as social representations of the GMR inform users' attitudes and their behavior regarding the MPA, and may shed light on reasons supporting or opposing certain management approaches (Buijs et al., 2006; Fischer & Van der Wal, 2007).

This research extends existing investigations conducted in Galapagos by using a novel approach provided by the interactive governance to illustrate how the social system-to-be-governed imagine the GMR, either as a natural system-to-be-governed or as a governing system. In that sense, contrary to the suggestion that just by implementing programs in education, participation, communication, and building awareness, attitudes, values, skills, and stewardship of Galapagos residents can increase (Barry & Knab, 2005; PNG, 2006), this research proposes that higher governability and improved governance can be achieved by making evident the current GMR users' images. Based on Kooiman (2003) and Jentoft et al. (2010) we recognize the critical role that images play in MPAs governance and governability and we argue that by understanding users' images as meta-governance features (Bavinck et al., 2005) and as permanent and integral attributes of the act of governing (Song & Chuenpagdee, 2014), GMR agency can be improved.

By using a case study type of inquiry set in the Galapagos Islands, we aimed to further understand how users imagine the GMR. To do such, we document their images at three dimensions by (i) illustrating the most common images about the GMR, (ii) exploring how they are formed, and (iii) describing how they influence GMR governance. A general discussion about their implications is presented toward the end.

2. Method and study design

This study, rather than generalizing the findings or testing hypotheses within the general public (Stern, 2008; Buijs et al, 2008; Golding 2012), aimed to shed light on the phenomena of interest by studying in-depth a single case example of it (Stake, 1978; Gomm et al., 2000) and by gaining a wide understanding of the existing images of the GMR. The research combined varied methods (or triangulation, Clifford & Valentine, 2003), including in-depth, semi-structured, open-ended interviews or guided conversations (Walmsley et al., 2005) with local–national and international–representatives of interest groups. It also integrated field observations at numerous public meetings, consultation sessions, and informal conversations dealing with the GMR issues. This was supplemented by review of relevant grey literature, academic publications, local newspaper and television programs.

The data collection period totalled about six months during three field seasons (2010, 2011, and 2012) and took place mostly throughout the rainy period. The semi-structured interviews were face-to-face, and lasted *ca.* one hour; additional hand-written notes were recorded during all interviews; and detailed field notes and transcriptions were prepared after 1-2 hours the interview ended. Alike Leong (2010), and respecting certain cultural implications, the interviews were not audio-recorded, but care was taken to document the specific language used by interviewees, as well as voice inflection, tone,

gestures, and body language that conveyed meaning. All the fieldwork was conducted in Spanish and was subsequently transcribed into English. All translations are the first author's own.

The interview started with one introductory "ice-breaking" question (i.e., "What is the GMR for you") used to test the general knowledge of the participants, to get hints about their notions of the GMR, and to help in reducing the possible stress and discomfort for the interviewee. Furthermore, three additional questions designed to inform about elements influencing images were asked (Table 1).

Table 1. Questions to elicit GMR users´ images.

#	Question
0	What is the GMR for you?
1	How did you first hear about GMR? (options provided)
2	How are you related to the GMR? (options provided)
3	Have you been involved in the following activities? (options provided)

2.1. Respondents and interviewing process

The interviewees represented activities or sectors legally entitled by the Special Law for Galapagos (*LOREG* its acronym in Spanish*)* within the GMR. In order to identify an appropriate environment, to account for a breadth of relevant perspectives (Kerr & Swaffield, 2012), and to reflect the diversity of the sectors (Kuzel, 1992), individuals within each group (Mertens, 2005) were selected by using purposive or theoretical sampling (Mays & Pope, 1995), conceptual-, convenience-, and opportunity-sampling (Hernández-Sampieri et al., 2006; Stern, 2008; Golding, 2012).

Participants (e.g., small-scale fishers, tour operator agencies, divers, naturalistic guides, scientists, GNP staff members, and maritime transportation offices staff) were recruited based on their availability upon request (i.e, setting appointments by e-mail,

telephone, or in person). Following Mangi & Austen (2008), the questionnaires were presented to fishers at their landing site, on piers, or at their home; to MPA managers, scientists/researchers at their local offices; and to tour, diving operators, and maritime transportation at their own agencies or diving centres. One participant (i.e., scientist) was interviewed at a restaurant/café.

2.2. Data analysis

We used the thematic analysis approach (Braun & Clarke, 2006) incorporating both the data-driven inductive approach (Boyatzis, 1998) and the deductive a priori template of codes (i.e., image types) approach (Crabtree & Miller, 1999; Braun & Clarke, 2006; Buijs, 2009; Brinkmann, 2013). This analytical process is based on segmentation, categorization, and re-linking of smaller sets of data before its final interpretation (Grbich, 2007). It was used to identify common emerging themes or patterns within data that are important to describe the phenomenon under study. By carefully reading and re-reading the data, we examined, identified, categorized, analyzed, and coded datasets (Constas, 1992; Chi, 1997; Braun & Clarke, 2006; Nicholas & McDowall, 2012; Zinda, 2012). Consistency in observation, labelling and interpretation was emphasized to increase reliability as suggested by Boyatzis (1998).

The analysis started searching for theoretical or deductive codes (Crabtree & Miller, 1999; Braun & Clarke, 2006; Buijs, 2009; Brinkmann, 2013) in the form of image types. An appropriate body of literature (Kooiman et al., 2008; Kooiman & Jentoft; 2009; Song and Chuenpagdee, 2014) offered ways to express the most common governance images within the marine resource governance discourses. These image types were used to report findings and served as conceptualized premises linked to the four philosophical dimensions that

provide the foundation where images are built (Swart et al., 2001; Keulartz et al., 2004, Stern, 2008) (Figure 1).

Despite the legitimacy of using codes based on literature and published material (Rubin & Rubin, 2005), these authors warn about the risk involved in the practice of using codes from literature to code our own data, since they argue, it could interfere in their free and independent interpretation regarding our research's interest.

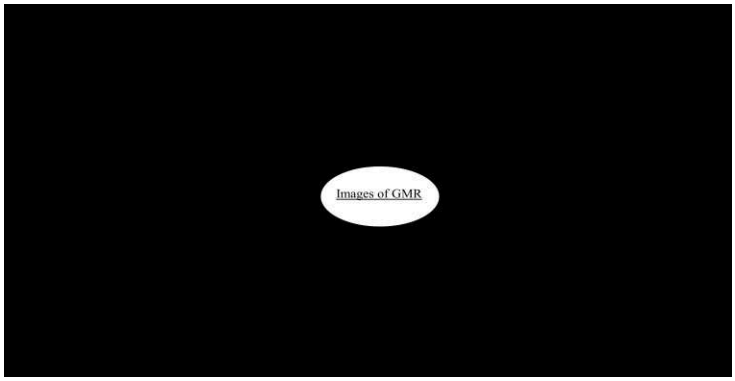

Figure 1. Conceptual structure of images of GMR (adapted from Buijs, 2009).

Coding: code categories cannot be prescribed. However, common-sense criteria were used based on individual experience. Additionally, Kanter (1977) and Seidman (2006) mention elements to be aware of when "coding" datasets in order to "tell the story" meaningfully, like conflict, either between people or within a person; hopes expressed and whether they are fulfilled or not; words or statements representing beginnings, middle or end of processes; frustration; resolution; indication of isolation; expressions of collegiality and community feeling; class, ethnicity, gender, or migratory status; hierarchy and power, among others. In that context, individual instances like narratives, descriptions, and participant's voice were later subsumed under more general categories.

Coding made data manageable but also, according to Brinkmann (2013), allowed its own recognition as a process with higher relevance. This author highlights that by looking at the interviews' material as a product of a social practice, and the interviews themselves as situated interactions, the production of speech in particular ways is allowed, and therefore was useful to inform this analysis and research findings. To extract the essence of the studied phenomena, datasets were organized and described concisely (Boyatzis, 1998). After reading and marking the text, some significant passages were extracted (Seidman, 2006; Rubin & Rubin, 2006) and coded to conceptualize data and produce "concepts or topics" that corresponded to important ideas for our research purpose (Rubin & Rubin, 2005). Certain judgement was exercised at this point while extracting "significant" segments from transcripts (see example of coding process, Table 2). Unfortunately, the common practice of controlling the extracted transcript segments by interviewees, as a post-interview stage (Seidman, 2006; Brinkmann, 2013), was not possible due to project design and funding issues.

Table 2. Example of coding

Data set	**Coded Passages** (Seidman, 2006; Rubin and Rubin, 2007)
"*It is the* ***protected zone*** *of the Galapagos Islands. It is to set* ***limits*** *where* ***industrial*** ***[fishing]*** ***boats cannot get into****….****only*** *those* ***ssf*** *and* ***tourism***"	protected zone limited resource use industrial fisheries forbidden small-scale fishers allowed tourism allowed
"*It is the* ***place*** *where there is* ***protection****… the* ***shellfish species*** *that are protected. In its rationale some species are protected*"	Protected place Protected fish species
"*It is a* ***protected area*** *that includes the* ***40 miles*** *baseline. It is* ***totally protected*** *by the* ***zoning****:* ***fisheries, tourism, snorkel****. It is the marine reserve. Obviously they are* ***vulnerable areas*** *that* ***lack of funds*** *to be* ***patrolled****. Mainland and international* ***[industrial]*** ***fishing*** *boats* ***cannot be controlled***"	Protected area MPA extension Zoning Fisheries Tourism Snorkel Vulnerable lack of patrolling lack of control uncontrolled fishing
"*It is a* ***multiuse*** *marine* ***area: fisheries****,* ***tourism*** *and* ***conservation*****"**	Multiple use area Fisheries Tourism Conservation
"*I consider it…..it is a* ***reserve****. It is a* ***privilege*** *where we have special marine fauna that* ***cannot be found anywhere else****….*[it is a place] *where there is* ***variety*****"**	Reserve Privilege we have

	Unique marine fauna Diversity
"*The GMR* ***to us…..to me, personally,*** *makes me* ***proud*** *because this is the* ***view*** *of the people* ***around the world.*** *I feel myself* ***privileged*** *to be here in the GMR*"	Proud People of the world see it Privileged
"*It is what comprises the* ***animals*** *that are* ***attractive*** *for* ***national*** *and* ***foreign tourists. Without them*** [the tourists] ***there is not jo****b*"	Attractive animals National/foreign tourists No tourists/no job
"*It is a* ***framework….a figure*** *of* ***protection*** *of the* ***marine*** *environment in Galapagos*"	Management framework Marine protection

Interpretation: these varied topics enabled the creation of a broad coding framework or "image category" (Song & Chuenpagdee, 2014) informed by symbolic and material factors (Brinkmann, 2014) and interpreted from the stories being told. Likewise, these categories were grouped under "image themes" classification (Buijs, 2009; Song & Chuenpagdee, 2014), which were re-evaluated regarding their accuracy of the original coded text, and representativeness to express our story.

Expression: furthermore, the "image themes" were expressed as the varied image types (Kooiman et al., 2008; Kooiman & Jentoft, 2009; Buijs, 2009; Buijs et al., 2012) depicted by the marine resources governance literature.

Association: finally, the "image types" were associated to emerging, normative (e.g., "GMR values", "GMR functions"); cognitive (e.g., "GMR features", "GMR attributes"); affective (e.g., "feelings about the GMR); and expressive (i.e., aesthetic) (e.g., "attractions in the GMR") features. This is because evidence was found about the role of philosophical axis as image precursors (Swart et al., 2001; Keulartz et al., 2004; Stern, 2008) or as integrative elements within them. The entire coding and interpretation process is presented by Figure 2.

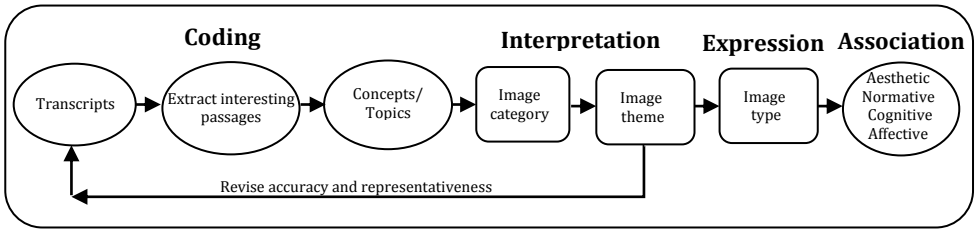

Figure 2. Coding process and interpretation of data sets.

3. Results

Data for this study are drawn from qualitative and quantitative datasets derived from thirty-nine semi-structured interviews applied to eight small-scale fishers, ten tour operator staff, seven diving centers, one naturalistic tour guide, five scientists, five management[1] staff, and three maritime transportation agencies, all of them based in Puerto Ayora, Santa Cruz Island. Four potential participants refused to be interviewed citing lack of knowledge about the GMR, and mistrust about being interviewed.

Sixteen women and twenty-three men participated, with ages ranging between 18 to 69 years old. All of them were involved in, or had completed some level of education; six of them had elementary, seven had secondary, three had post-secondary, and twenty-one had university education, including some who studied abroad. Two interviewees did not answer this question.

3.1. What images of the GMR?

Thirteen themes representing how interviewees "imagine" the GMR were found. They arise from the initial open-ended question (i.e., "What is the GMR for you") and were extracted

[1] This sector has been called "conservation" activity by PNG (2012), however we use "management sector" instead.

from thirty-four image categories obtained from the coded datasets. They were expressed by the image types taxonomy (Kooiman et al., 2008; Kooiman & Jentoft, 2009; Song and Chuenpagdee, 2014) and were associated to the four philosophical realms that influence these images formation (Swart et al., 2001; Keulartz et al., 2004; Stern, 2008).

We found that most of these "qualitative" interpretations of the GMR emerging from the open-ended question fostered all image type forms, with higher representativeness of "goals," "ends," "cognitions," and "judgments," against "views," "meanings," "ideas," and "visions," which were less common. The more frequent image types stood on two of the four philosophical realms influencing images formation (i.e., cognitive, normative) as their primary essence (Table 3).

Table 3. Thirteen image themes and 34 image categories generated from the question "*What is the GMR for you?*" representing the interest groups´ images about GMR.

Image category **(Song & Chuenpagdee, 2014)**	Image theme **(Buijs, 2009; Song & Chuenpagdee, 2014)**	Image type **(Kooiman et al., 2008; Kooiman & Jentoft, 2009; Buijs, 2009; Buijs et al., 2012)**	Associated philosophical realm influencing these images **(Swart et al., 2001; Keulartz et al., 2004; Stern 2008)**
Protected Area (place/space/sector) Marine Protected Area/MPA Preservation / Protection Conservation	Protected Area/place for protection/preservation	Goals, Ends	Cognitive/ Affective/Aesthetic
Resources/species (flora/fauna) preservation /protection Marine protection	Environment/habitat/resources/species protection	Goals, Ends, Cognition, Knowledge	Cognitive/Normative
MPA features Management framework/rules/laws MPAs staff protection Multiple use zoning Decision making model (consensus-based) Management plan	Management strategy/instrument	Goals, Ends, Knowledge, Judgement, Hypothesis, Facts, Representation	Cognitive/Normative/Affective
Limited/ordered resources use Industrial fishing prohibition/exclusion Exclusive use locals	Resource use control/order/exclusion	Goals, Ends, Judgments, Meaning	Cognitive/Normative/Affective
Vulnerability Deficiencies patrolling/control Extinction threat	Governance shortcomings	Judgments, Views, Ideas	Cognitive/Normative
Extinction threat	Conservation shortcoming	Judgments, Views, Ideas, Presuppositions	Cognitive/Normative
Small-scale fisheries Tourism Diving Snorkel *Assumed that it may not necessarily be profitable since it can also be recreational-based activity, without profit involved	Profitable human activities	Goals, Ends, Knowledge, Meanings, Representation	Cognitive/ Normative/ Affective Aesthetic
Scientific research Management Conservation	Non-profitable human activity	Goals, Ends, Knowledge, Meanings, Facts	Cognitive/ Normative
Diversity Uniqueness Value Local/global /national/international scale Time scale	Richness/Value	Cognition, Knowledge, Facts, Representations	Cognitive/ Normative/Affective/Aesthetic
Livelihood source for users	Livelihood	Judgments, Views, Ideas,	Cognitive/ Normative/Affective

Tourism means jobs		Meanings	
Feelings about the activity Snorkel Life in the sea Individual /personal meaning *Our* province Proud Idyllic scenery	Affective/sense of belonging	Judgments, Meanings, Representations,	Affective
Attraction Snorkel Uniqueness	Aesthetics	Goals, Views, Meanings, Ideas	Affective/Aesthetic
Provincial status	Political/administrative status	Goals, Ends, Cognition, Representations	Cognitive/Affective

3.2. From where did the GMR originate?

The origin or source of the images was inferred by the users' life experiences addressed by the questions concerning elements influencing images. It was found that media, visiting the area/in situ, family/friends, and personal experience played key roles as foundations for images about the GMR. Interestingly, the role of scientific information/research/scientists in the acquisition and creation of images seem to be less relevant from the interviewee's users' side.

Additionally, the relationship that users currently maintain with the GMR was represented by five main responses addressing the relationships between the interviewee and the GMR : by "doing small-scale fisheries," by "doing tourism business" (including divers and agencies), by "doing entrepreneurship," by "doing research," and "being an MPA employee". These findings show that some relationships between users and the GMR are multiple, for instance, an entrepreneur is himself a small-scale fisher. There were no records for "industrial fishing" given that that activity is forbidden in the GMR.

Moreover, the level of commitment of users with the GMR at different stages showed that users' interactions with the GMR are mainly based on their participation at either the MPA establishment, management, or support. In that sense, more respondents said they currently are "well involved" by "supporting the MPA" and only a few users recognized to have been "moderately involved" in GMR "establishment". Consequently only a small portion of users actually took part at the early stages in the MPA establishment, with the majority being "not involved".

Responses illustrating the origin of images, the relationship maintained with the GMR, and the level of commitment from users to the MPA were associated to the coding outline of the "images types" (see Figure 1). This step enabled the illustration of these multi-temporal images (i.e., at GMR creation, when users hear about it for the first time, and their currently interaction) by using the image types categories, coined by the governance literature. It was found that users formed their images about the GMR mostly by "knowledge" acquired through media, visiting the area, family/friends, and personal experience, sources that have direct association to the cognitive dimension of the formed image. Additionally, it seems that relationships between users and the GMR are "goals-based" kind of rapports when conducting fisheries, tourism, entrepreneurship, and research, and by being MPA employees, which seem connected to the normative dimension of images. The associations established between images and their dimensions let us grasp insights about their implications within all of the four aspects of the governing systems: natural and social system-to-be governed, governing system, and governing interactions.

4. Discussion

This study helped to identify images about the GMR by small-scale fishers, tourism operators' staff, managers, scientists, and maritime transportation officers. Inspired by interactive governance (Kooiman 2003; Kooiman & Bavinck, 2005; Kooiman et al., 2005; 2008; Bavinck et al., 2005; 2013) we recognize that governance in the GMR is highly diverse, dynamic, and complex due to the interactions that are deeply influenced by the images being formed. Therefore, equally as Kooiman et al. (2008), we acknowledge images, together with instruments and actions, as elements profoundly and strongly influencing governance quality. However, it has been found that images are not only decisive pieces determining

normative and cognitive concerns of resource (e.g., fisheries) users (Kooiman et al., 2005; Chuenpagdee, 2011; Song et al., 2013; Song & Chuenpagdee, 2014), but also equally important affective and expressive (i.e., aesthetic) components of their experience of the MPA.

GMR images are different things for the different people creating them. Despite being imagined as a "paradise" (Salcedo-Andrade, 2008; Celata & Sanna, 2010), GMR governance is said to be troubled (Heylings et al., 2002; Heylings & Bravo, 2007; CI & USFQ, 2010; Jones et al., 2011, Jones, 2013). We found that besides those positive-rooted images (e.g., "resources/species (flora/fauna) preservation /protection", "diversity", "uniqueness", "proud", "idyllic scenery"), negative portrayed image types were also mentioned (e.g. "vulnerability," "deficiencies in patrolling/controlling", "extinction threat" and "exclusion in resource use") within "management strategy/instrument," "governance shortcomings," and "conservation shortcomings" themes.

These positive and negative images originated in the "open-ended" meanings of the GMR by interest groups are signifiers connected to the origin of those images regarding the user's current relation, but also their former interaction with the GMR. This was evidenced by the responses to the three close-ended questions which specifically tackled three different time-scales within the users experience of the GMR (i.e., at establishing the MPA, hearing about it for the first time, and currently relation to it).

The construct of the users' image involves thus two main aspects. First, the recognition of the role that media, visits to the area, family/friends, and personal experiences play as critical "sources" for GMR images being formed. And second, evidence that shows that an important source in forming images is knowledge, which is directly

connected to their “cognitive” dimension. The bond between media, images formation, and knowledge generation certainly coincides with Kooiman´s (2003) assertion about how decisive media are, not only for images being created but also for their transmission and evolution within the governing systems.

Another images building process was found to be linked to interactions (i.e., governing interactions) between users and the GMR based on the activities they develop as livelihood source, either at the natural and social system-to-be governed, or at the governing system. In that sense, profitable activities being conducted within the MPA (i.e., small-scale fisheries and tourism) and non-profitable activities (i.e., scientific research and management) were found to be equally influencing the governing interactions of users with the MPA. These interactions are in fact occurring not only as a pure primary extractive resource use mode (e.g., fisheries and biological objects of study), but also as a secondary or tertiary type of economic activity (e.g., seafood merchants and middlemen). As seen, users' interactions with the MPA is not only a function of their livelihood but also a consequence of other personal-related issues, like affective and aesthetic dimensions, influencing their involvement at either early or late stages in GMR establishment. Perhaps in the GMR´s case, the low involvement of users at its declaration can be explained by Bustamante's (1999) claim, who argued that the rationale for the GMR creation circulated around politics, economic, and mass media campaigns, but not around local user´s interests or sound technical-scientific data, which, according to him, was scarce at that time.

Involvement of users with the GMR is in fact varied and can be expressed differently. For instance, being “well involved” could be possible by two means; one through “active relationships” at establishing the MPA, doing jobs or tasks within it; or through “inactive

relationships," illustrated by membership, association, or by supporting third-party initiatives (e.g., joining a newly established ecological club). A singular involvement mode can also be the "not involved" image, representing those not taking part neither at the MPA establishment or management, nor at the so-called participatory processes. Even more, it was found that illegal, arbitrary, or unpunished actions occurring in the GMR could potentially express other inactive governing interactions, for example, by practicing passive resistance at ignoring, infringing or violating the GMR´s regulations. It means that contravening norms (or even excluding users) are acceptable "no involvement"-kind of relationships, mentioned explicitly or by implication, when said that breaking rules and participation prohibition can be tolerated "depending who" is excluded, or "which rule" is violated.

Finally, the thematic images become the way to express how users "imagine the GRM world" and to recognize dominant images operating at natural and social subsystems, at the governing system and at the governing interactions. In that sense, knowledge-based images seem to be playing a rather prominent but passive role, since they become created along other processes (e.g., media, family/friends) different from the active scientific endeavour. In those knowledge-based images–at least from some users' perspective–the scientific aim of creating and mobilizing knowledge is not being achieved. They claim for instance that science-based images about the GMR that use special jargon and foreign languages (mostly English), reach only scientific circles which impedes their access by the "normal public". On the contrary, goal-based images are products of an active-searching process by users who pursue their personal and professional aims, independently of the knowledge acquisition.

Images of the GMR show immense variation. Where and how these diverse images are formed are part of this research's contribution to the social-environmental discourse in Galapagos' marine resource governance. The illustration of the origin of images, how users experience the MPA, and what their involvement with the area is directly connect to the thirteen image themes that were identified from the description of "What is the GMR for you?" Those themes certainly broadened the two competing images leading the local discourses in the GMR (i.e., the pro-conservation or biocentric perspective, and the local development or anthropocentric approach). In fact, we now recognize that these two are neither the only legitimate images about the GMR, nor the most relevant. Moreover, by reading the thirteen images coined by interviewees we became aware of their relevance as diverse stepping stones on which GMR governance relies. Their imaginations of the GMR (i.e., "protected area/place," "environment/habitat/resources/protection," "management strategy/instrument," "resource use/control/order/exclusion," "shortcomings in governance and conservation," profitable- and non-profitable activities," "richness/values," "livelihood," "affective," "aesthetics," and "political/administrative") show the diversity and complexity of the issues said to be contributing or blocking GMR governance.

By comparing these image themes with those provided by the specific questions addressing images, we observe a subtle disconnection between how users "imagine" the GMR world and how they associate with the MPA, based on their daily-basis interaction with it. The knowledge-based images illustrate the great influence of media in the images transmission versus the low influence of this source in the image themes identified (for instance, only at profitable human activities, richness/values, aesthetics, and political/administrative issues). On the contrary, the goals-based images, which are evident in the interactions between users and the GMR (from the specific questions), seem to be

common also in the image themes, since they are illustrated by all of them, excluding "governance and conservation shortcomings" themes.

5. Conclusions

It is worth reflecting on the permanent effect dominant images transmitted by media about the GMR cause, over public imaginaries seeing it as the ideal ecotourism destination, as the example of consensus-based community management, and as a sound model for marine resources management. This idea circulates around the superior objectives of conservation that ruled the discourses supporting the GMR creation, which have demonstrated not to be fully achieved. In fact, evidence shows that despite the existing regulations for productive activities (e.g., small-scale fisheries and tourism), the sustained economic growth boosted first by fisheries and later by tourism business have demonstrated to be far from the original conservation target discourse. Being the major industry in Galapagos, even if labelled as "ecotourism" in order to clean some "dirty" practices, tourism must be recognized as the factor causing major effects on the Galapagos natural and social system-to-be-governed. Additionally, the so-called "green tourism" tradition in Galapagos has already been discredited as such for being too far from the theoretical ecotourism's predicates (Taylor et al., 2003; Honey, 2008). Therefore, we claim that under the current trend (e.g., steady cities' size increasing; major demands of goods and services; escalating tourist numbers, etc.) conservation objectives using ecotourism-labelled practices as a means to achieve the dreamed "sustainable development," will not be achieved, even with the scientific sector's endorsement. Consequently, if ecotourism is what the tourism sector in Galapagos targets, a shift in this business mindset is needed, including a re-evaluation of

the apparently "harmless" associative image of "tourism-science" sectors[2] and sustained law enforcement. Indeed, science in Galapagos must not be conducted as "the" tool to drive processes, but instead as one between many to inform decision-making objectively, regardless of individual and institutional interests. Sound science's pursuit in GMR should be to do the best to the majority of people.

Furthermore, consensus in participatory processes in the GMR has been promoted as the major goal in this MPA. Equally as democracy is not just about ballots and votes, but also about public deliberation and reasoning (Sen, 2006), agreement and finding solutions in GMR issues should not only be about consensus. In reality, understanding where the borders of other party's interests and rights are could better help to find a "common-agreed-solution", even if consensus is not reached. As demonstrated by Habermas (1997), consensus can only exist within "moral discourses" circulating around justice, and questioning "What is equally good for all?" It contrasts "ethical discourses" and questions "What is good for us?" as members of global, national, regional or local communities (*ibid*). Ethical consensus, according to this author, can only exist within single homogeneous communities and not between communities in pluralistic societies, holding competing views of the good life, which is the Galapagos case.

We argue that consensus in Galapagos is not effective and must be re-evaluated. Despite being considered a definitive quality of the participatory-based decision making processes and a basic principle in co-management discourse (Pomeroy & Riviera-Guieb 2005), consensus has proven not to be the best response to conflicts in the GMR. Like in

[2]The association between the Guy Harvey Outpost Resorts Tourism Company and a local partner was announced during the International Ship Fair in Miami to develop tourism infrastructure, combining scientific research with sustainable tourism in Galapagos (El Diario, 15th February 2013).

other pluralist societies (Keulartz et al., 2004), the islands inhabitants are diverse, with heterogeneous interactions, and competing claims about what is needed and desired. Therefore, consensus born in rational arguments rarely solves deep-seated value-conflicts. Thus, it is mandatory to recognize the valuable contribution of consensus to fair and legitimate processes in the GMR, understanding it not as the only "homogenizing" mechanism to reach agreement at decision and policymaking.

Hence, by clarifying opposed or dissimilar images (e.g., not consensus-agreed images), at any aspect of the governing systems, must not necessarily mean that the governing interactions should be free of discrepancy. Instead we suggested that those mismatches can serve as clearance mechanisms to find agreement and compromise and to reflect not on whether more support from the population is needed, but how to better get – and maintain – their support.

We assert that images of the GMR cannot be framed within specific parameters, neither exclusively supported by the scientific sector, nor by tourism. Images of the GMR must acknowledge the human attributes implicit within the GMR systems, and use them accordingly. Only by a comprehensive use of those users' images, and by targeting superior aims as the common wellbeing, sound and improved marine resources governance can be achieved. Further research would be desired to identify the strategic images proposed by GMR actors to achieve sustainability in a place where endless growth cannot remain forever. We have recognized that there is not a "right" image, but rather, contrasting image- based realities, concepts, ideals, about "how do they imagine the world" in the GMR. Only by shifting mismatching and vicious images about what development represents for the GMR users, can solutions be found to achieve the desired equilibrium in the islands.

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Chapter 5 Attitudes of Galapagos Marine Reserve Users

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Abstract

Environmental attitudes can influence marine protected area (MPA) performance. We use the Galapagos Marine Reserve (GMR) as the example to examine the attitudes of small-scale fishers, tourism sector members, scientists, managers, and maritime transportation staff toward the GMR. The purpose of this research was to explore beliefs about and toward the current status of the GMR, and toward the issues taking place within the MPA. Semi-structured interviews (n=39) with close-ended questions were used to assess beliefs toward the activities developed in the GMR. We found that users show a positive attitude toward tourism, despite the direct link to the increasing cost of living due to the constant expansion of this industry. Additionally, GNPS is the institution that is perceived to be doing the best job in GMR management, and that the GMR is in general, well managed by the GNPS. However, respondents believed that fisheries need to be more regulated than tourism; the latter is believed to be managed fine. Finally, neither NGOs, nor the tourism sector are thought to be responsible for problems in the GMR; the blame from the respondents' view for any problems lies with the GNPS and fishers. Our findings about tourism not being recognized as the "most important and traditional" activity within the GMR, in contrast with fisheries, which are still perceived as the most relevant and traditional activity, is critical. This shows that the image of fisheries as the main threat for GMR conservation endures and the harmful role of tourism affecting the GMR remains unnoticed.

Key words

• Attitudes • beliefs • Galapagos Marine Reserve• small-scale fisheries • tourism

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Humans and Marine Protected Areas (MPAs).

Marine Protected Areas (MPAs) are created to maintain marine biodiversity through protecting sensitive marine habitats and balancing the various uses that occur within them. They aim to ensure functioning ecosystems for future generations by maintaining ecological processes, habitat structure, function, and integrity. Their role is to guarantee marine genetic biodiversity in the form of gene flow, populations, species, and ecosystem pools that enable the provision of goods and services for human populations (Bohnsack, 1993; Sobel, 1996; Lubchenco, et al., 2003; Hilborn et al., 2004; Capitini et al., 2004; Pomeroy et al., 2007; Mascia et al., 2010; Ban et al., 2011). The ability of an MPA to accomplish its goals largely depends on public support though often local residents expect benefits that may not be consistent with the principal mandate of MPAs, which according to Bennet & Dearden (2014), regards conservation of marine environments and resources.

Whether MPAs function (or not) depends on how well they address fundamental principles of constrained use, regulation, restrictions, and exclusion through limiting and managing human behavior within the coastal environment (Pomeroy et al., 2007; Blount & Pitchon, 2007). Their performance is also influenced by human practices conducted within them, with consumptive and non-consumptive interests. Examples of the former are recreation, tourism, sustainable resource exploitation, sustainable commercial fisheries, and fishery yields improvement. Education, research, expanding knowledge of marine systems, and building local capacities for fisheries management illustrate the latter (Sobel, 1996; Rodwell & Roberts, 2000; Hilborn et al., 2004). In short, tourism and fisheries are activities that are widely and intensively developed within MPAs. Therefore, the challenge for managers charged with balancing these two activities depends highly on public beliefs about, and attitudes toward, the impacts and perceived benefits of them.

Besides the generalized acceptance of MPAs benefits, claims about MPAs as products of social institutions, and therefore as human creations (Pomeroy et al., 2007) continue. Consequently it is argued that, if MPAs are created and implemented by people, social features such as user's participation and interactive initiatives, not biophysics, ecological, and environmental variables only, are primary determinants for MPA success or failure (Kelleher & Recchia 1998; McClanahan 1999; Christie et al., 2003; Charles & Wilson, 2008; Wahle et al., 2003; Pita et al., 2011). Delays in understanding the relevance of users' views have proven to be the greatest obstacle in gaining effectiveness for marine conservation, and for sustainable human activities in MPAs (Wahle et al., 2003).

Tourism and small-scale fisheries in the Galapagos Marine Reserve (GMR)

Not unlike other MPAs, tourism and small-scale fisheries activities are permitted in the GMR. These activities, however, are relatively new. Early migrants to the archipelago had a farming background and occupied higher areas (*parte alta*) of the islands (Ospina, 2001). In contrast to the terrestrial ecosystems that were under intensive agricultural stress (Latorre, 1999), fish in Galapagos was only used as an alternative protein supplement to the traditional vegetables and cattle-based diet (Ospina, 2005). Until the late 1960s, when fishing and tourism became well-established, the GMR marine environment saw very little human pressure (Marder & Arcos, 1995; Ramírez, 2004; Keene-Meltzoff, 2013). Since then, tourism remains as the most important economic activity for local residents, for example tourism services (including equipment rental, day tours, travel agencies, locally- and mainland-based cruise ships) representing 65% and small-scale fisheries only 8% of the Gross Island Product (GIP) (Taylor et al., 2003, 2009).

The development of these two activities has contributed to the creation of two perceived pictures of the GMR. The image cultivated by the tourism sector is of a pristine and wild environment empty of humans and of any other evidence of their presence in the archipelago (Ospina, 2001; Grenier, 2007; Andrade et al., 2010; Hennessy & McCleary, 2011). In contrast, the perception of the GMR as a prolific fishing ground exists after the sea cucumber fisheries boom in the early 1980s, which greatly influenced the development of the province (Marder & Arcos, 1995; Ramírez, 2004). Neither perceived image may be completely true but the extent to which local residents support one or the other must be understood to effectively balance these established activities.

Users and the GMR

Tourism and small-scale fisheries in the GMR are greatly influenced by the marine resource users' attitudes toward the MPA. The inclusion of social features, like users' insights regarding MPAs management and governance, have been recognized as necessary (Christie et al., 2003; Mascia, 2003; Wahle, et al., 2003; Blount & Pitchon, 2007; Pomeroy et al., 2007; Charles & Wilson, 2008; Hoehn & Thapa, 2009). Despite their relevance, the inclusion of communities' point of view in MPA settings as an academic discipline is new. In general terms, its development within conservation and management agendas has mainly been targeted within terrestrial ecosystems (Kenchington, 2010). For example, there is a broad understanding of community involvement and terrestrial resources (Bamberger, 1991; Armitage et al., 2007; Mitchell, 2002; Hanna & Slocombe, 2007). In contrast, studies asking people with specific focus on MPAs are scarce (Charles & Wilson, 2008; Pita el al., 2011; Hamilton, 2012).

Despite emerging within a terrestrial wildlife field of expertise, Human Dimensions (HD) (Decker et al., 2012) are an ideal asset to broaden the rather narrow scope of marine resources management approaches, which have favored economic dimensions of society over other human aspects (Fiske, 1992; Blount & Pitchon, 2007). Notwithstanding the fact that the HD framework has traditionally addressed attitudes of people toward wildlife or wildlife management options (Manfredo, 1989, 1992, 2008; Manfredo et al., 2009), this study has been inspired by this approach as we examine the users' perspective. In that sense, broader lenses within marine resource management and governance in the GMR context have been used. This is particularly the case when focusing on attitudes of marine resource users toward the activities developed within the MPA, especially in regards to fisheries and tourism.

In contrast to other regions where socio-anthropological research on how issues in fisheries (Breton et al., 2006) and tourism (Campbell, 1999) are experienced by locals, in the Galapagos Islands, there is a gap in research asking GMR users (i.e., fishers, tour operators, scientists, managers, and maritime transportation operators), searching for their insights about fisheries and tourism. In fact, less than 10% of the research conducted in the last decade in Galapagos considered social and economic issues (Santander *et al*., 2009; Tapia, et al., 2009; Celata & Sanna, 2010), with a greater concentration on the economic aspects.

The existing research regarding users and their views about the GMR has broadly focused on their relationships toward Galapagos issues. For example, Macdonald (1997) found concerns about power asymmetries at decision-making evidenced by fishers' sense of marginality regarding management and decision-making processes, and perceptions of the law as alien, imposed, and inaccurate, which according to him, greatly contributed to rule

violations and conflicts. Other studies have explored public acceptance of environmental limitations (Barber & Ospina, 2008a), finding that restrictions related to extractive activities are much greatly accepted than those related to day-to-day life in Galapagos, like migration, tourism, and quarantine controls.

Additionally, Barber & Ospina (2008b) found a general modest improvement in perceptions and attitudes of the public toward the institutional performance in Galapagos and toward the image of bodies promoting socioeconomic "development" versus a decline in the image of institutions involved in conservation. Furthermore, Wurz & Wallace (1994), Velasco et al. (2002a,b), and Montesinos (2002) explored visitors' preferences and knowledge about the GMR (e.g., the participative process, biophysical characteristics of GMR, and zoning system), and perceptions about regulations imposed through the zoning system. They found that local inhabitants knew more about biophysical features and less about participatory processes and the zoning scheme, and that less than 20% of them claimed to be knowledgeable about GMR issues.

Moreover, Finchum (2002) found that a decisive factor leading to conflict is the underlying distrust on the GNPS and to a lesser degree on the CDRS, by fishers, which coincided with Moreno et al. (2000) findings which showed that their conflictive nature is indeed caused by distrust, low satisfaction, and poor communication between managers and users, and to a lesser extent by cases of corruption and injustice. Additionally, Quiroga & Ospina (2009) showed that science and scientists are perceived rather negatively by local inhabitants as "inaccessible" and "arrogant" respectively. Finally, Quiroga et al. (2010) documented that despite the Participatory Management System usefulness in lowering the level of tensions and disputes amongst interest groups, mistrust and inequalities still persist.

While all these studies have contributed to a better understanding of the human dimensions of the marine protection in GMR, the abundant discussion about the current situation of Galapagos is, according to Watkins & Cruz (2007), mostly based on suppositions and not in documented information, especially concerning perceptions about small-scale fisheries and tourism by the GMR users themselves. Therefore, by including these users' views about the activities within the MPA, within one single study, managers can gain valuable insights to address potential conflicts between interest groups and management agencies (Bath & Enck, 2003).

Attitudes are broadly defined as a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor (Eagly & Chaiken, 1993:1). As such, they represent an individual's enduring positive (i.e., favorable) or negative (i.e., unfavorable) disposition or feeling toward a person, object, action, issue, or event of interest (Ajzen & Fishbein, 1980; Newhouse, 1990; Fishbein & Manfredo, 1992). However, Manfredo (2008) contends that at the attitude's core concept is evaluation, which he applies within a wildlife context. In that regard, we recognize the tripartite components of attitude that this author describes which may involve one, two, or all of these elements: affective (emotions in form of feelings toward an attitude object), cognitive (beliefs about an attitude object), and conative (behavior related to the attitude object).

As such, by employing a case study from the Galapagos Islands, this study provides additional insights about the role of users' views in the MPA's current status. In order to do so, we explore: 1) beliefs about the current status of the GMR and 2) feelings toward current issues within the GMR. Since the role that users play by using marine resources has direct linkages to the MPA performance, we argue that by understanding the combination of

beliefs and attitudes as mental frameworks where images of the GMR are built and rely upon, our understanding of nature could also be improved.

2. Methods

2.1. Study Area

The Galapagos Islands host a population of *ca*. 30,000 inhabitants within urban and rural settings (INEC, 2010). While official records of small-scale fishers, tour operators, management bodies' staff, and maritime transportation agencies exist, in practice, these lists do not represent the actual numbers involved in these activities. For instance, between 1,035 - 1,216 small-scale fishers are officially registered within the GNPS records (PNG, 2012; Palacios and Schuhbauer, 2012), however, in practice between 400-470 are commercially active fishers (Schuhbauer and Koch, 2013). Concerning tourism, this sector includes tour agencies, diving centers, and naturalistic guides and is regulated by the GNPS and the Tourism Ministry. Tourism businesses are formally organized under the Galapagos Chamber of Tourism, fostering 87 agencies and 90 boats officially registered (Tourism Ministry, 2011; PNG, 2012). The management sector is represented by 238-334 staff-members operating in the headquarters, technical units, and technical office within Galapagos (Rozzi et al., 2010; PNG, 2014). Additionally, maritime transportation is said to be constituted of "dozens" of speedboats doing interisland transportation services (Denkinger et al., 2013). Finally, there are no official records of active scientists doing research in the islands.

2.1. Sampling, data collection, and analysis

Consistent with other studies (Neis et al., 1999; Stern, 2008; Golding, 2012; Robinson, 2014), the sample was not selected with the intention to generalize the findings out of the

local context to other individuals or places. Instead it was chosen to explore the discourses held by interest groups regarding their beliefs and attitudes toward the GMR, to account for a breadth of relevant perspectives (Kerr & Swaffield, 2012), and to reflect the diversity of the sectors (Kuzel, 1992).

Data were collected over a 5.5 month period over three years (i.e., 1 month in 2010; 2 months in 2011; and 2.5 months in 2012). In order to identify key issues and potential interviewees, twenty-eight face-to-face qualitative open ended semi-structured interviews were conducted during the field exploratory season in 2010, with only person declining to participate, claiming lack of time. Data collected during this period was obtained by the "snow-ball" sampling technique (Goodman, 1961; Biernacki and Waldorf, 1981; Atkinson and Flint 2001) which was only used as a means to develop the data collection instrument used in following seasons, and to identify the interest groups holding direct interaction with the GMR to be the participants: tourism (including tour operators, diving centers, and naturalistic guides); small-scale fishers; scientists; park managers; and maritime transport companies.

During the second and third field seasons (2011 and 2012), the sampling combined the "key informant interview" approach (Walmsley, et al., 2005) used as a central participatory technique for gathering insights on subjects of interest and the "opportunity sampling" approach (Stern 2008; Golding 2012; Hamilton, 2012). This latter was used because its usefulness in cases within subpopulations when sampling frames are unavailable. For example, small-scale fishers' populations were approached opportunistically as they only come ashore for one or two nights at a time, a fact largely dependent on the fishing season, weather and sea conditions. Additionally, the participants were recruited based on their availability upon request (i.e, setting appointments by e-mail,

telephone call, or in person). Following Mangi & Austen (2008), the questionnaires were presented to fishers at their landing site, on piers where their boats were, or at their house; to MPA managers, scientists/researchers at their local offices; and to tour and diving operators at their agencies and diving centers. One participant (i.e., scientist) was interviewed at a restaurant/café.

A total of thirty-nine face-to-face close-ended structured interviews were conducted, equating to an overall response rate of 90.7%. The sampled population included the tourism sector (divided into eight tour operators, eight diving centers, and two naturalistic guides, n=18); small-scale fishers (n=8), scientists (n=5), park managers (n=5), and maritime transport companies (n=3). Additionally, 4 potential respondents (9.3%) declined to answer either due to their lack of knowledge about the GMR, or their mistrust and discomfort of being interviewed. The interview lasted approximately one hour gathering qualitative and quantitative information. All the fieldwork was conducted in Spanish and was subsequently transcribed into English.

The survey instrument included one open-ended introductory "ice-breaking" question (i.e., "What is the GMR for you"), to test the general knowledge of the participants, to help in reducing the stress, and to increase the comfort level of the participant. The questionnaire consisted of thirty-seven items divided into three sections addressing the GMR interest groups' (i) beliefs toward the GMR's current status; (ii) attitudes toward main issues regarding these activities in the GMR; and (iii) demographics. Such items have been used to broadly assess attitudes of users toward marine resource use, management, and conservation (e.g., fisheries policies and management measures)(Gelcich et al., 2005, 2009; Mangi and Austen, 2008; Dimech et al., 2009; Hoehn and Thapa, 2009; Pita el al., 2010, 2011).

The first segment had four multiple-choice questions designed to explore beliefs about the GMR's current status. The second section included eighteen close-ended five-point Likert scale (Likert, 1932) questions, to indicate degrees of support or opposition to statements. Item responses ranged from ‘‘strongly disagree’’ to ‘‘strongly agree’’ (1 to 5), indicating how negative (1) or positive (5), and how much disagreement (1) or agreement (5) was held by respondents. And the third part included eight demographic-type questions such as province of origin, time of arrival to the islands, age, gender, and educational background. These items were asked at the end, respecting some cultural-related concerns about the interviewees being asked about personal features at the very beginning of an interview (Table 1).

Table 1. Items of the questionnaire

#.	Question Type	Question	Possible responses				
0	Open-ended	***Ice-breaking*** “What is the GMR for you”					
1	Close-ended	***Beliefs*** In your understanding, how healthy was/is the marine environment in the area?”	Not healthy	Little healthy	Moderately healthy	Very healthy	
2		Who, according to your opinion, is doing the best job in the GMR management	a) Galapagos National Park Service	b) Participatory Management Board	c) Interinstitut. Manag. Authority	d) Tourism Chamber	e) Municipality
			f) Governm. Council	g) Charles Darwin Research Station	h)Navy	i) Others	j)Nobody
3		In your opinion, how are these activities currently managed in the GMR?		Not managed	Poorly managed	Moderately managed	Well managed
			Professional small-scale fishing				
			Recreational fishing				
			Scuba diving				
			Tourism				
			Other				
4		The current management actions for GMR are…	Extremely bad	Slightly bad	Neither bad/nor good	Good	Excellent
1	Close-ended	***Attitudes*** ***Benefits*** Fisheries is a strong economic source for Galapagos	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

2		Fisheries generates substantial incomes to the local communities					
3		Tourism is a strong economic source for Galapagos					
4		GMR helps the fisheries to protect the resource					
5		I have seen benefits to the local human population due to the GMR...					
6		There are more benefits than backsides to the local population due to the GMR					
		Life quality/ cost of living					
7		Tourism improves the quality of life in Galapagos					
8		Tourism causes the increase in the cost of living in Galapagos					
		Regulations					
9		I believe the fishing regulations in the GMR should be maintained…					
10		Tourism regulations in the GMR should be maintained…					
		Increase the activity					
11		Additional tourism would help GMR					
12		More fishing licenses would help Galapagos´ communities					
		Traditional activity					
13		Fisheries is the traditional activity of Galapagos					
14		Tourism is the traditional activity in GMR					
		Problems in GMR					
15		GNP is responsible for the problems in GMR					
16		Tourists are responsible for the problems in GMR					
17		NGOs are responsible for the problems in GMR					
18		Fishers are responsible for the problems is GMR					
1		***Demographics***					
2	Close-ended	Where do you live?	Santa Cruz				
		Province of origin?	a) Azuay	b)Bolívar	c)Cañar	d)Carchi	e)Chimborazo
			f)Cotopaxi	g)El Oro	h)Esmeraldas	i)Galápagos	j)Guayas
			k)Imbabura	l)Loja	m)Los Ríos	n)Manabí	o)M. Santiago
			p)Napo	q)Nueva Loja	r)Orellana	s)Pastaza	t)Pichincha
			u)S. Elena	v)S.D. Tsáchilas	w)Sucumbíos	x)Tungurah.	y)Z. Chinchipe
			z)Other country				
3	Open-ended	When did you come to Galapagos?					
4		If you are from Galapagos, when did the first member of your family arrive?					
5	Close-ended	What is your age?	a)18-29	b)30-39	c)40-49		
			d)50-59	e)60-69	f)> 70		
6		What is your gender?	Female	Male			
7		What is your highest degree of education?	No degree	Elementary	Secondary	Postsecondary	University
8	Open-ended	What is your main occupation?					

In general, we anticipate that participants will agree that the GMR has played a positive role in inhabitants' life and in the conservation of the marine resources. Our general impression is that regardless of sector membership, users of the GMR will have positive attitudes toward GMR management. Additionally, we predict that beliefs of productive sectors, either consumptive or non-consumptive (e.g., fisheries and tourism) concerning the GMR's health before its declaration, will be positive whereas beliefs of scientists and managers are thought to be positive toward the GMR's health after its declaration. In general, beliefs regarding the GNPS' performance and concerning fisheries and tourism management are foreseen as positive by all the users.

3. Results

3.1. Profile of the participants

All participants (n=39) were inhabitants of Puerto Ayora community (Santa Cruz Island) where they had arrived within different periods; 25.6% came between ten to nineteen years ago, whereas only 2.6% came between forty to forty-nine years ago. Their place of origin also varied with eleven of thirty-nine interviewees coming from Guayas, ten from Galapagos, and three from foreign countries. Approximately 40% of respondents were female and 60% male. One third (*ca.* 33%) were 30-39 years of age and more than half (54%) had university degree education including some who studied abroad, whereas only 15% had just elementary-school degrees.

3.2. Cognitive dimension: beliefs about GMR current status and management

Beliefs of GMR users about the current status of the MPA were addressed by three sets of questions: 1) health of the marine environment before/after the GMR creation, 2) among the

institutions participating in the MPA management, who is doing a better job, and 3) how well/bad are tourism and small-scale fisheries being managed?

There were differences in how the various groups perceived the current status of the GMR. In general, fisheries and tourism sectors held opposing views to scientists and managers in what they said about the GMR's health before and after its creation. For example, most fishers and tourism-related groups recognized the GMR as “very healthy” before its creation but only half of them believed it was “a little healthy” after its creation. In contrast, the majority of scientists, managers, and maritime transport staff saw improvements in marine environment health after the GMR's creation, but less than half of them thought it was “a little healthy” after its declaration (Table 2). At the end, we found out that most of the users believe that in general the GMR is “very healthy” no matter if before or after the MPA declaration.

Table 2. “In your understanding, how healthy was/is the marine environment in the area?”

Sector	Period	Condition				No opinion	Total (n=39)
		Not healthy	Little healthy	Moderately healthy	Very healthy		
Small-scale fishers	Before GMR	0	25% (2)	12.5% (1)	62.5% (5)	0	8
	After GMR	0	50% (4)	12.5% (1)	37.5% (3)	0	
Tourism-Operator	Before GMR	0	10% (1)	20% (2)	40% (4)	30% (3)	10
	After GMR	0	40% (4)	20% (2)	30% (3)	10% (1)	
Tourism-Diving Center	Before GMR	14.3% (1)	28.6% (2)	0	42.8% (3)	14.3% (1)	7
	After GMR	0	28.6% (2)	28.6% (2)	42.8% (3)	0	
Tourism-Guide	Before GMR	0	100% (1)	0	0	0	1
	After GMR	0	0	0	100% (1)	0	
Scientific	Before GMR	20% (1)	20% (1)	20% (1)	40% (2)	0	5
	After GMR	0	0	0	80% (4)	20% (1)	
Management	Before GMR	0	40% (2)	0	20% (1)	40% (2)	5
	After GMR	0	0	0	80% (4)	20% (1)	
Maritime Transport	Before GMR	0	0	0	66.6% (2)	33.3% (1)	3
	After GMR	0	100% (3)	0	0	0	

* Values in parenthesis indicate the number of responses.

Concerning how institutions involved in GMR management perform, participants were asked to recognize, amongst a list, who they believe is the most efficient institution. In general, participants saw the Galapagos National Park Service (GNPS) as the most efficient, followed by the Charles Darwin Research Station (CDRS), and the Participatory Management Board (PMB) (Table 3). Interestingly enough, fishers agreed that the GNPS was the most efficient institution, followed by the CDRS, and the Navy and Tourism Chamber. The tourism sector also saw the GNPS as the most efficient institution followed by the PMB and the CDRS. Scientists held different beliefs from the above groups seeing the CDRS as showing the best management practice followed by the PMB, GNPS, and Government Council respectively. Finally, managers believed the GNPS is doing the best, followed by the CDRS. Only the maritime transportation staff responded "nobody" to this question. It can be said then that the GNPS is at large the institution believed to be doing the best job in the GMR.

Table 3. "Who, according to your opinion, is doing the best job in the GMR management?"

Participants	GNPS[1]	PMB[2]	IMA[3]	Tourism Chamber	Municipality	Government Council	CDRS[4]	Navy	Other	None
All interviewees	22	11	5	8	7	7	15	8	4	8
Small-scale fishers	6	2	2	3	2	2	4	3	0	2
Tourism	8	6	2	3	4	2	4	3	4	4
Scientists	2	3	0	1	1	2	4	1	0	0
Managers	5	0	1	1	0	1	2	1	0	0
Marit. Transport.	1	0	0	0	0	0	1	0	0	2

.*Number of respondents do not add up to n=39, as participants could circle more than one response.
[1]Galapagos National Park Service; [2] Participatory Management Board, one of the two decision and policy making bodies in GMR; [3] Interinstitutional Management Authority, the second decision and policy making body in GMR; [4] Charles Darwin Research Station. The Chamber of Tourism is the professional trade association dealing with tourism activities. The Municipality is the local political authority at urban and rural settings. The Government Council is the Provincial authority representing the Central State. The Navy is the authority in the maritime jurisdiction responsible for national sovereignity and shipping traffic regulation.

Respondents from the various sectors were asked about their beliefs of how well the GMR is managed, and in general, most of them expressed that the MPA's management is

suitable (Table 4a) regardless of the sector they belong to. Interviewees from the fishers sector expressed that the GMR is more or less adequate, whereas tourism sector participants believed management of the GMR is satisfactory.

Additionally, most scientists considered the GMR being under sound management whereas managers were the only sector fully agreeing on the good performance in the MPA conduction. Finally, maritime transportation interviewees expressed the GMR as being "neither bad, nor good".

Table 4a. "The current management actions for GMR are…"

	GMR management						
Interviewed Sector	**Extremely bad**	**Slightly bad**	**Neither bad/nor good**	**Good**	**Excellent**	**No Response**	**Total**
All interviewees	2.6% (1)	15.4% (6)	33.3% (13)	43.6% (17)	2.6% (1)	2.6% (1)	39
Small-scale fishers	(0)	2.6% (1)	10.26% (4)	7.69%(3)	(0)	(0)	8
Tourism	2.6% (1)	7.7% (3)	12.8(5)	18% (7)	2.6% (1)	2.6% (1)	17
Scientist	(0)	5.1 %(2)	2.6% (1)	5.1% (2)	(0)	(0)	5
Managers	(0)	(0)	(0)	12.8% (5)	(0)	(0)	5
Maritime Transport	(0)	(0)	7.7% (3)	(0)	(0)	(0)	3

* Values in parenthesis indicate the number of responses.

Respondents from the various sectors were also asked about their beliefs of how well tourism and fisheries activities are managed. There were differences in what each sector believed regarding the other activities' management (Table 4b). For example, the fisheries sector respondents believed that tourism, scuba diving, small-scale fisheries, and recreational fisheries are being overseen appropriately by GMR managers. In contrast, the participants from the tourism sector partially agreed on that management of their activities, including scuba diving, has indeed been appropriately accomplished whereas small-scale and recreational fisheries administration is not entirely satisfactory.

Additionally, the scientific sector interviewees claimed scuba diving and tourism are partially acceptable whereas management of small-scale and recreational fisheries is insufficient. Moreover, managers interviewed said tourism, scuba diving, and small-scale fisheries are adequately conducted, whereas recreational fisheries administration has been mainly weak.

Finally, maritime transportation participants expressed "no opinion" as their response to how they consider these activities are being managed.

Table 4b. "In your opinion, how are these activities currently managed in the GMR?"

Activity	Actions				No opinion	Total
	Not managed	Poorly managed	Moderately managed	Well managed		
Professional small-scale fishing	0	25.6 (10)	33.3 (13)	30.8 (12)	10.3 (4)	39
Recreational fishing	5.1 (2)	30.8 (12)	25.6 (10)	20.5 (8)	18 (7)	39
Scuba diving	2.6 (1)	12.8 (5)	23 (9)	43.6 (17)	18 (7)	39
Tourism activities	2.6 (1)	12.8 (5)	23 (9)	54 (21)	7.7 (3)	39
Other	0	0	0	0	0	0

* Values in parenthesis indicate the number of responses.

3.3.2. Cognitive dimension: attitudes about main issues in the GMR.

GMR users were asked specifically about: 1) benefits, life quality and cost of living due to the GMR; 2) cost of living; 3) regulations regarding tourism, small-scale fisheries, and the potential increase the activity; 4) fisheries and tourism as traditional activities; and 5) responsibility for problems in the GMR (Table 5).

In terms of "benefits from the GMR," most respondents agreed that there are benefits experienced by local inhabitants because of the existence of the MPA. This is further supported by even slightly more participants who agreed that there are more benefits than costs due to the presence of the MPA. Concerning benefits of particular activities, the

majority agreed that small-scale fisheries make a substantial contribution to the local economy, and generate important income for local communities. In contrast, a larger group of respondents saw tourism as the strongest economic source for the local population. Additionally, most respondents believed that the GMR helps the fisheries sector protect the resource.

Concerning life quality, while most respondents recognized that tourism has certainly improved the quality of life in Galapagos, a higher percentage of respondents believed that tourism causes an increase in the cost of living in Galapagos. Interestingly, all fishers, scientists, and managers agreed that tourism caused the cost of living to increase significantly, whereas only a few fishers, scientists and managers believed that it made the quality of life in the GMR better. In contrast, those from the tourism and maritime transportation sectors believed that tourism did both: it improved living conditions, but at the same time, increased living costs.

Regarding regulations, the majority of the contributors agreed that rules in fisheries and tourism should be maintained. In fact, most fishers, tourism operators, and maritime transportation participants believed that rules on tourism must be endured, which was opposed to a good number of scientific and management respondents who stated that, instead, regulations in fisheries should remain. Concerning the possibility for fisheries and tourism to increase by granting more fishing licenses and by attracting more tourists to the GMR, responses from the majority of participants, including fishers and tourism sector individuals, expressed disagreement.

In relation to fisheries and tourism as "the traditional activity of Galapagos," most respondents agreed that fisheries are the traditional activity in the GMR, whereas only half

of those interviewed agreed that tourism instead has that role. For example, fishers, tourism, scientists, and managers participants stated that the fisheries activity is more traditional in the GMR than tourism. In contrast, maritime transportation respondents believed that fisheries and tourism are both traditional activities in the GMR.

Finally, problems in the GMR were explored by asking whether the GNPS, fishers, tourists, or NGOs are responsible for the problems in the GMR. Respondents disagreed that tourists and NGOs are responsible for problems in the GMR, instead pointing the blame towards the GNPS and fishers. Examining sectors' responses separately tell us that fishers do not agree that tourists are responsible for the challenges in the GMR; instead fishers believe themselves, the GNPS, and NGOs share responsibility for the current situation. Additionally, those in the tourism sector showed disagreement on tourists, NGOs, and fishers being the causes for problems; they put the blame on the shoulders of the GNPS. Moreover, those participants in the scientific sector basically disagreed that the source of the problems lied with the GNPS, fishers, tourists, and especially NGOs. Instead, this sector said the source of the problems to be the GNPS. Furthermore, managers held similar views to those scientists interviewed, taking away responsibility from NGOs and tourists, and claiming instead that fishers are culprits. Finally, maritime transportation respondents disagreed with tourists as the cause of problems, but instead considered the GNPS as the responsible institution for the shortcomings in MPA management.

Table 5. Beliefs about issues in the GMR.

	Question	Scale					No response	Total (n=39)
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
	Benefits							
1	Fisheries is a strong economic source for Galapagos	0	25.6% (10)	0	69.2% (27)	2.6% (1)	1	39
2	Fisheries generates	0	20.5% (8)	5.1%(2)	69.2% (27)	0	2	39

	substantial incomes to the local communities							
3	Tourism is a strong economic source for Galapagos	0	0	5.1% (2)	87.1% (34)	5.1% (2)	1	39
4	GMR helps the fisheries to protect the resource	0	7.7% (3)	0	87.1% (34)	0	2	39
5	I have seen benefits to the local human population due to the GMR...	0	10.6% (4)	10.6% (4)	66.6% (26)	0	5	39
6	There are more benefits than backsides to the local population due to the GMR	2.6% (1)	5.1% (2)	12.8% (5)	74.3% (29)	2.6% (1)	1	39
	Life quality / cost of life							
7	Tourism improves the quality of life in Galapagos	0	17.9% (7)	12.8% (5)	64.1% (25)	0	2	39
8	Tourism causes the increase in the cost of living in Galapagos	0	2.6% (1)	2.6% (1)	89.7% (35)	0	2	39
	Regulations							
9	I believe the fishing regulations in the GMR should be maintained…	0	10.6% (4)	5.1% (2)	82% (32)	0	1	39
10	Tourism regulations in the GMR should be maintained…	0	7.7% (3)	2.6% (1)	84.6% (33)	0	2	39
	Increase the activity							
11	Additional tourism would help GMR	2.6% (1)	74.3% (29)	2.6% (1)	17.9% (7)	0	1	39
12	More fishing licenses would help Galapagos´ communities	0	84.6% (33)	5.1% (2)	5.1% (2)	0	2	39
	Traditional activity							
13	Fisheries is the traditional activity of Galapagos	0	15.4% (6)	0	82% (32)	0	1	39
14	Tourism is the traditional activity in GMR	0	41.0% (16)	2.6% (1)	53.8% (21)	0	1	39
	Problems in GMR							
15	GNP is responsible for the problems in GMR	2.6% (1)	33.3% (13)	2.6% (1)	28.2% (11)	2.6% (1)	12	39
16	Tourists are responsible for the problems in GMR	2.6% (1)	76.3% (30)	12.8% (5)	2.6% (1)	0	2	39
17	NGOs are responsible for the problems in GMR	0	56.4% (22)	0	7.7% (3)	0	14	39
18	Fishers are responsible for the problems is GMR	0	43.6% (17)	12.8% (5)	10.3% (4)	0	13	39

* Values in parenthesis indicate number of responses.

4. Discussion and conclusion

Although studies addressing the relationships between humans and the GMR have mainly documented perceptions about management restrictions, little analytic attention has been paid to attitudes and beliefs of GMR users toward the GMR. In fact, users being asked about relevant topics happening in the GMR, concerning small-scale fisheries and tourism, still represent a knowledge gap, to which this study is providing additional insights and is contributing to fill.

For instance, whereas studies examining GMR users coped with institutional performance, regulations-restrictions, and user's level of power (Wurz & Wallace,1994; Velasco et al., 2002a,b; Montesinos, 2002; Barber & Ospina, 2008a,b), only one study specifically focused on fishers' (Finchum, 2002) perceptions about management, regulation, and GMR protection. Their findings show that the GNPS have a rather positive image in front of users, and support to follow environmental regulations but only if they do not involve daily-life issues (e.g., migration, quarantines, areas restricted for tourism). However, the unequal distribution of power among GMR users was shown by Finchum (2002) to be the main reason for fishers' unwillingness to obey rules and the origin of their frustration.

The international community constantly expresses concerns about the management activities (or lack thereof) in the GMR and about maintaining the integrity of Galapagos as a UNESCO World Heritage Site (Karez et al., 2007). However, many of our respondents see the area as being managed well. In fact, management efficiency was said to be appropriate by all the sectors interviewed, and the most efficient institution dealing with GMR management was found to be the GNPS. This finding surprisingly contradicts the idea of fishers traditionally being detractors of GNPS agency and drastically opposing whatever decision is made by GMR staff.

In general we found that all users have a positive attitude toward the management authority in the GMR. In contrast, and as expected, the scientific sector believes that the Charles Darwin Research Station (CDRS) performs better regarding GMR management than the Participatory Management Board (PMB) and the GNPS. That most participants found the GNPS as the ruling body that performs better is not surprising given the highly visible institutional role that it plays locally. What is surprising however is that significantly fewer individuals (only eleven of thirty-nine) recognized the PMB as a successful entity despite

this institution playing one of the most important roles within the participatory management model for the GMR. Interestingly, only one respondent of thirty-nine made the point that the question was not fully accurate regarding "management jurisdiction," since he argued the only institution entitled to, and actually doing management activities in the GMR, is GNPS. "The other institutions in your list" he said "are merely interest groups and instances, they are not doing management" (P60, 28.03.2012). This finding could potentially be revealing a trend in institutional image improvement that was already referred to by Barber & Ospina (2008b). However in contrast to them, we claim that possible causes for institutional image improvement is not the increased support to development-focused institutions and the reduced acceptance of institutions promoting conservation by locals, as they stated, but instead the balanced approach taken by the GNPS in their agency. In that regard, we claim that the GNPS' agency has strategically targeted both conservation-and-management outcomes equally in pursuing the protected area mission.

Additionally, we argue that the relative improvement of the GNPS' image is due to their increasing outreach at the local level. Like previous years when their work on research, published material, and grey literature circulated mainly within academics, scientists, and donors, its access has currently been opened for local users as well. Despite language barriers still remain, the level of awareness has improved. As a result, the current issues happening in the GMR (e.g., challenges, problems, and positive outcomes) could be perceived by locals and outsiders differently. Perhaps international observers believe things occurring in the GMR are getting worse (Toral-Granda et al., 2011) than they are perceived by locals. It could also be that local inhabitants disregard situations that are indeed problematic, but about which they are not aware or have gotten use to.

Our previous reflection about current trends in information access contrasts our findings about this same issue occurring in the past. Our results support the idea that the majority of respondents (five of seven interest groups sampled) consider the GMR healthier before its implementation. In contrast, only two interest groups of seven (i.e., scientific and management) believed the GMR was healthier after its implementation. Apparently the availability of, or the access to, referential information (e.g., baseline data of the GMR's status) by users at the time of the GMR's implementation was unequal. It could happen that, whereas before the GMR's creation, scientific published material and gray literature about the MPA status was available only for scientists and managers; other users (e.g., fishers) lacked that knowledge ("When [the GMR] was created it had weaknesses because the [availability of] information, knowledge, biological data…was…there was few information. Now it exists and is evaluated for zoning", P52, 23.03.2012*).* The differentiated access to information could be the explanation for the existence of these contrasting beliefs about the GMR's health, which coincide with Celata's & Sanna's (2010, 2012) and Cairns's (2011) findings about the slight advantage of scientists and managers over fishers concerning access to knowledge.

The differences in beliefs about management of tourism and fisheries and the benefits obtained from the GMR are varied. Regarding tourism, it was demonstrated that its administration is perceived more positively than small-scale fisheries', including diving, which is said to be "well managed" by nearly half of the individuals, against only a fifth of respondents indicating the same for recreational fisheries. Implications of this finding would redound in the maintainance, by the GMR authority, of higher effort to control fishing activities than the one applied to control (or even reduce) tourism. Concerning benefits provided by both activities, respondents attributed bigger credit to tourism. In fact, this

sector is claimed to have boosted the improvement of quality of life versus the small scale fisheries, and yet tourism is directly responsible, as respondents realize, in increasing the cost of living in Galápagos. This obvious contradiction continues to support the overarching *manter* that tourism, regardless of how damaging it might be, remains the answer to solve the economic deficiencies faced by the population. In areas where fisheries continue to decline, MPAs often espouse their value as a tourism draw perhaps further fuelling this "panacea-minded" idea of tourism being the savior of rural communities (Lemelin & Dawson, 2014).

In that regard, a good number of the GMR users interviewed believed that tourism and fisheries play, and should continue to play, an important role in the islands' economy arguing that these activities are compatible with the GMR's principles as "alternatives and opportunities to help GMR conservation….because when there are not source of jobs, there is not conservation" (P57, 27.03.2012). In reality, however, fisheries are playing a rather small role as an employment provider. For example, the main jobs are found within tourism (33%) followed by trade (21.5%), public sector (11.6%), domestic jobs (8.7%), agriculture (5.9%), and construction (5.7%) (Benítez-Capistros et al., 2014).

Paradoxically, small-scale fisheries, despite being considered the "traditional" and most important economic activity in Galapagos, by thirty-two of thirty-nine participants, fisheries has shown not to be an important driver of the local economy anymore. On the contrary, tourism is recognized to be the main economic engine for the local communities in Galapagos by most of the respondents in this research. Of particular interest is that fisheries would be still considered "traditional" in the GMR despite evidence showing that fisheries is indeed a "late event" in the GMR, as a commercial practice, compared to agriculture and

cattle harvesting (Marder & Arcos, 1985; Hermida-Bustos, 1987; Ramírez, 2004; Ospina,2001; Grenier, 2007; Keene-Meltzoff, 2013).

Concerning regulations in the GMR, a good majority of respondents agreed in the necessity for regulations to be maintained for both fisheries and tourism. Agreement was also encountered in the common resistance to any possible increase of those activities, either as more fishing licenses (for small-scale fishery sector) or more boat patents (for tourism sector). This suggests that despite the historical confrontation and hostility created by regulations, restrictions, and exclusion against marine resource users, in reality, most respondents concurred in the importance for those restrictions to be sustained in the GMR. Perhaps, contradictions to this finding were found in some users' individual thoughts when saying that “maybe regulations are not always needed” (P57, 27.03.2012) and that “it could still be acceptable if someone breaks the rules” (P54, 26.03.2012) “sometimes” (P46, 21.03.2012).

The last issue addressed by this research focused upon responsibility for problems in the GMR. In that realm our results could be seen as controversial since they take the responsibility from tourists and NGOs, and allocate, according to the respondents, that role to the GNPS and fishers instead. Surprisingly, even fishers themselves stated they are also contributing to the problematic situation in the GMR, which can be consistent with the belief that regulations in fisheries should be maintained, even more than tourism.

Concerning environmental impacts and their interactions in the Galapagos context, there has been an increased focus with one study (Benítez-Capistrós et al., 2014) that demonstrated that the eight most relevant impacts identified in Galapagos are mainly linked to the importation of goods due to the increasing local demand, especially by the tourism

sector (e.g., introduction of species, biodiversity loss, land use change, loss of biological resources, habitat fragmentation, landscape alterations, water basin overexploitation, and decrease of water quality). In contrast, these authors say fisheries might not be a relevant, additional cause of environmental impacts.

Perhaps while people believe that fishing may be a traditional activity, in reality it isn't. Nature tourism is the main productive activity on the islands and the main economic driver of Galapagos' economy as a "revenue system" anchored in tourism (Ciccozzi, 2013). This fact confirms that in economic terms, tourism is more relevant and has a much longer history in the GMR, if we keep the evidence of Charles Darwin effectively being the first informed tourist in this land in 1835. The current continual focus on the small-scale fishery may be efforts ill spent since this activity is more likely to remain at the same pace of the last several years. Instead, it is time to really recognize that tourism must be better managed, which becomes conclusive after Grenier´s (2007) statement saying that "the Special Law for Galapagos (or *LOREG*) failed because it never regulated what it had to: the tourism".

The prevalence of negative attitudes toward small-scale fisheries influences the demonization of this sector in people's eyes by allocating to fisheries more weight in responsibility for causing problems in the GMR than the rest of users. In contrast, the generous and friendly image that tourism still enjoys (Tao & Wall, 2009) masks any potential negative damaging effect that this sector is causing in the GMR in comparison to other sectors. In that context, effects of tourism *versus* effects of small-scale fisheries over natural and social systems in the GMR must be evaluated to clarify whether both should be equated as equally risky threatening activities in this MPA.

Pointing to “who damages” and “who benefits” from this MPA distorts the role of tourism and small-scale fisheries as active and important agents in the GMR's transformation. Moreover, the extended belief that the GMR is, by itself, assisting the inhabitants' life improvement by the provision of benefits derived from its mere existence, is inaccurate. The over-simplification of the marine reserves' function for marine environment restoration (e.g., “if protected from human interference, nature will take care of itself” (Bohnsack, 1993)) must be avoided. If not, we face the risk of removing the merit or demerit from those users who are active enablers in MPAs success or failure. This last idea was well illustrated by one interviewee's response to the question “does GMR help the fisheries to protect the resource?” to which he answered “In reality, it is the small-scale fisheries sector that is the one helping the GMR to protect the fishing resources” (P52, 23.03.2012).

This research has demonstrated that beliefs about small-scale fisheries and tourism diverge among users, depending on who is telling the story. These insights helped to better comprehend the rather positive attitude toward tourism and the fairly negative stance to small-scale fisheries, embedded within the local discourses. For example, the apparent contradiction of users interviewed, between supporting regulations for tourism and small-scale fisheries, and at the same time claiming that the GMR's health was better before its implementation, suggests a disconnection between the systems' features (i.e., complexity, diversity, dynamics, and scale) (Chuenpagdee and Jentoft, 2013) and GMR functioning.

While the GNPS is perceived positively by most participants, further research is needed to explore the performance of both public and private institutions involved in GMR management. This knowledge would illustrate alternative ways to address competing claims of marine resource use (Yang et al., 2013); and conflicts between humans and environment,

and between humans about resources (Madden, 2004). In that regard, consensus-based processes ruling the decision and policymaking in the GMR should be used only as one mechanism among others, to reach agreement and find solutions but not just culprits.

Future research should explore a broader and more diverse spectrum of users, including, for instance, tourists and tour operators in Galapagos and abroad. Despite their inherent mobility and consequent ephemerality in their relation to the GMR, tourists are still those who demand Galapagos as a commodity to be purchased for their enjoyment. Therefore, if customers and providers of these goods (i.e., tour operators) realize the scale of their impact on the GMR, a mindset shift is more likely to occur.

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Chapter 6 Galapagos Marine Reserve: governing the vicious, virtuous and dangerous circle

You ask whether I shall discuss "man";
I think I shall avoid whole subject,
as so surrounded with prejudices,
though I fully admit that it is the highest and
most interesting problem for the naturalist

Charles Darwin´s letter to Alfred Wallace
22 de diciembre de 1857
(Source: Tapia *et al*., 2009)

This dissertation reveals the messiness related to GMR and its governance. This conclusive sentence may invite controversy, since it explicitly contradicts the idea of paradise that most people embrace about GMR. How can paradise be messy? In the following section, this apparent contradiction will be revisited, by highlighting the main findings of this research and its contribution to the theoretical, methodological, and empirical realms, jointly with the implications for GMR governance.

The study has multiple aims. It contributes to the MPAs and marine resources governance literature by applying the Interactive Governance as an innovative theoretical framework that pays due attention to both the natural and the social systems when addressing human-environment relationships. It also offers a new perspective to tackle governability challenges in GMR by resisting the prescriptive-type of measures, but instead proposing a grounded solution based on a thorough understanding of the current situation. Additionally, by applying a qualitative-mixed methods approach, it becomes one of the first of this type of research in Galapagos settings. Finally, this initiative becomes relevant locally and nationally, after recognizing the little attention that such approach has had in Ecuadorian settings.

This dissertation elaborated on GMR governance and governability based on varied dimensions and analytical instruments, like temporal features (e.g., the previous stages of this MPA implementation), a whole system analysis (e.g., natural, social systems, and interactions), the third order of governance (e.g., images), and one aspect of users behavior (e.g., attitudes). All these insights are interconnected and can be directly linked to the overarching legal framework in Ecuador: the National Constitution of 2008, which, for the first time, recognized "the rights to nature" (or the *Pachamama*). According to Escobar (2010), it represents an unprecedented 'biocentric turn' away from the dominant modern anthropocentrism. At least in theory, this new model of development favors solidarity over competition and sustainability, natural, and cultural wealth over economic growth (SENPLADES, nd; Lind, 2012). The challenge remains, however, about the suitability of this motto when two political and economic models–the modern socialist model predominant in the mainland Ecuador and the neoliberal-capitalist form privileging market over society found in Galapagos– coexist within one single nation-state. This incongruency has been addressed in a chapter authored by the candidate ("*Two laws for the same fish: small-scale fisheries governance in mainland Ecuador and Galápagos Islands*", Barragán Paladines, *in press*) that will be part of a forthcoming edited volume about small-scale fisheries governance around the world (Jentoft and Chuenpagdee, forthcoming).

This thesis contributes to increasing the likelihood that this new political paradigm becomes more of a reality, and less of an empty promise, at least in the context of the Galapagos. I argue thus, that the notion of sustainable development in Galapagos must be reset and that the ruling bodies should redefine the target to achieve in Galapagos, by for example, searching the balance between sustainable development and economic growth (Hoyman and McCall, 2013).

This research derived from the current discourse and the mismatched images about Galapagos and its consequent low governability (Watkins and Cruz, 2007). Tour operators complain about fishers; fishers complain about tour operators; naturalistic guides claim that the present situation is the government´s fault; scientists complain about everybody else. With this taste of unconformity, it is safe to say that GMR is not governable, especially after UNESCO decision to put Galapagos within the List of World Natural Heritage in Danger (Gonzalez et al., 2008) and its removal from that nomination shortly after, obeying the pressure from the tourism sector. The eyes of the world looked at the Archipelago searching for responses to this situation.

Inspired by the Interactive Governance framework this research has tackled issues of governability. Governability is understood as the overall governance quality, and depends, first and foremost, on the characteristics of the system that is being governed and the governing system, as well as on the capacity of the governing system (Song and Chuenpagdee, 2010; Bavinck and Kooiman, 2013; Bavinck et al., 2013. Because of that, I have documented and examined GMR governance from four different but harmonizing perspectives that add up to the whole context of governance and governability in GMR. These features are illustrated by the four research questions leading this investigation: how did GMR come to be? (Chapter 2); how does it work? (Chapter 3); how do people imagine it? (Chapter 4); and how do they relate to it? (Chapter 5). A systematic and comprehensive analysis has been performed, particularly to reveal features that have been overlooked in previous GMR's assessments. The “now-what” provoking idea is enhanced by this framework application.

6.1. Research relevance

Theoretically this study contributed, in general, to highlight the appropriateness of a framework like interactive governance to enhance the understanding about MPAs and to improve their implementation. In the Galapagos context, the relevance of this investigation relies at three levels. First, the understanding that the way GMR was created plays a role in its current governance. Second, the use of the interactive governance perspective highlighted the mismatches occurring between the formal and operative forms of the GMR's systems. And third, the application of this approach, nourished by a clear and flexible analytical framework, enabled the identification of features of GMR that have been overlooked along the years (e.g., geopolitics influence in GMR's creation). All these aspects would contribute to a higher governability of GMR, but certainly not expecting the state of perfect equilibrium mentioned by Breton et al. (2006).

Interactive governance emphasizes on solving societal problems and creating opportunities through interactions among civil, public and private actors (Kooiman et al., 2008). In that regard, the systematic analysis conducted in GMR was not daunting but revealing. For example, the lack of interaction between and among elements of the GMR system was observed and recognized as one of the challenges to GMR governance. However, notwithstanding their relevance, this research did not go in-depth into the quality of the rapports between elements of the systems (e.g., between the governing system and the system that is being governed).

Methodologically, this research was conceived within the mixed methods approach, under the qualitative tradition in searching for meaning-making process (Krauss 2005). The triangulation method (Clifford and Valentine, 2003) applied draw from different sources or

perspectives, theories, participants, and analytical instruments (Robson, 2002). This method has been highlighted as the appropriate way to conduct social research in Galapagos, given the special challenges immersed in human-environmental systems–especially in GMR environments (Rindfuss, 2009).

The case-study type of inquiry, complemented by semi structured open-ended interviews (Chapters2 and 3), close-ended interviews (Chapters 4 and 5), and intensive historical documents review (Chapter 2) offered a unique opportunity in understanding the governance issues in GMR. This suite of methodology shifts the focus from management-centric investigation under which most of previous studies addressing challenges in GMR have aligned to (FN and WWF, 2000, 2001; Heylings and Bravo, 2007; CDF et al., 2008, 2010; CI and USFQ, 2010; Toral Granda et al., 2011; Hockings et al., 2012; Jones, 2013) to a broader and more inclusive governance perspective. By doing so, the interactive governance perspective was used to reveal where to look, what to look for, and what to look at (Chuenpagdee and Jentoft, 2013) at addressing governance issues.

Consistent with other studies (Neis et al., 1999; Stern, 2008; Golding, 2012; Robinson, 2014), the sample size and study design chosen in this research were not intended for the generalization of findings within the broader public. Neither were they meant to represent the whole GMR population, but "*rather to present personal stories illustrating ideologies, values and prescriptions*" (Rogan et al., 2005:149). Purposive or theoretical sampling (Mays and Pope, 1995), rather than random or representative method (Harding and Gantley, 1998), was used to account for a breadth of relevant perspectives (Kerr and Swaffield, 2012) and aimed to reflect the diversity within a given population (Kuzel, 1992). Data were analyzed using thematic analysis approach (Braun and Clark,

2006), which enabled the searching and finding of both, manifest- as well as latent-content themes (Boyatzis, 1998).

This research was limited to only one of the four inhabited islands (Santa Cruz), selected because it has the highest human population density. Future research would be desired to also include other islands (e.g., San Cristobal, Isabela, and Floreana) and other user groups (e.g., national and international tourists) who, despite their ephemeral relationship with GMR, are also important elements of the GMR systems.

Empirically, the outstanding role of interest groups and users at the early (Chapter 2) and late instances (Chapter 3, 4, and 5) of the GMR history were demonstrated by this research. It affirms Peet's (2007:10) claim about institutional practices (e.g., decision and policy making), which he says are neither neutrally conceived–as science pretends– nor based in the interest of everyone–as modern humanitarianism hopes. Instead, as he argued, policies are made to serve dominant political-economic interests. In GMR case, these practices have been deeply anchored within vicious, virtuous and dangerous circles in the GMR history and certainly are compromising its future. In that context, the "GMR world" must be recognized just the way it is: "*a battlefield of conflicts, governed by power unevenness*" (Chevalier and Buckles, 2000:38).

6.2. Governance implications

Geophysical and ecosystem features of Galapagos are the most widely studied and best known systems in the world (Gibbs, 2008; Watkins, 2008; Tapia et al., 2009). However, the GMR governing body–Galapagos National Park Service (GNPS)–is argued to have not fully achieved the GMR's conservation aims. Governance elements (e.g., institutions, processes, and interactions) and human dimensions (e.g., attitudes and beliefs) have been identified to

be among the most important themes to investigate in MPAs settings (Wahle, et al., 2003). However, before this study, few have been said about these features in GMR (Hockings et al, 2012), mainly because of the dominance of geophysical, biological, and ecological knowledge generated by scientific endeavor conducted in Galapagos.

In short, we know where we are, but unfortunately GMR today is not where it can be. Contrary to the belief that Galapagos is "*much simpler in the administrative aspects than the majority of other ecoregions*" (Bensted-Smith, et al., 2002:15), GMR is indeed a very complex system that has proven to be rather difficult to govern. Despite perceptions of "stability" in its natural systems (e.g., the ecological limits in Galapagos are "*relatively well defined*"(Bensted-Smith et al., 2002:14)), gaps in knowledge about the dynamic relationship between the humans and the natural systems, and between interest groups still exist.

The interactive governance was considered thus the integrative and dynamic approach suitable to examine the complexity and the dynamics of the GMR. It is not intended to be a palliative prescriptive measure dictating what should be done, but instead a systematic way to understand the interacting elements of the systems that have been addressed separately. Therefore the strength of this approach, absent in GMR context so far, has been identified by the present research as a post-managerial perspective for GMR governance improvement.

In the last decades, the co-management mode implemented in GMR has been observed as a successful example of participatory processes in marine resources administration and conservation (Honey and Littlejohn 1994). In that sense, management has been looked at as a definitive aim, with targeted efforts and with all the resources allocated. However, the new trend in marine resources usage predicates a more

comprehensive and less restrictive approach, moving marine resources management paradigm toward the overarching governance approach. This shift contrasts the initiatives in GMR in the past, which involved tailored instruments designed and tested by authoritative bodies operating in alien contexts, and following economic, geo-politic, and scientific objectives, inspired from abroad (Bustamante, 2010).

Ludwig (2001:758) claims "*management is over*" because the management paradigm has failed when confronted with complex problems, which happen to be most of the "real-world" problems. Management intention to address "ill-structured problems" which are those involving substantial uncertainty about which even experts may disagree (Kuhn, 1991; King and Kitchener, 1994) has proven not to be the right answer. Moreover, within this problematic scenario, management has badly coped with what Jentoft and Chuenpagdee (2009) call "wicked problems", defined as problems of inherent indeterminate quality, possibly because they are always a part, or a symptom, of a bigger societal problem, where there is no right or wrong answer, but only good or bad one.

This mindset shift from management to governance is tackled by Jentoft and Chuenpagdee (2009:555) who posit that whereas "*management constitutes a set of tools applied to solve concrete tasks with measurable outcomes, governance is an iterative, adaptive process involving interactions of stakeholders, as well as the ways in which goals are chosen and management decisions made*". This new way of understanding the marine resources issues in GMR context, certainly redirects us from the "species- or even ecosystem-based" management approach toward a comprehensive and inclusive framework enhancing the role of both social-and-natural systems and their interactions in the outcomes' achievement.

6.3. Reflections about for conservation, development and protection

The recognition of Galapagos as a "Special Territory" by the Ecuadorian Constitution invokes the indivisibility of the Ecuadorian territory; keeps alive the Galapagos´ provincial category within the national imaginary; and privileges a developmental model for this region. These variables certainly conflict with the MPA status of GMR (which is something in between the Categories Ia-Strict Nature Reserve, and VI-Habitats/Species Management Area, of IUCN) which at the end is forced to host at the same time "the benefits of an expanding economy and the aesthetic benefit of an unspoiled nature" as Guha (2005) explains. Consequently, I argue that in order to improve GMR's governance in the long run, the conservationist speech must align to the developmentalist oratory and *viceversa,* and only by doing so the gap between rhetoric and action can be bridged.

This exercise could be accomplished for example, by addressing critical inquiries proposed first, by Buijs et al. (2012:1168) regarding "*what kind of natural areas need to be protected, how, and by whom*"; and second by Lélé (1991:615) about "*what is to be sustained, for whom, and for how long*?". After knowing those responses, it could be possible to define first, who should Galapagos be conserved for?; second, who should Galapagos be developed for?; and finally, who should Galapagos be protected from? Perhaps then, a new paradigm for Galapagos would arise in form of either a conservationist-developmentalism model or a developmentalist-conservationism one, but both including ecological integrity *and* community wellbeing.

While talking about wellbeing, it certainly brings back ethical concerns of local inhabitants' wellbeing and how to pursue it. For example, at dealing with the question "who should Galapagos be conserved for?" I unavoidably recall Oracion's (2003) claim about the

ethical implications of having pristine coral reefs for elites and devastated reefs for locals. In that regard I question whether marine resources in GMR should also be conserved for the local's own benefit? And the response is yes. Locals must also have the right and entitlement to the use local marine resources, traditionally reserved for elites. Additionally, could it be said that GMR's resources must also be protected from tourists? And again, the response is yes. In Galapagos, natural features have always attracted millionaires especially to the marine settings (Kasteleijn, 1987). Just in the last five years, while visiting and field working in GMR, I observed more than five mega-yachts per year (e.g., owned by Hollywood stars, royals, magnates, etc.) arriving in the islands, for two-to-three days periods. Reflecting on these two situations, it can be argued that either locals or outsiders (i.e., normal tourists or famous people) are using the GMR resources. Therefore the recognition of their shared responsibility in adequately using the GMR's marine resources must be realized and acknowledged by all of them.

Finally, the inquiry of "who should Galapagos be developed for?" may let us think about the past and current discourses of the conservation and management bodies in Galapagos. In general, it can be said that the rationale traditionally used in MPAs settings (i.e., "if humans cannot be excluded from the protected areas, then they must be `educated´ and `disciplined´", Celata and Sanna (2012)) is not adequate. In that scenario, there is no provision for users to be active elements at decision making process and at governing GMR. They are taken instead as "well trained" elements of the MPA, committed to the accomplishment of the environmentalism precepts–mainly dictated abroad–by adequately behaving within the GMR. They are expected to show neither interest, nor intention of having equal living conditions than other Ecuadorians in the mainland and by doing so, the developmentalist discourse in Galapagos may not have place. But, if not for them, for whom

is Galapagos being developed, then? And there is not a concrete response. There is, instead, a fundamental criticism to this uneven way of behavior circulating around the ethical rational behind privileging the "aesthetical-recreational" and the "scientific-conservationist" dimensions, in detriment of the human society of Galapagos, and at the same time, in benefit of the "world society".

Critical at this point is a comprehensive understanding of why the current condition is the way it is. On the one hand, it has been acknowledged that tourism has been by far the primary driver of Galapagos' development (Epler, 2007; Grenier, 2007; Taylor et al., 2003, 2006, 2009; Heslinga, 2003; González et al., 2008; Watkins and Cruz, 2007; Watkins, 2008; Hoyman and McCall, 2013), accounting for up to 78% of all employment, compared to less than 5% in fishing (UNEP, 2011). On the other hand, the incomes provided by the former main economic activities (i.e., agriculture and small-scale fisheries) are currently shadowed by the influx of capital and the total circulating U.S. dollars, supplied by the increasing number of residents and visitors (Bensted-Smith et al., 2000; Walsh et al., 2010). These factors encourage development and transform Galapagos' economy, complicating thus the efforts for regulation (*idem*). Consequently, the pull factors for the migration inflow are set, like the inclusion of Galapagos among the fastest growing economies in the world (Taylor et al., 2006), with a GDP increase of 78% in 1999 to 2005.

The findings of Chapter 5 have shown the rather positive beliefs of locals regarding current issues in GMR. These results partly harmonizes with what Barber and Ospina (2008) described as a general positive trend and modest improvement of the image of GMR's institutions promoting socio-economic development, *versus* the declining in the image of the conservation-labeled organizations. Those authors' explain it by the failed high

expectations among locals, regarding potential benefits for them due to the MPA implementation, and to the negatively assessed performance of the conservation organizations in achieving the conservation aims. However, contrary to them, I argue that the rather positive perception of GNPS (the recognized protection and conservation body) could be a by-product of their agency in GMR's management, since it has been recognized by a GNPS staff member that "*public acceptance, is generally not explicitly sought*" (P60, 28.03.2012). Possible explanations for the improved GNPS perception in GMR's management are explored in more practical realms. For example, the higher attendance of GNPS staff to the Participatory Management Board meetings, or the higher effort applied by the GNPS to outreach local instances rather than international circles. In this last case, it would explain why the insider's perception is better that the one is hold by the outside world about Galapagos status.

At this stance, it is interesting to recall this contradiction between the positive perceptions of the locals *versus* the negative image of the outsiders, which is mainly projected by the international media about Galapagos (Stone, 1995; Karez et al., 2006). I would question the ethical implications of this negative perception by the outsiders, by asking who should be happy with GMR status: the locals? the outsiders? both?. Taking into account that locals are those living, using, and experiencing GMR, should be them the most relevant agents in achieving the GMR's aims, whatever they look like to the outsiders. However, the role played by the outsiders (e.g., tourists paying for natural ecosystems enjoyment) cannot be disregarded, because at the end they, are still the demanding agents for Galapagos nature brand. The ethical implications of this dilemma were nicely expressed by one participant who said.

> *"Although it is true that Galapagos is a ´Natural Heritage of Humankind`, is that enough reason for everybody to meddle in anything related to Galapagos? …either nationally or internationally?... Can everybody opine and feel affected by what is happening in Galapagos? This fact, that everybody has a say* [in Galapagos-related issues], *is one of the tragedies in Galapagos. …There is a world perception that Galapagos is going to hell…. But…couldn´t it be also part of a ´natural` process? Doesn´t it obey to process that has to arrive, in any way? What do the* Galapagueños *feel about it? How do they interpret this feeling of being ´from everybody`…"*?(P1, 22.07.2010).

The conservation narrative in Galápagos

There is a common tradition of imagining GMR in terms of a unified conservationist narrative. Master narrative is defined as "the overarching way of understanding the situation that all interviewees share" (Gustafsson and Lidskog, 2012). Following that, findings showed that the so-called "conservationist narrative", used at the "Step Zero" pre-implementation phase of GMR (described in Chapter 2) but absent from the most common images within users about GMR (described in Chapter 4), should not be used as a unified discourse within the GMR's society. In fact, unlike the agreement encountered in the interviewees' contributions first about, maintaining regulations in both, fisheries and tourism sectors, and second in the positively perceived GNPS performance, a common agreement of conservation principles in GMR's context was not found. In that regard, following Marin and Berkes (2010) it would be appropriate to address "studying redundancy" when conducting studies including one system or set of actors at the same time, as a good strategy to track discourses about conservation in GMR's context.

Seven principles underlie the Galapagos Special Law (LOREG) (for details see Appendix II): a) biodiversity conservation, b) sustainable development, c) sustainable economics, d) reduction of invasive alien species risk, e) quality of life for residents, and f)

precautionary principle. Due to the steady development achieved in Galapagos in the last decades, concerns about where to set limits, to fulfill GMR´s mission following these principles, are debated. It has been argued that "[i]*f we want sustainability, we have to place limits on ourselves*" (Sevilla, 2008:26) but in Galapagos, there is little consensus about what the limits should be, and how we might achieve these limits. The irony of this idea arises when thinking that economic growth, due to the tourism industry in Galapagos, seems endless. In fact, the sustainable development paradigm used as the modern template for development policy (Symes, 2000) worldwide is also promoted in Galapagos, although it seems incongruent with the principles supposedly ruling nature conservation in the islands.

Consequently, it is mandatory to address fisheries and tourism issues relatively with the same interest, effort, and urgency in order to fairly assess their real impact on the GMR natural and social systems-to-be-governed. For example, the absence of regulatory frameworks to define rights of access to the resources (i.e. maximum limits on fishing and tourism effort within GMR, and conditions for future access) becomes decisive. Without such a frame of reference for the negotiation of resource use, few positive outcomes would be gained. Issues of property rights and resource use are still unclear and have caused an increase in tension between the sectors (Heylings and Bravo, 2007). Therefore, it is clear that fishing is not the only activity causing environmental impacts in GMR. The effects of tourism, which has tripled since 1996 (Grenier, 2007), must be taken seriously.

Along these writings, I have demonstrated that GMR governance must be adaptively implemented and flexibly reinvented due to the complex, dynamic, and diverse nature of the social and natural systems-to-be-governed (addressed in Chapter 3). Additionally, the "wicked-problems" quality of the challenges threatening the GMR's current governance and its long-term governability requires, according Jentoft and Chuenpagdee (2009),

argumentative and interactive processes involving deliberation and determination at establishing the goals for GMR. For example, the so-called "*over-exploitation of fishery resources in GMR*" (Jones et al., 2011:30) has been used as the manter for fisheries management. Perhaps however, it could be better expressed as "high-pressure" over marine resources (i.e., fisheries) where small-scale fisheries is one sector together with tourism directly using them. In fact, assessments of the level of affectation of marine environments–with emphasis on fisheries–must also address, for example, to what extent the shift from "nature-based" to "adventure" tourism (e.g., kayaking, biking, etc.) become a direct agent of impact on GMR (Jones et al., 2011).

Variations in the social and natural systems oblige to adapt the governing system as a matter of the GMR resilience. This is determinant for the GMR for long-term permanence, recognizing that regardless which governing model is chosen, the potential for social conflicts are ever-present, due to disagreements about the natural system use. Finding culprits, by just following the tradition of giving the responsibility to the less powerful and influential users will not help to find solutions. The perception of "fisheries is doing bad and tourism is doing well" has been denied by this research. In fact, the fisheries sector have been described by the interviewees participating in this research (including fishers and tour operators themselves) as "well managed" and "not as bad as it has been thought" whereas tourism has been said "needs more control". These results contradict the unbalanced effort allocated to these sectors at participatory decision making instances, when the numbers of fisheries-related issues treated by the Participatory Management Board between 1999-2007 (Quiroga et al., 2010) were dominant against other issues, with equal or higher impact over GMR's resources. On the other hand, it is revealing that tourism-related aspects treated in that period represent only one fifth of those about fisheries. Additionally, the contribution

of the tourism sector to the participatory process showed to be rather low, comparing their attendance to the Participatory Management Board meetings between 1999-2008 which was less than half than the meetings attended by fisheries sector representatives, in the same period (Quiroga et al., 2010).

Governing GMR in the long run?

The findings of this dissertation enable to recommend the following as critical points to tackle in order to enhance governability in GMR.

Labels

GMR falls under a protection category, which implies "no-take" areas. In that regard, the main principle of that status–the non-extractive kind of activity– is not fulfilled. Therefore, the revision of this category and its reassessment would be of extreme importance for GMR in the short and long run and has been under discussion in the past few years without apparent clarification (Martin et al., 2007). Perhaps the varied types and levels of protection for marine environments (e.g., marine parks, marine sanctuaries, ocean sanctuaries, marine managed areas) (Kenchington, 2010; Orbach and Karrer, 2010) could certainly be more representative of GMR´s situation than the label it currently holds.

Local leadership

The arising of local leaders and their involvement in the local marine resource governance is a priority that the current authorities must address. Building local research capacity within the new *Galapagueños* generations, willing and able to take part in GMR governance processes, must be encouraged. Mechanisms enhancing their recruitment and permanence must be found in order to give to the system, continuity on the good trends and flavors of

renovation on negative experiences. Contrary to the way scientific research has traditionally been conducted in Galapagos (Santander et al., 2009), research developed with "local glasses" at looking to local issues, may perhaps be more accurate for Galapagos than science only relying on Western-minded social- and natural-science epistemologies.

Migration

Migration has been explicitly recognized as the key factor reducing the islands health (Bremner and Perez, 2002; GNP, 2006; Watkins 2008). Despite the efforts to control it, illegal migration to the islands still occurs as a response to the pull factors acting from the islands–whether real or perceived opportunities of a better quality of life of individuals– (Walsh et al., 2010), and as a consequence of the push factors operating in the mainland, such as lower quality of life and insecurity (Kerr, 2005). In that perspective, the increasing human population in Galapagos (due to population growth and immigration) greatly and negatively influences the interactions between the social and natural systems-to-be-governed and the governing system. This finding about the relevance of the social system-to-be-governed in GMR, confirms Grenier's (2009:44) assertion that "*social factors are more important than biological ones in archipelagos conservation issues*".

Additionally, when considering possible causes for this situation, failed initiatives in controlling population growth are found, for example by failing in establishing migration limits and due to legal mismatches occurring inside the Special Law's mandate, which, besides the promulgation of the GMR sustainability as its major aim, it did not address, explicitly, the necessity to reduce drivers of mobility and migration linked to the tourism.

The human presence and their lifestyle in Galapagos have different implications. First, the birth rate in Galapagos (6% yearly, INEC 2011) is one of the highest in Ecuador, and along with it, arising social issues (e.g. criminality, teenage pregnancy, drugs abuse) within Galapagos community. The average annual population growth in 1990 to 2001 was between 6.0 – 6.7%, compared to the 2.1 – 2.4% national Ecuadorian average in the same period (Kerr, 2005; Larrea, 2007; Castrejón, 2011). Additionally, the population number steady increase has caused that, for the first time, issues like the "one child policy" or the "abortion legalization" (Benitez-Capistrós et al., 2014), are on the table. And by doing so, the traditional hard-science oriented and pure-conservationists approaches to solve problems in Galapagos have been broken. At the end, I claim that issues regarding increase of human population numbers should be addressed with the same urgency as those regarding fishing quotas and tourism permits. Only then, the social and the natural systems will recognized as equally important, for governance purposes.

Nature as a commodity

Much of the conflicts in the GMR, as well as the conservation goals established for the GMR, arise around imaginations of pristine nature (Ospina, 2004), are projected by conservation sectors, and are shaped around the *commoditization* of a pristine landscape by the islands' tourism industry (Andrade et al., 2010).

Market and market-*ization* of the islands have been possible fundamentally because they become the place where "authentic nature" can be consumed (Andrade et al., 2010). In that regard, tourism practices in GMR seek to meet tourism demands, infringing the principles of sustainability. Regulation of tourism activities mostly relies upon the existence of information concerning impacts of tourism over natural systems, but rarely over social

systems. Further, as Britton (1982) states, the discussion about tourism has been separated from the historical and politic processes that influence its own development.

In GMR, this information, at this point, is absent and has not garnered sufficient interest in decision-making, mostly due to the refusal of the tourism sector to be regulated by means of any participatory process. According to Quiroga et al. (2010), the tourism sector "immunity" has been achieved first, by the ability of the Galapagos Chamber of Tourism (or CAPTURGAL in Spanish acronym) to influence decision-making processes (i.e., within PMB or the IMA) in order to avoid consensus on decisions "affecting" them (A.L., *comm. pers*). Second, by a long tradition of pervasiveness prevailing within regulations or authorities. And third, by the consequent weakness in law enforcement which directly influences user´s willingness to be ruled.

Consensus in public participation

Is a consensus-based process warranty for success? Even consensus-based decision making in GMR context has failed. While the provisional proposal for the GMR zoning was approved by consensus (Castrejón, 2011), there are still discrepancies and competing interests (Davos et al., 2007) about places that are used by tourism and fisheries simultaneously.

Paradoxically, the participative nature of the decision and policy making in GMR has been, at the same time, the *pro* and *cons* in the achievement of an improved governance. As suggested by Suárez de Vivero et al. (2008), the more people involved, the less successful the process seems to be. Opposed to what is thought, more people do not mean more successful process. Instead, according to these authors, the more people involved, the less likely for the elements of the system to interact, and the smaller the role of the participants. The risk, according to Chevalier and Buckles (2000), is that equality in participation be

presented as a universal imperative, to be put in practice any time when the opportunity arises, without taking into account cultural circumstances and etno-environmental-related aspects. In short, the threat of consensus-based decisions in GMR, would be, in Thomas et al. (1996) words, "to equate the game field promoting an authentic and equitable dialogue in non-equitable conditions".

Doing research in Galapagos

Doing research in one of the most researched places on earth seemed an easy task. Class, race and ethnicity issues all play a role in research, affecting how researchers are perceived by the community (Bulmer and Warwick, 1993; Scheyvens and Sotrey, 2003; Seidman, 2006). And in this study, more difficulties were found than was expected.

While there seemed to be good conversation environment during the interviews, my feeling of being "always suspicious" was continuous during the entire process. The sense of distrust from the interviewees' side was permanent regarding the "real" motives and intentions behind my research and my interest to approach them. In fact, in *ca*. 75% of cases, two questions were raised, even before the interviewees accepted or declined to participate: "*Where are you from*?" and "*Who do you work for*?" This situation corroborated my idea that Galapagos society does not trust anyone asking them questions and confirmed Quiroga and Ospina´s (2009) assertion about how the Galapagos residents feel discomfort in scientist´s presence. My first thought that common ethnics or citizenship, being an Ecuadorian researcher doing research in Galapagos, could have helped to bridge the distrust from interviewees about the researcher, proved to be not always accurate. In some cases, the gap of distrust was never filled and the mistrust feeling proved to be stronger that the empathy for fellow citizens.

GMR governance is messy. GMR's governing bodies are struggling by the pace, at which changes occur in the natural and social-systems-to-be-governed which additionally press for an adaptive governing system in the close future. A new unified management plan for Galapagos Islands (including terrestrial and marine environments) has been launched (DPNG, 2014). This is the first time in Galapagos' history that a holistic and comprehensive perspective has been adopted for natural resources management in protected areas settings. However, this instrument still shows a dominant managerial-nature, which definitely will influence: whether the objectives set in that document will be achieved, whether GMR's governance will improve, and whether its governability will be higher. Future research regarding governance in GMR must address issues concerning currently growing sectors (e.g., transportation, building, and tourists) that are traditionally overlooked, as direct agents of transformation in GMR systems. Regardless the instruments or frameworks used in dealing with GMR, no improvement in the MPA governance neither increased governability will be achieved if, as Harris (2014) posits, "we continue facing the ocean, giving our backs to the communities", living in Galapagos.

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Appendix 1 Questionnaire applied during data collection process

Introduction

The purpose of this interview is to solicit your opinion about several issues happening in Galapagos Marine Reserve. This is part of the field work that I am developing to get the Ph.D. degree at Memorial University in Canada. You are asked to answer these questions because you are a resident here and your opinion is valuable to understand what the local community thinks about these issues.

This questionnaire does not include trick questions and there are not right or wrong answers. Your participation is completely voluntary and your responses will remain anonymous and will be kept strictly confidential. No personal information is required. You can refuse to be interviewed or to stop the interview at any time. There will not be negative consequences or penalties to you and/or to your family members for refusing to answer the questions, now or in the future.

This interview will take approximately 30 minutes. The data collected will be numerically transformed and recorded in spreadsheets for further analysis. Qualitative information will be coded without identifying information to protect your anonymity. All the collected data will be kept in a locked storage facility for five years before being destroyed. The results of this study will be communicated as a dissertation, as journal articles and in scientific meetings or presentations. ***By completing the survey, it is understood that we have your permission to use the information you have provided for the purpose of this research***.

This survey has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 001 709 864-2861.

If you have comments or questions, or wish to receive a copy of the final report, please contact myself or my co-supervisors: Alistair Bath, Ph.D., abath@mun.ca (☎ 001 709 864 4733) and
Ratana Chuenpagdee, Ph.D., ratanac@mun.ca (☎ 001 709 864-3157)

This is a personal and individual project, with no linkages to any other investigation being conducted in Galapagos at present. The funding support that I have to conduct this research is based on the National Secretary of Science and Technology (SENESCYT) Scholarship program as part of the National Government support to Ecuadorian students performing post graduate academic degrees. Moreover, I have not received funding support from any national or international NGO nor private institution.

I thank you for your time and willingness to participate with this research.
Sincerely,

María José Barragán P. (m.j.barraganpaladines@mun.ca)
☎Canada: 001 709 8648190 / ☎Ecuador: 097 842188

The Galapagos Marine Reserve

Name of the MPA	_____	Interviewer	_____
Location	_____	Stakeholder group	_____
Date	_____	Nº	_____

Section A: IMAGES
The first questions ask about how do you "see" the Galapagos Marine Reserve (GMR)

Have you ever heard about GMR?

1. No If **NO**, thank you very much.
2. Yes

If yes, what is GMR for you?

_____
___
_____
_____
_____
_____
___
_____
___

1. How did you first hear about GMR? [For the interviewer: do not read the multiple choices to the respondent, **record the first answer that is given**]

a. Media (newspaper, radio, tv, internet)
b. Government documents
c. Public meetings
d. Visiting the area
e. Family and friends
f. Fisher organizations
g. Tourist enterprises
h. Researchers / scientific dissemination
i. NGOs
j. Others_____

2. How are you related to the GMR? [**Ask them what they are, and mark the answer yourself**]

a. Professional small-scale fisher (current and retired)
b. Industrial large scale fisher
c. Fisher organization employee (specify: _____)

d. Recreational fisher
e. Local resident (not engaging in professional fishing activities)
f. Scuba diver /snorkeler
g. Tourist
h. Business entrepreneur and other business
i. Scientist / researcher
j. Conservationist / environmentalist
k. MPA employee (specify: _____)
l. Others (please specify: _____)

3. In your understanding, how healthy was / is the marine environment in the area?

	Not healthy	Little healthy	Moderately healthy	Very healthy	No opinion
Before the GMR					
After the GMR					

4. Have you been involved in the following activities?

	Not involved	Scarcely involved	Moderately involved	Very involved	No opinion
Establishing the GMR					
Managing the GMR					
Supporting the GMR					
Other:_____					

5. In your opinion, how are these activities CURRENTLY managed in the GMR?

	Not managed	Poorly managed	Moderately well managed	Well managed	No opinion
Professional small-scale fishing					
Recreational fishing					
Scuba diving					
Tourism activities					
Other:_____					

6. In your opinion, how important **SHOULD** the following objectives be for this GMR?

	No	Low	Moderate	High	No opinion

	importance	importance	importance	importance	
Conserving marine environment					
Enhancing fishing catches					
Reducing human pressure					
Excluding some users					
Providing jobs					
Preserving heritage					
Giving power to local community					
Promoting tourism					
Resolving stakeholder conflicts					
Fulfilling government conservation mandate					
Others:					

7. According to your understanding which of the following objectives were actually or/are being considered in the creation of the GMR?

	Yes	No	Don't know
Conserving marine environment			
Enhancing fishing catches			
Reducing human pressure			
Excluding some users			
Providing jobs			
Preserving heritage			
Giving power to local community			
Promoting tourism			
Resolving stakeholder conflicts			
Fulfilling government conservation mandate			
Others:			

8. In your opinion, who should have priority access to the GMR resources?

	No priority	Low priority	Medium priority	High priority	No opinion
People who have used the area for long time					
People who depend on the area for a living					
People who conduct a business in the area but has other income sources					
People who live close to the area					

People who do not damage the area					
Others:					

9. In your opinion, are these statements acceptable?

	Never acceptable	Sometimes acceptable	Always acceptable	No opinion
Breaking the GMR rules				
Keep silence about violations in the GMR				
Withholding information about the GMR				
Influencing GMR rules for your own benefit				
Using political connections for your own benefit in the GMR				
Ignoring concerns of the local people				
Prohibiting participation of some stakeholders in the GMR decision making				
Others:				

Please explain briefly if you like:

_____
___

10. In your opinion, how important are the following considerations in guiding the design of the GMR?

	No importance	Low importance	Moderate importance	High importance	No opinion
Be mindful of possible risks					
Ensuring equity in distributing benefits					
Regulate as little as possible					
Enabling stakeholders to participate in decision making					
Making decisions at the local level					
Making information available					
Considering future generations					
Others:					

11. In your consideration, how may you be affected by the GMR in the future?

	Negatively	Positively	No difference	Not sure	No opinion
Your access to the area					
Your income					
Your quality of life					
Your livelihood security					
Your relationship with other users					
Your knowledge about the marine environment					
Your involvement in resource management					
If at all					
Others:					

12. In your opinion, which stakeholder group **SHOULD HAVE** priority in making decisions about the GMR?

	No priority	Low priority	Medium priority	High priority	No opinion
Professional small-scale fishers					
Industrial large scale fishers					
Recreational fishers					
Local residents					
Scuba divers and snorkelers					
Tourists					
Scientists					
Environmental organizations					
Central government administration					
Local government administration					
Galapagos National Park					
Others:					

13. In your opinion, which stakeholder group **IS ACTUALLY** influential in making decisions about the GMR?

	No influence	Low influence	Moderate influence	High influence	No opinion
Professional small-scale fishers					
Industrial large scale fishers					
Recreational fishers					
Local residents					

Scuba divers and snorkelers					
Tourists					
Scientists					
Environmental organizations					
Central government administration					
Local government administration					
Galapagos National Park					
Others:					

14. In your opinion, which of the following stakeholder group gains benefits from the GMR?

	No benefit	Low benefit	Moderate benefit	High benefit	No opinion
Professional small-scale fishers					
Industrial large scale fishers					
Recreational fishers					
Local residents					
Scuba divers and snorkelers					
Tourists					
Scientists					
Environmental organizations					
Central government administration					
Local government administration					
Galapagos National Park					
Others:					

Section B: Perceptions

These questions ask about your feelings toward the conservation, management and governance of the GMR.

15. How do you feel about the current state of GMR?

Strongly Negative □	Slightly Negative□	Neither positive or negative □	Slightly Positive□	Strongly Positive □

16. The relationship between local residents and GNP employees is

Significantly getting worse ☐ slightly getting worse ☐ remaining about the same☐

Slightly getting better ☐ significantly getting better☐

17. Who, according to your opinion, is doing the best job in the GMR management?

Galapagos National Park	Galapagos Tour.Chamber	Charles Darwin Reserach Station
Participatory Management Board	Municipality	Navy
Interinstit. Management A.	Fishers associations	Other
	Government Council	None of the above

How is your opinion about the GMR? *For each question, circle the number that best represents your response.*

	Extremely bad	Slightly bad	Neither bad/nor good	Good	Excellent
18. When you see fishers doing their activities in Galapagos you feel…	1	2	3	4	5
19. How are your relations with GNP employees?	1	2	3	4	5
20. When you see tourists in Galapagos you feel…	1	2	3	4	5
21. The current management actions for GMR are…	1	2	3	4	5

Section C: Attitudes

These questions ask about what do you believe about the GMR.

To what extent do you disagree or agree with ***each*** of the following? *For each question, circle the number that best represents your response.*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
22. I believe the fishing regulations in the GMR should be maintained...	1	2	3	4	5
23. I have seen **no** benefits to the local human population due to the GMR...	1	2	3	4	5

24. I have changed my behaviour due to the establishment of GMR...	1	2	3	4	5
25. Tourism regulations in the GMR should be maintained…	1	2	3	4	5
26. Fisheries is a strong economic source for Galapagos	1	2	3	4	5
27. Tourism causes the increase in the cost of living in Galapagos	1	2	3	4	5
28. Fisheries generates substantial incomes to the local communities	1	2	3	4	5
29. Tourism improves the quality of life in Galapagos	1	2	3	4	5
30. GMR helps the fisheries to protect the resource	1	2	3	4	5
31. Tourism is a strong economic source for Galapagos	1	2	3	4	5
32. Galapagos is a special place and should be kept so	1	2	3	4	5
33. GNP is responsible for the problems in GMR					
34. Fisheries is the traditional activity of Galapagos	1	2	3	4	5
35. Additional tourism would help GMR	1	2	3	4	5
36. Galapagos is like any other province of Ecuador mainland and should be treated so	1	2	3	4	5
37. Tourists are responsible for the problems in GMR	1	2	3	4	5
38. There are more benefits than backsides to the local population due to the GMR...	1	2	3	4	5
39. Tourism is the traditional activity in GMR	1	2	3	4	5
40. NGOs are responsible for the problems in GMR					
41. More fishing licenses would help Galapagos´ communities	1	2	3	4	5
42. Fishers are responsible for the problems is GMR	1	2	3	4	5

Section D: Demographics

These questions ask about you as a member of the GMR user's ´community.

43. Where do you live? _____44. Province of origin? _____

45. When did you come to Galapagos? _____

46. If you are from Galapagos, when did the first member of your family arrive?

_____

47. What is your age?

□ 18-29 Years □ 40-49 Years □ 60-69 Years

□ 30-39 Years □ 50-59 Years □ > 70 Years

48. What is your gender?

□ Female □ Male

49. What is your highest degree of education?

□ No degree □ Elementary □ Secondary □ Post secondary □ University

50. What is your main occupation?_____

Section E: Closing Remarks

51. Do you have any additional comment? Thank for your cooperation!_____

_____

Appendix 2 Principles guiding the implementation of the Special Law for Galapagos

3.3.2. Law of the Special Regime for the Conservation and Sustainable Development of the Galapagos Province.

Law No. 67. Official Record No. 278 18th March 1998.

Article 2. " The Special Regime establishes that the activities of political establishments, planning and execution of public and private work in the Galapagos Province and in the area which constitutes the Galapagos Marine Reserve are regulated by the following principles;"

1. The **maintenance of the ecological systems and biodiversity** of the Galapagos Province, especially those that are native and endemic. At the same time allowing for the continuation of the evolutionary process of these systems with and underlying minimal human interference. While particularly taking into account the isolated genetics between each island of the archipelago and between the islands and the continent.

2. The **sustainable development** and control in the framework of support capacity in the ecosystems of the Galapagos Province.

3. The special participation of the local community in development activities and a use of **sustainable economics** in the ecosystems of the Islands. This fundamentally includes the incorporation of special models and standards of production, education, training and employment;

4. The **reduction of the risks** of introduced diseases, pests and species of plants and animals which are exotic to the Galapagos Province;

5. **Quality of living for residents** of the Galapagos Province should correspond with exceptional characteristics of Humanity Inheritance;

6. The examination of existing interactions between inhabited zones and protected terrestrial and marine areas and for such the necessary **integrated management**; and

7. A **precautionary principle** applied in relation to work and activities that could harm the environment and ecosystems of the islands.