

Creative Minds and Commercial Spirits Innovation and Rents from Natural Resources in Remote Maritime Regions

Mentes Criativas e Espírito Comercial Inovador e as Rendas dos Recursos Naturais nas Regiões Marítimas Remotas

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Abstract/Resumo

The aim of this paper is to understand the attitudes of “creative minds and commercial spirits” in remote maritime regions within the challenge of the European Marine Strategy. The main hypothesis to be exploited, focusing on the growing search of new maritime resources, is that innovation can be seen as a rent seeking phenomena not only through time – as is commonly understood in a Schumpeterian perspective - but also throughout space, where the allocation or appropriation of property rights play a crucial role. We look into the attitudes of key marine stakeholders in Horta related to changes in marine property rights implicit in the European Marine Strategy. We conclude that innovation and development in remote areas is strongly related to the influence that innovative entrepreneurs have on the redefinition of property rights and related allocation of rents from natural resources.

Keywords: Marine Strategy, Innovation, Rents, Natural Resources, Property Rights

JEL Codes: Q57; Q58; Q220; K11;

O objetivo do artigo é perceber as atitudes criativas e empreendedoras em regiões marítimas ultraperiféricas perante o desafio da Estratégia Marítima Europeia. A hipótese principal a ser testada é que, olhando para a procura crescente de recursos marinhos, a inovação pode ser vista como um fenómeno de procura de rendas não só ao longo do tempo, como é usualmente considerada numa perspetiva Schumpeteriana, mas também ao longo do espaço, onde a afetação ou apropriação de direitos de propriedade tem um efeito importante. Olhamos para as atitudes dos principais interessados pelos recursos marinhos na Horta face às mudanças de direitos de propriedade do mar implícitos na Estratégia Marítima Europeia. Concluímos que a inovação e o desenvolvimento em regiões ultraperiféricas estão fortemente relacionados com a influência que os empreendedores inovadores têm na redefinição dos direitos de propriedade e respetivas rendas dos recursos naturais.

Palavras Chave: Estratégia Marítima, Inovação, Rendas, Recursos Naturais, Direitos de Propriedade

Códigos JEL: Q57; Q58; Q220; K11;

1. INTRODUCTION

Most of the innovation and development literature emphasizes the relevance of agglomeration economies in big cities that continue to be the major engine for knowledge spillovers, technological innovation and economic growth, despite the wishful dream of the death of spatial attrition associated with the dramatic decreases in the costs of transportation and communication (de Groot et al, 2007). This justifies the major interest in explaining the nature of agglomeration externalities on knowledge spillovers, on technological innovation and, finally, on economic growth. The theoretical bases of these hypothetical causal connections comes from the endogenization of technological innovation of the growth theory developed by Solow (1956), coming from the seminal papers by Romer (1986) and Lucas (1988), and further explored with the work of Krugman (1991, 1995) that established the theoretical connection between spatial agglomeration economies and economic growth (de Groot et al, 2001); focusing on the knowledge flows between people, organizations appear more easily within the geographical proximity (McCann and Simonen, 2005) but can also be identified looking both at geographical and technological proximities (Oerlemand et al., 2001; LeSage et. al, 2007).

The major point behind that explanation is that, from the two geographical attributes of regional development highlighted by Krugman (1991) - accessibility and scale - scale or production capacities, very much associated with agglomeration externalities (Krugman, 1995), seems to be more important for innovation and growth than accessibility or consumptive capabilities, denouncing therefore the enduring common sense of regional development policies that assumes that regional development is closely associated with the access to goods and services (Lopes, 1979) and, more recently, access to knowledge and technology (Barca, 2009).

There is no doubt that the World is spiky and increasingly spiky (Florida, 2005). The question is that if this is for the good reasons and with the best effects? What is, in the end, the viable solution to prevent the technological and development gap between core and periphery? Rodríguez-Pose and Ceh (2001) suggest that R&D investment in lagging regions may be the solution but probably there are new

assumptions to introduce in the accepted causalities between knowledge creation, innovation and development. On the one hand, the importance of natural, technological, human and cultural capabilities and constraints (Capello, 2002) in the process of innovation in remote areas and, therefore, the possibility of remove some of these barriers; on the other hand, the role of the spatial allocation of the rents of natural resources on the spatial patterns of development (Dentinho, 2012).

The aim of this paper is to know whether the pattern of interactions between human and the environment - namely in which concerns the location of environmental knowledge and the spatial allocation of the rents of natural resources - is important for the process of innovation and development in more remote regions. The main idea to be discussed is that, focusing the continuous search of new maritime resources, innovation can be seen as a rent seeking phenomena not only through time - as it is commonly understood in a creative destruction process (Shumpeter, 1934) - but also throughout space, where the allocation or appropriation of property rights plays a crucial role.

To achieve that we, first, review the literature on knowledge, innovation and regional development and propose two interconnected assumptions to the accepted causalities: on the one hand, the importance of natural, technological, human and cultural capabilities and constraints in the process of innovation in remote areas, on the other hand the role of the spatial allocation of the rents of natural resources and on the spatial patterns of development. We analyze the context of the marine area of Faial Island, in the Azores, and look into the values and the attitudes of the main stakeholders focusing on the creative and commercial spirits of recent marine activities (whale watching, aquaculture, traditional sailing, selective fishing, recollection of specimens for zoos at world scale, environmental education, [Oceanoscópio <http://www.oceanoscopio.com>] biotechnology, computing applications on fisheries assessment, <http://www.linkb2b.pt/empresas/fishmetrics-512106100.php>). Finally we discuss the progress of these innovative activities in the local milieu of submerged competitive complementarities (or unrevealed agglomeration economies) between environment, technology, institutions and economy; their impact on regional competitiveness; and on

their unsuspected potential contribution for the Marine Strategy. We conclude by suggesting that there is a need, on the one hand, to look into the spatial, technological and also environmental agglomeration externalities, and, on the other hand, to address the issue of the spatial allocation of rents generated by those externalities.

In point 2 we conceptualize the assumption that the allocation and appropriation of property rights play an important role on the spatial pattern of innovation and development particularly in remote areas where natural resources play a crucial role. In point 3 we synthesize the European Marine Strategy and describe the context of the maritime city of Horta, where we would like to perceive the interactions between knowledge, innovation, creative attitudes and property rights. In point 4 we look into the effects of changes in property rights implicit in the European Marine Strategy in the attitudes of key marine stakeholders. We conclude in point 5 by discussing the possibilities of innovation and place-rooted creativity (Florida, 2003) in remote small regions.

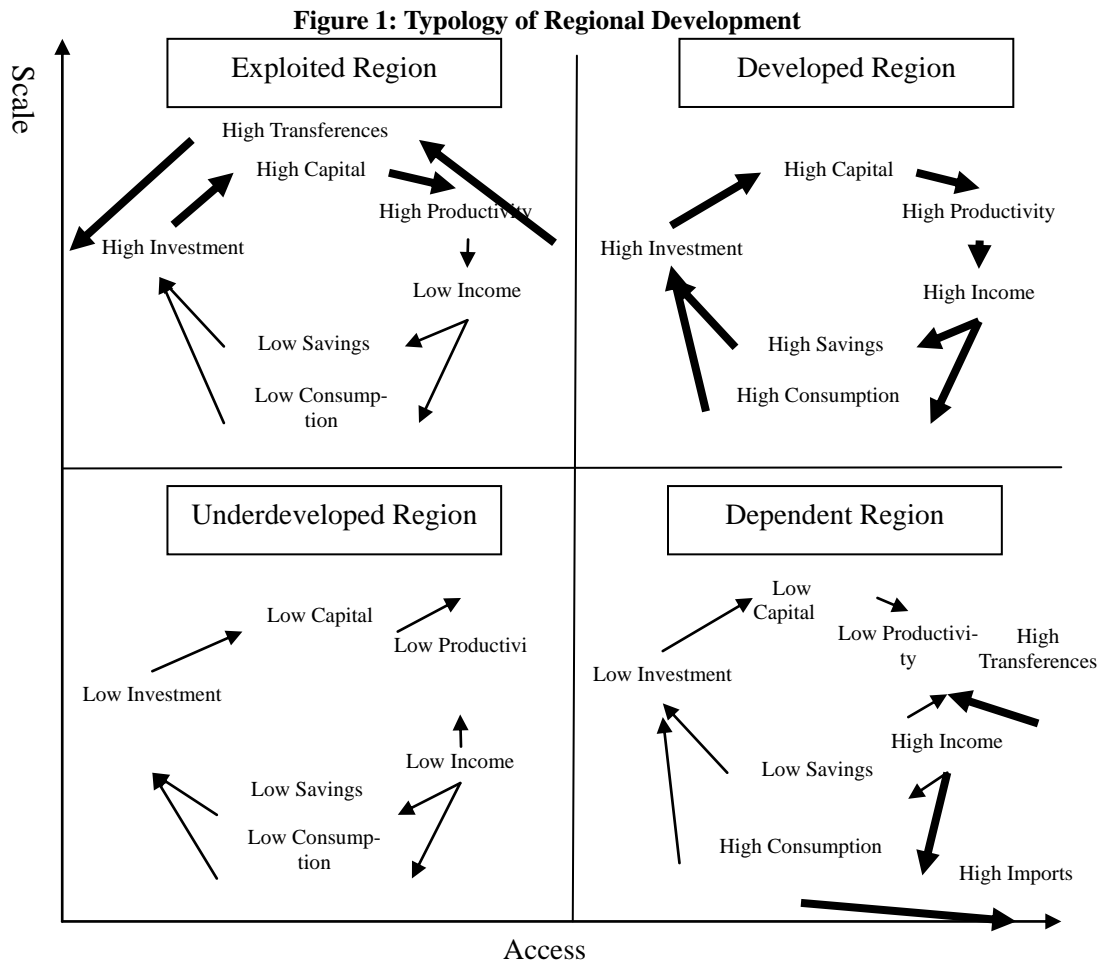
2. PROPERTY RIGHTS, RENTS, INNOVATION AND DEVELOPMENT IN REMOTE REGIONS

In the long term the payment of most production factors such as labor, capital and entrepreneurship must be made according to their marginal productivity to the places where those factors are based. Nevertheless, this is not always the case for rents of natural resources, where spatial allocation is influenced by the spatial distribution of property rights and not necessarily by the territorial distribution of the natural resource. And if the spatial distribution of property rights is different from the distribution of territorial resources it is quite likely the existence of two types of permanent unilateral transferences: i) on the one hand, from the places where resources are used to the locations where their owners are established, following the old Von Thünen (1826) divide between farmers – located in the country side - and landlords – that reside in the city; ii) on the other hand, from the owners, usually central places, to those that control property and collect the rents in the periphery. The point is that the exploited user of the territory is not necessarily located in the same place as the fiscal of the property rights; and neither of those must

coincide with the rent owner of the property rights, public or private.

Using the two geographical attributes proposed by Paul Krugman (1991): scale and accessibility, it is possible to define, not just two, but four types of development settings: developed, underdeveloped, dependent and exploited (Dentinho, 1995). Developed regions are the ones that have accessibility and scale where the virtuous circle of development work as expected, with increasing productivity sustaining growing consumption and investment, allowing innovation and snowballing productivity (Figure 1, NE). Underdeveloped places are those that suffer from vicious circles of poverty (Furtado, 1976), often because they lack scale and accessibility as can be testified in many poor regions where reduced productivity limits consumption, impedes investment, discourages innovation and keeps income at subsistence levels (Figure 1, SW). Nevertheless, there are two other types of regions. Exploited regions have scale but lack access because part of the income generated is drawn outside; in this case the virtuous circle of development runs outside the region that receives investment but not the related income (Figure 1, NW). Finally, dependent regions receive systematically unilateral transferences from outside which strengthen the access without reinforcing scale, innovation and investment, at least in terms of tradable goods and services (Figure 1, SE).

Will the innovation process be different in each one of the situations presented in Figure 1? Taking into account that innovation is mainly related to the production process it seems that both underdeveloped regions and dependent regions would have less aptitude to experience effective innovations than exploited or developed regions; furthermore, innovations in exploited regions would tend to favor central agents based in developed areas. Nevertheless, entrepreneurial capacity is a characteristic of mankind and not of places by themselves. And some “windows of opportunity” can appear in relatively less developed regions because there is trust and creative interactions (Camagni, 1991, Storper, 1992,1993) that can promote flexible specialization (Geenhuizen e van der Knaap, 1994), suitable productive tissues to attract foreign investment (Amin, 1993), good places for ethnic entrepreneurs (Baycan Levent et al., 2008), or because there is some natural protection associated with remoteness (Nijkamp, 2009).



Still, natural protection and remoteness is a relative concept since modifications in accessibility – technological, economic and institutional - can alter remoteness and change the natural protection that allowed some degree of technological innovation and development in those remote places where men and environment interact with each other to get the rents from natural resources augmented by far away markets. In the process of accessibility changes, the establishment and enforcement of property rights over natural resources can be crucial for the creation or destruction of “windows of opportunity” for innovation and development in remote places.

Regarding property rights of natural resources, namely property rights over remote marine resources, it seems important to pick-up and expand the systematization proposed by Schlager & Ostrom (1992) and Ostrom & Schlager (1996). Their message is that, on the one hand, within the idea “common property resources”, very much used regarding marine resources, there are an all set of different situations including: a) property owned by a government; b) property owned by no one; and c)

property owned and defended by a community of resource users. On the other hand, the authors claim that, those property rights – both private and common (Ostrom and Hess, 2007) can be allocated to different degrees of ownership from entrants, users, claimants, proprietor and owners. Owners, private and common, have the incentive to long term investment in the resources but do not guarantee the sustainability of the resource for higher discount rates. Proprietors have similar incentives but they are against multiple or alternative uses of the resources. Claimants tend to invest in government intervention to secure their revenues since they do not have the capacity to exclude complementary or alternative uses of the resources. Users do not control the rules so they tend to overinvest in withdrawals. Data collectors have the incentive to invest in government intervention for alternatives uses of the resources. And, entrants try to secure their rights to visitation and passage. The inclusion of data collector seems to be very important when resources are new unknown because they can challenge the property rights of users, claimants and proprietors; and if there are no estab-

lished owners they can even claim ownership.

In the present paper we expand the analytical grid on property rights to include data collectors (Table 1) and use it to look into the regulation of natural resources in Faial trying to understand the way it interconnects with innovation and development. Schlager & Ostrom (1992) applied their scheme to Main

Lobster fisheries, (Yandle, 2003, 2007) used the same scheme to perform the analysis of marine resources in New Zealand. We pretend to look at a simple and yet European and Global Case such as the European Marine Strategy looking into the attitudes of creative and commercial spirits in the periphery and its interconnection with property rights.

Table 1: Bundles of Rights Associated with Positions; adapted from (Ostrom & Schlager, 1996)

	Owner	Proprietor	Claimant	User	Data Collector	Entrant
	Individuals who possess collective - choice rights to participate in management and exclusion and can lease or sell them	Individuals who possess collective - choice rights to participate in management and exclusion.	Individuals who possess the same rights as authorized users plus the collective-choice management.	Individuals holding operational rights of access and withdrawal that can transfer or sell those rights	Individuals holding rights of access to produce knowledge that influence management, exclusion and alienation	Individuals holding operational rights of access
Access: The right to enter a defined physical property.	X	X	X	X	X	X
Data collection: The right to obtain information of a resource	X	X	X	X	X	
Withdrawal: The right to obtain the "products" of a resource	X	X	X	X		
Management- The right to regulate use and improve resources	X	X	X			
Exclusion: The right to say who has rights and how to transfer them.	X	X				
Alienation: The right to sell or lease either or both of the above collective choice rights	X					

3. KNOWLEDGE, INNOVATIONS AND PROPERTY RIGHTS FOR THE MARINE STAKEHOLDERS OF HORTA

3.1 The European Marine Strategy

The European Marine Strategy (COM, 2007) seeks the sustainable use of the seas and the conservation of marine ecosystems. According to the European Commission (COM, 2010) this is done by promoting the integration of governance structures; building the knowledge base and enabling the implementation of integrated policies. In practice it is con-substantiated in ten work plans: i) Elimination of maritime barriers; ii) Promotion of a strategy for European research (COM, 2010a; COM, 2010c); iii) Coordination of national maritime policies; iv) Creation of a European network for Maritime Surveillance Systems focused on

the sharing of data related to fisheries, traffic, security and vessel reports (COM, 2009b); v) Implementation of maritime spatial plans and integrated management of coastal areas, to provide jobs, economic benefits, legal certainty, equal opportunities for all maritime sectors and environmental sustainability (COM, 2010b); vi) Development of policies to reduce the effects of climate change in coastal areas (COM, 2009a), looking into vulnerability, responsibility, national practices and expenditures; vii) Reduction of CO2 emissions by the vessels; viii) Elimination of illegal fisheries; ix) Creation of a European network of maritime clusters; and x) Addressing issues related to labor legislation in fisheries and maritime transportation (COM, 2007). Most of these actions are derived into European Directives that once transferred to the national sets of rules that, if and when enforceable, represent clear changes in marine property rights. The

issue in this paper is whether and how those changes contribute to the process of innovation and development in the maritime city of Horta.

3.2 Knowledge, regulation, innovation and creativity in Horta

Horta, with 10000 inhabitants, is a small maritime city in the island of Faial that has 15000 persons. Faial is one of the nine islands of the Azores Archipelago, with 240000 residents. The economic base of the Azores is just 25.1% of the final demand and mainly constituted by dairy and beef exports (32.5%), unilateral transfers (28.1%), other exports – mainly from transport, financial services and other agricultural products (24.4%) - tourism (10.4%), and fishery (4.6%). Looking at Table 2 for columns “Faial”, it is clear that fisheries (5,3% as opposed to 4,6%) and tourism (14,5% compared with 10,4%), mostly associated with marine activities, play a larger role in the economic base of Faial and nearby islands of Pico and São Jorge than in the rest of the archipelago.

As pointed by (Santos et al. 2005a, 2009a) Marine research in the Azores is a recent phenomenon and almost inexistent until the end of the XIX century when Prince Albert of Monaco visited the islands in a series of research expeditions. Resident researchers began their work in the late seventies of the XX century and observed the collapse of the stocks of limpets that showed the importance of applied

marine research to support the management of the sea. In the late nineties it was possible to propose, based on scientific grounds, a few marine protected areas and, following that, a network of Natura 2000 sites, indicating the capacity of “Data Collectors” (Table 1) to produce knowledge that influence management and exclusion. Interestingly that same capacity is used subsequently to design policies on seamounts and hydrothermal fields in the Mid Atlantic Ridge outside the territorial waters of Portugal (Santos et al. 2009b, Ribeiro 2010). And because Horta, is also the place of Regional Parliament apart from headquarters of the Fisheries Department of the Regional Government and domicile of the Fisheries Department of the Azores University (Santos et al. 1995b), the process that goes from marine research to marine law is relatively straightforward (Calado et al. 2011), facilitating up the development of new property rights and new users, claimants, proprietors and owners of the marine resources. And with the whole sorts of economic activities are being developed, helping to define rules, generating rents, stimulating innovation and promoting development: whale watching, aquaculture in open sea and recollection of specimens for zoos at world scale.

Table 2. Structure of the Economic Base of the Islands (Haddad et al. 2012)

	<i>Santa Maria</i>	<i>São Miguel</i>	<i>Terceira</i>	<i>Graciosa</i>	<i>São Jorge</i>	<i>Pico</i>	<i>Faial</i>	<i>Flores</i>	<i>Corvo</i>	<i>Total</i>
Exports Agro Portugal	13.8%	31.4%	33.7%	51.1%	41.5%	33.9%	30.8%	29.6%	21.8%	32.0%
Exports Agro Other	0.2%	0.4%	0.5%	1.6%	0.4%	0.3%	1.1%	0.3%	0.1%	0.5%
Exports Fishery Portugal	1.8%	2.5%	1.8%	1.7%	3.9%	12.6%	3.4%	1.0%	3.1%	3.0%
Exports Fishery Other	1.0%	1.3%	0.9%	0.6%	2.3%	7.5%	1.9%	0.4%	1.2%	1.6%
Exports Other Portugal	44.6%	22.5%	9.6%	5.5%	12.8%	5.4%	17.1%	18.9%	4.9%	18.6%
Exports Other Other	14.5%	6.6%	3.6%	2.2%	2.5%	2.3%	5.7%	6.5%	2.6%	5.8%
Tourism Portugal	2.8%	3.9%	4.6%	4.7%	3.3%	5.2%	7.4%	6.0%	1.5%	4.4%
Tourism Other	2.8%	7.0%	3.9%	2.3%	3.2%	6.5%	7.1%	6.9%	1.0%	6.0%
Government (dependent)*	18.5%	24.3%	41.4%	30.4%	30.2%	26.0%	25.6%	30.4%	64.0%	28.1%
Economic Base	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

* Government expenditures financed by external transfers

Whale watching began a few years after the ban on whaling in the Azores in 1984/87 (Santos et al 1995a). Entrepreneurs were able to influence and, with direct connection with the authorities, endorse rules that controlled the access for whale watching companies. For instance, there are potential complementarities between whale sailing and whale watching that are not properly explored because the regulation assumes that whale watching must be

done preferably from small motor boats (Dentinho e Machado, 2007), also deterring large boats to access the business. Whale watching entrepreneurs were also wise to involve former whalers showing the interesting capacity to reinvent the use of the marine resources (Graça 2004, Oliveira et al. 2007a, b).

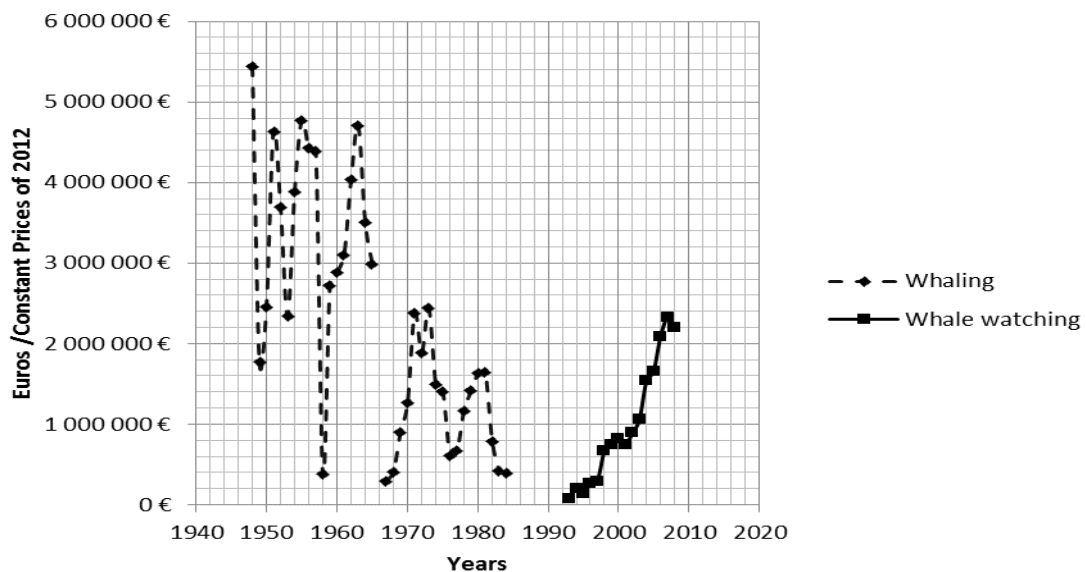
Aquaculture in open seas is another interesting initiative, just in the beginning, to produce barnacles, a crustacean much appreciated

throughout the archipelago and part of the traditional cuisine in the Azores. There have been close contacts with Regional Directorate of the Environment on the permit applications and the feasibility studies indicate that, with more durable structures the profitability of the project is promising (Lopez 2010).

The recollection of specimens for zoos at world scale is another interesting example of a good combination between knowledge, innovation, creative attitudes and definition of

property rights. The Flying Sharks, established in 2006 and owned by a marine researcher, catching fish to order, using the services of fishermen and divers, and with equipment suitable for maintaining the animals captured. Since its establishment, has exported animals to aquariums of Valencia (Spain), Georgia and Virginia (USA), Dubai (United Arab Emirates), Stralsund (Germany), Tokyo (Japan), Lisbon and Porto.

Figure 2: Revenues from Whaling and Whale Watching in Pico Faial Region



4. STAKEHOLDERS ATTITUDES

In this point we use a Q Method approach (Stephenson, 1953; Gil and Guimarães, 2011) to look into the effects of changes in property rights implicit in the European Marine Strategy, and related statements, in the attitudes of key marine stakeholders in Horta. A first set of 85 statements were taken from various sources (Annex 1a); many of them are from documents on the European Marine Strategy, others are from the Roundtable discussion during: “Exploring the wealth of coastal fisheries: Listening to community voices” 21 -24 October 2011 Angra do Heroísmo & Ponta Delgada; finally more specific statements are from some innovative people in Faial. A second step involved the selection and synthesis of 36 of the 85 statements with the criteria of avoiding redundancies and including different marine issues: - fisheries; - whale watching; - aquaculture; - pollution; - biodiversity; - research; - marine policy; EEZ expansion; ...In a third phase a

grupo of marine stakeholders – fishermen, sailors, local and regional politicians, maritime touristic operators, innovative entrepreneurs and marine researchers were asked to rank the selected phrases on bell shape form (Annex 2). Finally we perform discriminant analysis for significant Eigen Values with Varimax Rotation using the Kaiser Method, taking the stakeholders as variables and the phrases as observations. The seven significant components explain 76% of the total variation; result in a synthesis of the 21 stakeholder attitudes into seven profiles that we will try to associate with the Property Rights Situations proposed in Table 2: owners, proprietors, claimants, users, data collectors and entrants.

Looking at the results in Table 3 the first idea that comes up is that the first components do not explain much of the total variance indicating some lack of consensual positions on the selected phrases.

Table 4 presents the Correlation of the twenty-one Individual Attitudes with the Seven

composed attitudes.

The association of each one of these composed attitudes with the classification proposed

in Table 2 (owners, proprietors, claimants, users, data collectors and entrants) can be attempted in this stage of the analysis and then re-

Table 3: Total Variance Explained by Discriminant Analysis of the Statements Rankings

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var	Cum. %	Total	% of Var	Cum %	Total	% of Var	Cum %
1	6,26	29,80	29,80	6,26	29,80	29,80	3,02	14,39	14,39
2	2,56	12,18	41,98	2,56	12,18	41,98	2,64	12,59	26,98
3	2,20	10,46	52,44	2,20	10,46	52,44	2,63	12,52	39,50
4	1,52	7,26	59,70	1,52	7,26	59,70	2,43	11,56	51,06
5	1,29	6,17	65,86	1,29	6,17	65,86	2,05	9,76	60,82
6	1,15	5,47	71,34	1,15	5,47	71,34	2,01	9,59	70,41
7	1,01	4,79	76,13	1,01	4,79	76,13	1,20	5,71	76,13
8	0,90	4,29	80,42						
9	0,74	3,54	83,96						
10	0,58	2,76	86,72						
11	0,48	2,28	89,00						
12	0,46	2,21	91,21						
13	0,42	2,02	93,23						
14	0,36	1,71	94,94						
15	0,35	1,65	96,58						
16	0,25	1,21	97,79						
17	0,16	0,77	98,56						
18	0,11	0,53	99,09						
19	0,10	0,48	99,57						
20	0,08	0,40	99,97						
21	0,01	0,03	100,00						

Table 4: Correlation of the Individual Attitudes with the Composed Attitudes

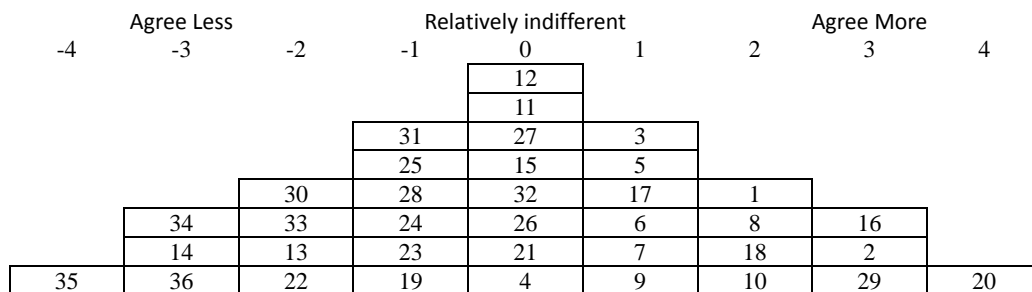
Occupation	Sector	Components						
		1	2	3	4	5	6	7
Entrepreneur	Fisheries	,930	,088	-,044	-,049	,091	,004	,002
Entrepreneur	Fisheries	,866	,251	,021	,026	,041	,106	,083
Employee	Journalism	,566	,446	,156	-,194	,328	,305	,006
Researcher	Fisheries	,548	,122	,238	,211	,407	-,177	-,034
Employee	Journalism	,475	-,272	,324	,281	-,098	,244	,252
Researcher	Fisheries	,414	,152	,129	-,030	,445	,325	-,112
Entrepreneur	Tourism	,397	,808	,020	-,010	-,050	,138	,028
Consultant	Environment	,032	,727	,333	-,029	,344	-,118	-,004
Consultant	Shipping	,168	,715	,356	,139	,103	,249	,058
Employee	Administration	,024	,419	,192	,026	,098	,421	-,622
Researcher	Marine	,255	,014	,811	-,008	,015	-,092	-,255
Researcher	Marine	,050	,226	,728	-,196	,033	,342	,013
Employee	Journalism	-,091	,311	,681	,130	,284	,073	,234
Researcher	Marine	-,054	,283	,627	,379	,039	,337	-,024
Politician	Assembly	,008	,032	-,003	,959	,122	,042	-,038
Politician	Assembly	,031	-,020	,049	,957	,109	,075	-,037
Politician	Assembly	,101	,177	,161	,076	,809	,172	-,073
Researcher	Social	,110	-,007	-,087	,274	,743	,153	,352
Politician	Local	,279	,052	,251	-,103	,226	,737	,031
Politician	Local	-,054	,116	,041	,315	,119	,710	,075
Employee	Marine	,133	,344	,039	-,134	,189	,298	,682

ssessed by the analysis (in Figures 3 to 9) of the implicit rankings of each one of these components. Component 1 is strongly linked to fishermen that are in fact “Users” of the marine resources since they are “Individuals holding operational rights of access, withdrawal marine resources and can transfer or sell those rights”. Component 2, that gather the attitudes of touristic and shipping operators, can be more related to “Entrants” as they are “Individuals holding operational rights of access the sea”. Following the same exercise Component 3, where the Principal Component Exercise located most marine researchers, is necessarily con-

nected with “Data Collectors” or those “Individuals holding rights of access to produce knowledge that influence management, exclusion and alienation”. Politicians are linked with Components 4, 5 and 6 and we will see whether to allocate them to “Owners”, “Proprietors” or “Claimants”. Finally, Component 7 can be an interesting outlier to highlight some revealing propriety rights still missing from the Property Rights Positions of Table 2.

We can now look at the ranking contained in each derived component (Figures 3 to 9) using the Property Rights nomenclature and comment the results.

Figure 3: Component 1 – Users – Fishermen



Interestingly the phrase that obtained most agreement for the “Users” perspective is clearly related with withdrawal property rights “The management system has limitations and the total tradable catch quota system is a big threat to the fishing communities especially the small ones of the Azores” (Statement 20); and the same happens with Statement 16 that refers to the control of withdrawal property rights “Pressure on the Azores EEZ is growing especially by boats from Spain, France and Mainland Portugal”. All this associated with the benign statements concerned with sustainability “With an ecosystem approach to management of human activities, priority should be given to maintaining good environmental status of the marine environment in Europe” (Statement 2) and with education (Statement 29) “The inclusion of themes of sea and fisheries on formal education would value fishing communities on each island”. The attitude of the “Users” becomes much more clear when we notice the reaction against newcomers, reacting negatively to conflicts management (Statement 34) “The value of the sea is associated with having a good adjustment between conflicting uses of marine resources”, innova-

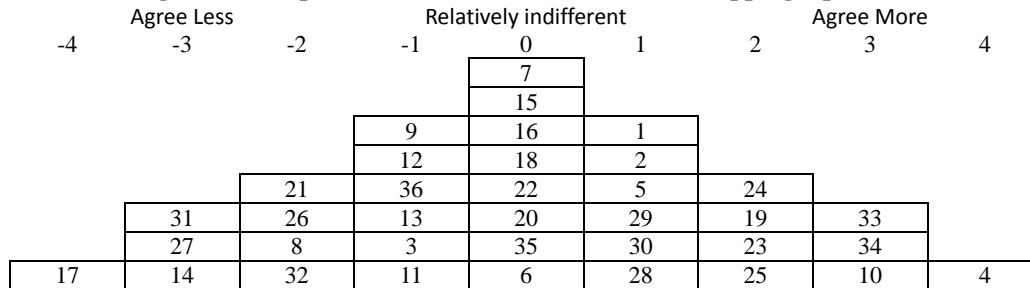
tion in the use of marine resources (Statement 35) “Innovation is the result of the availability of a resource. The whale watching resulted began rooted in a whaling culture” and to major changes on the regulated resources (Statement 36) “The expansion of the EEZ to 350 miles is fundamental to the sustainable development of communities Azorean”. Statement 14 “Beautiful things is when we go in mid-summer, in a motor boat, full of fish” is avoided by most of the perspective which is quite revealing because being a clear emotional statement, the general disagreement on it indicates the reasonability of the other rankings.

Perspective or component 2 is connected with – Entrants – Tourist and Shipping Operators (Figure 4). Comparing with the “Users” perspective it is clear that most of its extreme statements move to indifference except for (Statement 34), related to conflict management that “Entrants” favor greatly which is understandable since they are new and developing activities somehow conflicting with fisheries. Interestingly “Entrants” make an alliance the “Data Collectors” to influence regulation (Statement 33) “Marine Strategy should provide for innovative activities that promote the

sustainable use of marine resources”, want to impose regulation on fisheries (Statement 10) “Fisheries and other human activities affecting the populations of fish and seafood trade should not catch more than the maximum

sustainable catch”; and plan to get new propriety rights requesting that (Statement 4) “The Marine Strategy should be consistent with the Convention on Biological Diversity to protect marine biodiversity and creating marine

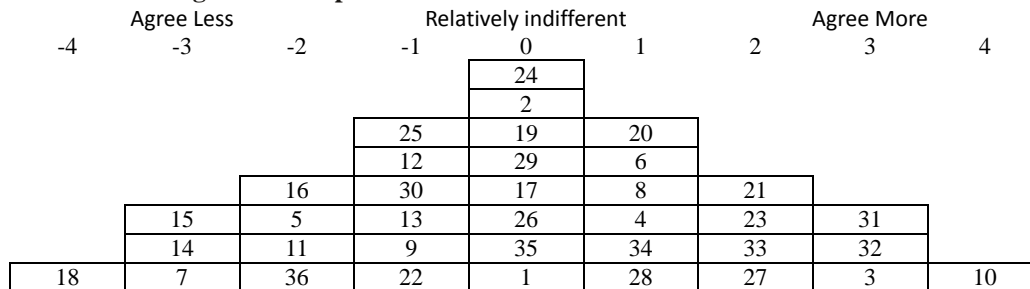
Figure 4: Component 2 – Entrants – Tourist and Shipping Operators



protected areas”. “Entrants” reinforce their disagreement with fishermen “Users” and other innovative stakeholders on statements latters agree (Statement 17) “When a fisherman sees a foreign boat fishing illegally and denounces it, it is too far away to do something”, (Statement

27) “Vessels large and sophisticated cause great havoc on marine resources”, (Statement 31) “Export of specimens to zoos and ocean parks increase the value of biodiversity and favors innovation and development”.

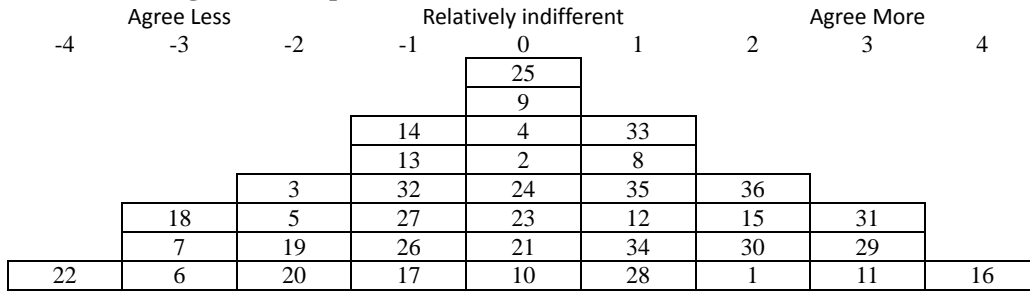
Figure 5: Component 3 – Data Collector – Marine Researchers



Component 3, linked with researchers of “Data Collectors” is represented in Figure 5. The major difference from the “Entrants” is that “Data Collectors” consider that (Statement 31) “Export of specimens to zoos and ocean parks increase the value of biodiversity and favors innovation and development” but they strongly agree with “Entrants” with strong regulation on fisheries (Statement 10) “Fisheries and other human activities affecting the populations of fish and seafood trade should not catch more than the maximum sustainable catch”. What “Data Collectors” add to the former perspectives is a more global view on marine resources and in the respective regulation (Statement 3) “Coastal waters, the seabed and subsoil are an integral part of the marine environment and should be covered by the European Marine Strategy” including the cul-

tural heritage (Statement 32) “All whaling heritage deserves to be restored and preserved”. On the other hand “Data Collectors” strongly disagree with the dependence of human activity on marine resources (Statement 7) “Human activity at sea and in coastal areas is essential to economic stability”, the capacity to influence the government on particular issues (Statement 15) “If we were strong together with our government we would not be discussing the 200 miles but a lower area of 100 miles” indicating some experience on that influence. Finally, “Data Collectors”, confirming their experience in dealing with regulators, also deny that “The power of money, the electoral power and influence of large companies reduce the prospects of small fisheries leading Europe to defend roach fishing instead of sustainable fisheries”.

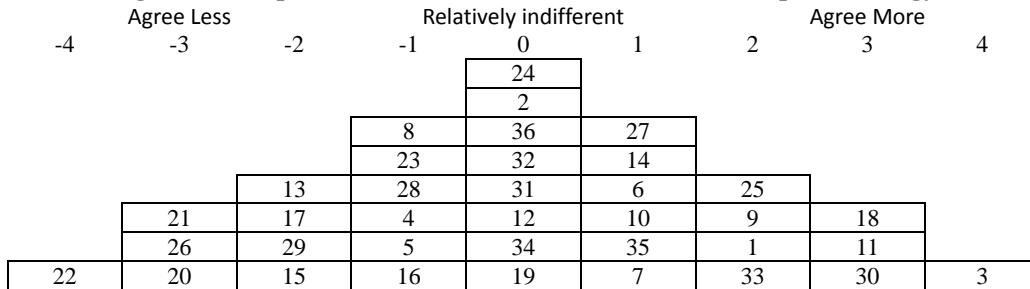
Figure 6: Component 4 – Claimants - Politicians for Innovation



Component 4, linked with Politicians for Innovation, or “Claimants” of new property rights, is represented in Figure 6. They defend the strong control of maritime property rights (Statement 16), and the innovative activities such as “Export of specimens to zoos and ocean parks increase the value of biodiversity and favors innovation and development” (Statement 31) or “The extensive and semi extensive aquaculture can help reduce the pressure on the marine environment and generate significant economic benefits” (Statement 11). Interestingly they are strongly against that “The stock management should be made on each island and not at regional level so that the fisherman of one island should not fish in the sea of another island” (Statement 22).

Component 5, associated with Politicians for the European Strategy, and can be identified with “Owners” of property rights since they are less worried about the control of the EEZ and more in tune with the European Marine Strategy (Figure 7). They allocate all the property rights to European Control (Statement 3) “Coastal waters, the seabed and subsoil are an integral part of the marine environment and should be covered by the European Marine Strategy” and, as Politicians for Innovation, they are also strongly against that “The stock management should be made on each island and not at regional level so that the fisherman of one island should not fish in the sea of another island” (Statement 22).

Figure 7: Component 5 – Owners - Politicians for the European Strategy



The last group of politicians, Component 6, is associated with Politicians worried with managing the conflicts between the various users; actually they can be identified with “Proprietors”. Innovation is the result of the availability of a resource. The whale watching resulted began rooted in a whaling culture and they recognize that there are market failures that is necessary to correct (Statements 21,26) and, the other politicians they are against the allocation of marine property rights per island (Statement 22).

Component 7 is an interesting one. On the

one hand it cannot be allocated to any of the property rights groups define a priori in Table 2. It defends consistency “The Marine Strategy should be consistent with the Convention on Biological Diversity to protect marine biodiversity and creating marine protected areas” (Statement 4), truth “Europe seems to advocate regional differences on paper but not in practice” (Statement 19), fairness “Vessels large and sophisticated cause great havoc on marine resources” (Statement 27) and ethics “It is important to establish ethical principles for negotiation between interests” (Statement 25).

Figure 8: Component 6 – Proprietors - Politicians for Conflict Management

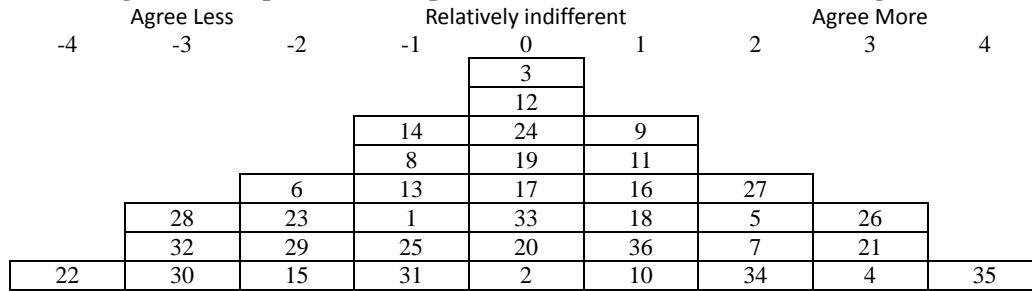
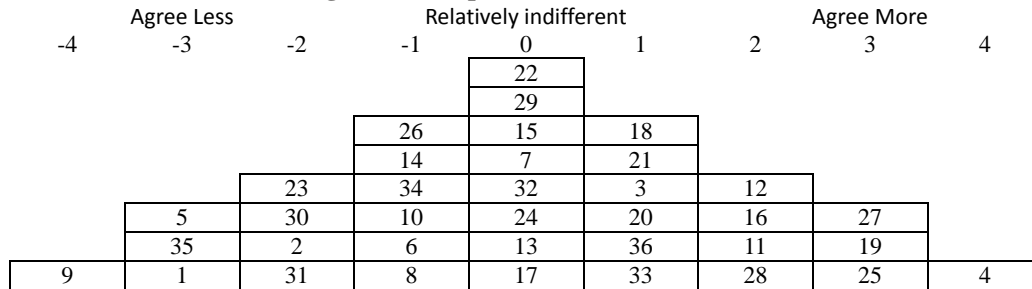


Figure 9: Component 7 - Ethic Attitude



5. CONCLUSION

Using the analytical framework based on the typology of property rights proposed by (Schlager and Ostrom, 1992) and the Q Methodology initiated by (Stephenson, 1953) we were able to interpret the attitudes Horta stakeholders on the property rights changes implicit in the European Marine Strategy. We conclude that there are windows of opportunity (Nijkamp, 2009) for innovation and development in remote areas if innovative entrepreneurs “Entrants”, associated with “Data Collectors” and politicians for innovation “Claim-

ants” can change the institutional status quo. Along the institutional and technological innovation processes, old “Users”, “Proprietors” and “Owners” are challenged to redefine property rights over natural resources, pressured by the uses allowed by new technologies. All these changes on the allocation of rents can influence the path out of regional underdevelopment; either to regional development, exploitation or dependency (see Figure 1). Creativity should be not only related to technological or cultural issues but mainly to institutional adaptations.

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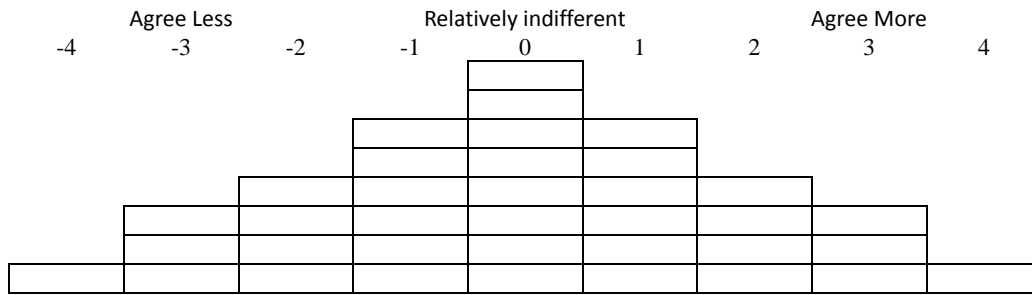
ANNEX : Q Sort on Marine Strategy.

1) The Q Sort Method aims to structure the discourse of development agents in a community on a specific topic.

2) From documents and interviews we identified 36 phrases

	Phrases
1	Marine protected areas are an important step towards fulfilling its commitments on Sustainable Development and the Convention on Biological Diversity.
2	With an ecosystem approach to management of human activities, priority should be given to maintaining good environmental status of the marine environment in Europe
3	Coastal waters, the seabed and subsoil are an integral part of the marine environment and should be covered by the European Marine Strategy.
4	The Marine Strategy should be consistent with the Convention on Biological Diversity to protect marine biodiversity and creating marine protected areas
5	There is a flaw in top governance that ignores the knowledge of fishing communities at local level
6	The activities that depend on the sea as fishing and tourism suffer the degradation of ecosystems caused by competition over resources.
7	Human activity at sea and in coastal areas is essential to economic stability
8	Increasing levels of maritime traffic have big impacts on the marine environment
9	The waste from land and boats generate increasing problems.
10	Fisheries and other human activities affecting the populations of fish and seafood trade should not catch more than the maximum sustainable catch.
11	The extensive and semi extensive aquaculture can help reduce the pressure on the marine environment and generate significant economic benefits
12	You need more and better communication so that the fish of good quality can be purchased
13	The costs of fishing tourism are rampant especially those associated with insurance and safety equipment
14	Beautiful things is when we go in midsummer, in a motor boat, full of fish
15	If we were strong together with our government we would not be discussing the 200 miles but a lower area of 100 miles
16	Pressure on the Azores EEZ is growing especially by boats from Spain, France and Mainland Portugal
17	When a fisherman sees a foreign boat fishing illegally and denounces it, it is too far away to do something.
18	The power of money, the electoral power and influence of large companies reduce the prospects of small fisheries leading Europe to defend roach fishing instead of sustainable fisheries.
19	Europe seems to advocate regional differences on paper but not in practice
20	The management system has limitations and the total tradable catch quota system is a big threat to the fishing communities especially the small ones of the Azores.
21	The fish parallels markets are relevant and may increase with the crisis
22	The stock management should be made on each island and not at regional level so that the fisherman of one island should not fish in the sea of another island.
23	Monitoring is typically associated with environmental indicators but it is also important to define economic and social indicators and the relationship of cause and effect between them
24	It is essential to strengthen communication between local management and management at the European level
25	It is important to establish ethical principles for negotiation between interests
26	There is a flaw in the evaluation of the impact of recreational fishing
27	Vessels large and sophisticated cause great havoc on marine resources
28	Without boats, quotas and property rights artisanal fishing will die together with their communities
29	The inclusion of themes of sea and fisheries on formal education would value fishing communities on each island.
30	Training should be tailored to the needs of every fisherman
31	Export of specimens to zoos and ocean parks increase the value of biodiversity and favors innovation and development
32	All whaling heritage deserves to be restored and preserved
33	Marine Strategy should provide for innovative activities that promote the sustainable use of marine resources
34	The value of the sea is associated with having a good adjustment between conflicting uses of marine resources
35	Innovation is the result of the availability of a resource. The whale watching resulted began rooted in a whaling culture
36	The expansion of the EEZ to 350 miles is fundamental to the sustainable development of communities Azorean

3) Using the numbers of the phrases, rank them from the right to the left in the pyramid below



4) Identification

Gender		Age		Residence		Education		Occupation		Sector		Aim	
Masculine		-30		Faial		Other		Entrepreneur		Fisheries		Socio Economic	
Feminine		30-45		Azores		Lic		Public Service		Tourism		Socio Environmental	
		45-		Other		PhD		Employee		Other		Economic Environmental	