Chapter 19
Fostering Resilience Among Artisanal Fishers in Peniche (Portugal): An Exploratory Study

Vanda Viegas, Ulisses M. Azeiteiro, and Fátima Alves

Abstract This work seeks to comprehend how *covos*, *anzol* and *redes* (creels, hooks and net fishermen—artisanal fishing gear) artisanal fishermen in the Fishing Artisanal Local Community (small-scale fisheries for subsistence or local, small markets, generally using traditional fishing techniques and small boats −12 m) from Peniche, explain and deal with Climate Change in their daily lives. The study was based on a sociological theoretical and methodological approach with contributions of environment sciences. Qualitative methodological procedures included the application of a semi-structured interview to 12 artisanal fishermen between March and May 2013. Findings were analysed with a content analysis matrix built in the basis of the initial theoretical framework and, at the same time, integrating the new information resulting from and on the field, and reported the elements that characterize the relation of the fisherman with Climate Change. The findings in this study characterize the scenario where lay rationalities contextualize, highlighting the importance of considering the qualitative approaches to climate change by studying and interpreting lay rationalities.

V. Viegas (✉)
Centre for Functional Ecology, University of Coimbra, Coimbra, Portugal

Universidade Aberta, Lisbon, Portugal
e-mail: vnd.vgs@gmail.com

U.M. Azeiteiro
Department of Sciences and Technology, Universidade Aberta, Palácio Ceia, Rua da Escola Politécnica, 141-147, 1269-001 Lisbon, Portugal

Centre for Functional Ecology, University of Coimbra, Coimbra, Portugal

F. Alves
Centre for Functional Ecology, University of Coimbra, Coimbra, Portugal

Department of Social Sciences and Management, Universidade Aberta, Palácio Ceia, Rua da Escola Politécnica, 141-147, 1269-001 Lisbon, Portugal

Centre of Studies of Migration and Intercultural Relations, Universidade Aberta, Aberta, Portugal

W.L. Filho et al. (eds.), *Climate Change Adaptation, Resilience and Hazards*,
Climate Change Management, DOI 10.1007/978-3-319-39880-8_19

Keywords Lay Knowledge • Climate Change • Artisanal Fisheries • Qualitative Methodologies • Interdisciplinary Studies

Introduction

A first exploratory study on the Impact of the Natural Reserve of the Berlenga Island (RNB) on the local life styles, particularly on the fishing community, highlighting their rationalities and lay practices was made by Santos et al. (2012). Revisiting this geographic, cultural, economic, social and environmental reality, and following the study of Viegas et al. (2014), that considers "Climate Change is a global problem which requires articulated local responses at the macro, meso and micro level and that its understanding involves the identification of mutually influent relations between Nature, Society and Culture", and bearing also in mind that any intervention—both to mitigate Climate Change and to adapt to Climate Change—involves necessarily that same society, in all the complexity of its social-cultural and environmental dimensions (Viegas et al. 2014), the work is carried on among the fishing communities in the Berlenga (Peniche) surroundings.

Lay knowledge, in its various denominations (as they highlight one or another characteristic), was subject of compilation in Delicado et al. (2012: 438) emerging as "traditional ecological knowledge" (Houde 2007); "indigenous knowledge" (Bohensky and Maru 2011; Bohensky et al. 2013); "local knowledge" (Paton and Fairbairn-Dunlop 2010), "stakeholders' knowledge" (Edelenbos et al. 2011); "lay knowledge" (Edelenbos et al. 2011; Brace and Geoghegan 2010) and "lay rationalities" (Alves et al. 2014). The dynamics and permanent reconstruction of lay knowledge, are rooted in interaction where makes sense and explains world and life phenomena, supporting the social action and interaction (Alves 2011).

The fishing communities due to their proximity and dependence on the coastal areas are particularly exposed to Climate Change and represent populations of great vulnerability and risk (Barbier 2014; Garai 2014; Nagy et al. 2014a, b; Verocai et al. 2014) justifying, thus, a focus of scientific, cultural, economic and socio-cultural interest (Fidalga et al. 2014; Seixas et al. 2014; Bitencourt and Rocha 2013), evidencing the understanding of its relation, adaptation and mitigation to Climate Change (Barbier 2014; Nagy et al. 2014a, b).

The main focus of this research is to understand how these fishing communities live with Climate Change and deal with Extreme Events. Therefore, the primary purpose of this analysis, focused on Lay Rationalities of Climate Change, is to get closer to understand how these people conceive and deal in *Hic et Nunc*[1] with Climate Change and which forms and sorts of knowledge these conceptions and actions stem from, bearing in mind the space and time contexts. Against this background the study seeks to: (i) observe and describe the way how Climate Change is perceived regarding its causes and effects; (ii) observe and describe the

[1] Authors' Note: Latin expression that means *Here and Now*

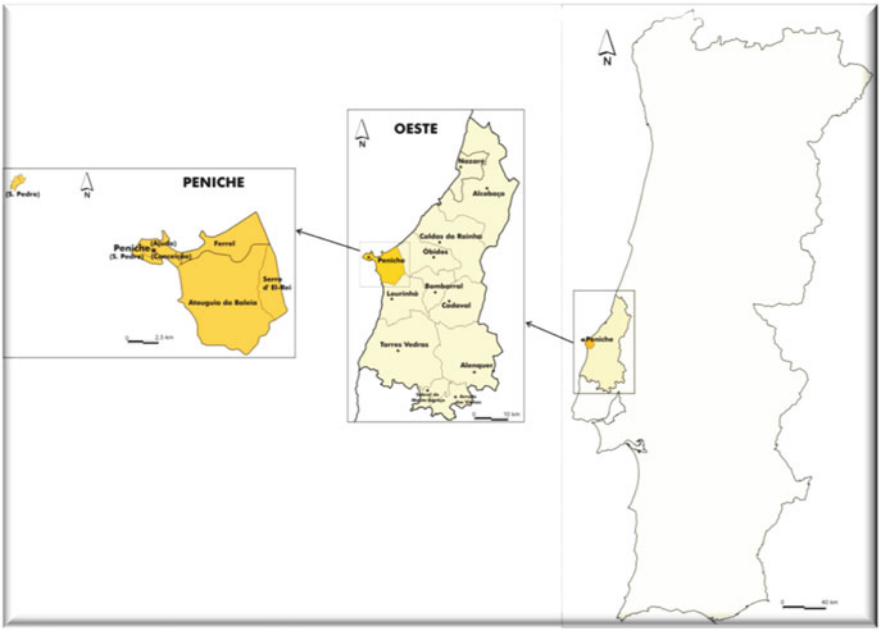

Fig. 19.1 Peniche Municipality. Lat. 39°21'N—Long. 9°23'O (*Source*: CMP, CEDRU (s/d) *Carta Educativa* (Education Charter) of Peniche Municipality. [Online]. [Consul. 12 Feb. 2015]. Available at: http://www.cmpeniche.pt/_uploads/educacao/carta_educativa_peniche.pdf. Pág. 26.)

Fishermen's sort of Climate Change related daily practices; (iii) understand which knowledge forms and sorts these conceptions and actions are based on, interweaved in socio-cultural dynamics.

Peniche

It is located on the Peniche peninsula, on the coast of the West sub-region, NUTS III, Peniche is defined by the municipality as the westernmost fishing city of the European continent (Fig. 19.1).

With traces of human activity stretching back to the Palaeolithic (Calado 1968), Peniche is believed to have been an island until the last decades of the fifteenth century. Only by late nineteenth century, beginning of the twentieth century XX, Peniche saw the tombolo, which links it to the continent fully consolidated and, "it was exactly that progressive transformation of the coast line which was at the genesis of all the social and cultural change process of the region" (Calado 1968: 93).

On June 30th, 2011, Berlengas archipelago was declared a Biosphere World Reserve by UNESCO.

The oceanic archipelago had its natural value, as island ecosystem, regarding the marine avifauna and their habitats, as well as the importance of its archaeological and geological heritage being officially recognised as of 1981, the year when it was declared Natural Reserve of the Berlenga Islands by Decree-law no. 264/81, of September 3rd and due to Resolution of the Council of Ministers (RCM) no. 142/97, of August 28th, the whole archipelago is included in the first phase of the national List of Sites, classified as: Berlenga Archipelago (PTCON0006). The Reserve is now called Natural Reserve of Berlengas (NRB) and its acknowledgement and protection status was progressive extended, by Official Gazette no. 0/98, of December 23rd, subsequently amended by Decree-law no. 32/99, of December 20th, and is included in National network of Protected Areas, pursuant to Decree-Law no. 142/2008, of July 24th and Natura 2000 Network, as provided for in RCM no. 115-A/2008, of July 21st.

However, given what was pointed out by Santos et al. (2012), the reactions to the application of the resolutions for this Protected Area do not seem to be consensual among the involved stakeholders, showing a top-down dynamics of legal provisions, scientific discourse and new tourism and sports activities which, when displaying local fishing knowledges and activities, must have boosted, in practice, the potentiation of competition/tension within various spaces traditionally used, among others, by the creels, hooks and net fishermen, which is under study.

Peniche's people has always been connected to the sea, and much of the local cultural heritage reveals this reality, regarding gastronomy handicrafts, where bobbin lace also reflect this deep connection (Guilherme 2010: 9).

Their history and stories are rich of elements to understand their identities and ways of living. And because the identities, when organizing meanings and experiences are also shelter and source for solidarity against disorder, the transformation or stigmatization appear to us (Castells 2007) as inevitable, trying to get closer to understanding how the creels, hooks and net fishermen in Peniche conceive, explain and deal with in their daily life with Climate Change and in which knowledge forms sorts they insert these conceptions and actions.

At the municipal scale and taking Mendes et al. (2011) study about *Social vulnerability to natural and technological hazards in Portugal* into consideration it can be seen that the social vulnerability level of Peniche municipality, weighing criticality and the support capacity is deemed to be medium.

The Sea, which in the case of Peniche is considered to be its development driver and a wide source of resources and opportunities, has been confirmed through Magna Carta, as the first general goal connected to the sea rank, its valuing "as structuring vector of the economic activities" (CMP 2009a, b: 272).

Fields as different as scientific research related to marine and energy resources, tourism, the production of electrical energy from the waves, or the search for the establishment of Peniche as a nautical centre, along with the wish to become a world centre for surfing, rely on the Sea as a main pillar.

Peniche, historically linked to fishing, maintains, following Magna Carta (CMP 2009a, b), a strong economic activity in the catching sectors, the canning industry, the freezing industry and the shipyards, despite the fleet and number of fishermen reduction, and the closing of some canning industries.

Peniche port is still considered to be one of the most important fishing ports in the country. However, and taking into consideration the reference as to the intention of valuing the fisherman profession (CMP 2009a, b: 147) or the promotion of initiatives which enable the youngsters to understand what it means to be a fisherman (CMP 2009a, b: 146), it is interesting to realize that on the 321 pages of the strategic diagnosis, *Peniche 2025* (2009), not just once comes across the expression "fishing community".

Although fishermen, together with the bobbin lace makers are figures of the collective imagery and are decisive factors for Peniche's economy, history and culture—the artisanal fishermen seem to be a community whose role and influence do not seem to be fundamental within any of the scenarios developed by the Strategy for Peniche until 2025. This situation makes, in our opinion, the issues pertaining to the identity and the subject relevant.

The identity concept is complex, dynamic and polysemous. For Castells (2007), whereas the identities organize meanings and experiences, the roles organize jobs, defending that the plurality of identities in actors develop tensions and paradoxes both for self-representation and social action, although he thinks that the more stable primary identity, structures the other ones.

Now, from a sociological perspective the identity is the result of a social construction, within a space and time context (historical, geographical, biological, religious, of the collective and the individual imagery) established by the power relations and shaped by the inter-influential dynamics of the (re)productive institutions, the collective memory and individual imagination is, however, from its processing—rationalities—by individuals, groups and societies, which are reorganized in their space and time meanings put into perspective, according to social structures and/or cultural shores (Castells 2007).

In turn, in the modern context of globalization and breakdown of social frameworks, Touraine (2005), advocating for the emergence of the subject in individuals based on the reflexivity, in an uneven struggle against the powers and standards which usurp the meaning of the existence. For the author, the meaning of existence is found by the collective social player—subject—in resistance acts and in the construction of singularity.

Bearing in mind that the subject of this study are the creels, hooks and net fishermen, also here, regarding the construction of identities and the subject's emergence, the lay rationalities, as an inclusive process, producer of holistic meanings and targeted responses, *i.e.*, which reach the meaning of the reflexive agent's action purpose based on his experience, appear, in our opinion, as a heuristic tool.

The characterization and the outline of the object of our study require the definition of 'artisanal fisherman', as it can't be find a formal definition of the concept "artisanal fisherman".

In Portugal, the legal framework of the fisherman activity, within the perspective of "a general framework of maritime safety requirements to protect the human life at sea and to preserve the marine environment" (Decree-Law (DL) no. 280/2001: 6731), is established by the legislation of inscribed seafarers. It could not be found, within the legal perspective, any reference to the 'artisanal fisherman'.

But the research has enabled to get closer to the "artisanal fishing" concept: "traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amount of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption. In practice, definition varies between countries, e.g. from gleaning or a one-man canoe in poor developing countries, to more than 20-m. trawlers, seiners, or long-liners in developed ones. Artisanal fisheries can be subsistence or commercial fisheries, providing for local consumption or export. They are sometimes referred to as small-scale fisheries" (after FAO's website).

In the EU, reading with the User's Guide of the Common Fisheries Policy (CFP) launched by the EC on 2009, not even once the expression "artisanal fisherman" occurs, although the expression 'artisanal fishing' is used for the African contexts.

Also Communication 417—final, of EC, of July (2011), on the Reform of FCP, does not mention 'artisanal fisher' and/or 'artisanal fishing', setting only a limit of 12 m for the small-scale fishing, excluding the towed gears.

On the other hand, Dawn and Gray (2005) in a critical analysis to the Common Fisheries Policy, in addition to underlining the huge failure of the EU with achieving a sustainable fisheries management, reflect on the limitations of the science: (i) the high levels of uncertainty of the fisheries sciences, (ii) the limited scope of analysis, which, traditionally, does not include multi-species analysis, nor environmental analysis and, finally, (iii) the gap between the scientific research, the fishing activity and the fishermen.

Relevant for this study is the absence of objective criteria for a precise outline of the 'artisanal fishing', as well as the absence of a legal framework for 'artisanal fisherman', by the dominant national and international players who establish the strategies for the sector. In addition to the possible semantic problems, this absence makes, in our opinion, its little economic, social, cultural and environmental valuing obvious, as these entities understand it, and the institutional void this way of life is subject to.

Against this background, some questions arise, among many others: Does it make any sense to be speaking of Artisanal Fishers in Portugal and, particularly in Peniche? After all, who are we talking about when we talk about Artisanal Fishers?

By the time of the Communication on *Artisanal Fishing Communities in Portugal* presented to the Naval Academy, Henrique Souto (2003) supports that artisanal fisheries is a fishing subsystem.

Rather diversified, artisanal fisheries, Souto advocates (2003), is defined by the specificity of the geographical, historical and economic context it is inserted and its traditional organization taking into consideration: (i) the size of the vessel—small or medium—and the vessels close to the coast; (ii) the ownership of the means of production—vessels and gears; (iii) the payment systems regarding the fishing

income and with fish supplements; (iv) the great variety of usually passive fishing gears.

Based on the combination of these variables, Souto (2003) concludes that, there are four major types of Artisanal Fishing Communities: "1—Strictly family Artisanal Fisheries; 2—Family-based Artisanal Fisheries; 3—Transition Artisanal Fisheries; 4—Atypical Forms" (Souto 2003: 3).

With no legal existence but clearly present in the social and economic arena, unavoidable in social and environmental sustainability strategies and with indelible marks in the collective and individual imagery, it is before this framework full of diversities, semantic quarrels, imprecisions and paradoxes that the artisanal fishers emerge.

Always focused on the perceptions on Climate Change, trying to understand from which forms and sorts of knowledge stems the capacity to deal, here and now, with its possible effects, the Artisanal Fishers of Peniche under our study are the creels, hooks and net fishermen, while lay reflexive players.

These creels, hooks and net fishermen operate mainly off the coast of Peniche, and for the defence of their way of life have established the *Associação dos Armadores da Pesca Local, Costeira e Largo da Zona Oeste* (AAPLCLZO) (Association of Ship-owners of Local, Coastal and Off Coast Fishing of the West) and, for the organization/management of their activity *Cooperativa de Armadores da Pesca Artesanal* (CAPA) (Cooperative of Ship-owners of Artisanal Fisheries), under our study.

Methodology: Methods and Techniques

Sort of Study, the Methodological Procedures and the Participants

Location

This exploratory study is developed in the light of the comprehensive theories *i.e.*, it doesn't try to explain the causality of the players' social action, nor find regularity laws for living in society. The study seeks to comprehend the meanings of the social action, in specific individuals (Guerra 2012).

During the preparatory visits of the fieldwork, several talks took place and various contacts were established with potential informants, of which it's highlighted for the purposes of this study four preliminary exploratory interviews: (i) with historian Mariano Calado; (ii) with the President of the Fisherman Union; (iii) the Person in charge with the Peniche Port Authorities; (iv) with the President of AAPLCLZO.

In order to overcome the lack of a precise and consensual outline for the "Artisanal Fisherman" concept—both a scientific and a political one or even one defined by the fishermen themselves—for the present study having been selected to

Table 19.1 Sociographic characterization of the participants

	Age	Gender	Schooling	Residence
Fisherman 1	54	M	Former 2nd Grade	Peniche
Fisherman 2	56	M	Former 4th Class	Ribamar
Fisherman 3	54	M	Former 4th Class	Peniche
Fisherman 4	33	M	9th Grade	Peniche
Fisherman 5	56	M	Former 2nd Grade	Ribamar
Fisherman 6	40	M	7th Grade	Ribamar
Fisherman 7	41	M	8th Grade	Ribamar
Fisherman 8	52	M	Former 3rd Grade	Ribamar
Fisherman 9	35	M	12th Grade	Peniche
Fisherman 10	52	M	Former 4th Class	Peniche
Fisherman 11	39	M	8th Grade	Ribamar
Fisherman 12	54	M	Former 2nd Grade	Ribamar

adopt the expression of 'the creels, hooks and net fishermen'. Likewise it was selected CAPA, located inside Peniche Port, as the field for this research.

For the number of participants it was deemed to be convenient for the purpose and this sort of research, in addition to the availability of the fishermen, the availability of time and financial resources was decisive. In the case, it was chosen to use the word participants and not 'sample', as this is a qualitative research seeking a finer understanding from the respondents and according to their own terms. Therefore and to best meet the purpose and the sort of study, it was decided to select an externally homogeneous group (Guerra 2012). As it has been mentioned before, between March and May 2013, was interviewed a group of 12 'creels, hooks and net fishermen', which operate off the coast of Peniche in vessels up to 12 m and belong to CAPA (*Vide* Table 19.1).

Method for Data Collection

It was chosen the focused interview, according to the classical "Madelaine Grawitz Typology". This type of interview, such as the free interview is suitable for exploratory studies and has an intermediate level of informality and depth. The focused interview is different from the free interview only because it has a greater structuring level regarding the specific addressed topics (Grawitz 1993).

To carry out the interviews which were held in the facilities of CAPA, it was fundamental, on the one hand, the availability of the fishermen and, on the other hand, the inestimable support of CAPA, both providing a room for the interviews and promoting the scheduling of the meetings with the fishermen.

All interviews were recorded, with the previous verbal consent of the respondents and have an average duration of 60 min.

Taking into account the exploratory level of the work, a Pre-script was prepared based on the questioning and according to the purposes of the research, which was pre-tested.

According to Bardin (2013) "currently, and in general, the content analysis is known as: a set of analysis techniques of the communications aiming at getting by means of systematic and objective procedures of the content description of the messages indicators (quantitative or not) which enable the inference of knowledge regarding the production/reception conditions (inferred variables) of these messages" (Bardin 2013: 44).

Except for the tape recorder, the camera and the computer, used for the records during the field work, the analysis process to the content of the interviews did not turn to any dedicated technological tool.

And, although, the dialogue between deduction and induction has been permanent, this analysis may be classified as inductive, since it is from the discourse, and through its systematic deconstruction, shaped by categories and subcategories, from the analysis units, that it was attempted to conclude on the relations between the subjective meaning of the action, the social practices in their space and time context, considering, as Guerra (2012) states "the subject an active synthesis' of the social whole" (Guerra 2012: 31). This is even justified both by the sort of questions—semi-open– applied during the focussed interviews, and the welcome ease of the fishermen's responses and cooperation.

Taking into consideration the set indicators and questions, analysis categories and subcategories were then established, *a posteriori*, and the final grid of content analysis was prepared:

(i) ***Perception of the Climate Change***
This category seeks to analyse whether the respondents have a conception or not on the Climate Change and Global Warming. If they are aware or not of the Climate Change, on the one hand and if so, where and when had they become aware of them. Trying also to analyse where this knowledge stems from, their experience or another information source.

(ii) ***Perception of the environmental degradation***
This category addresses whether the respondents have a notion or not on the pollution in general and, particularly, on the coastal area and off the coast of Peniche, as well as the inter-relations between these effects. It was sought to understand how they perceived those impacts, both in the coastal habitats, surveillance in the quality of the fishing resources and where did they get this knowledge from. Finally, within this category, is searched for to assess which levels of surveillance/power could be, according to the respondents, related to the prevention of the perceived environmental degradation.

(iii) ***Causes of the Climate Change***
This category, assuming the existence of the phenomenon, sought to establish which causes the respondents ascribed the Climate Change to. Natural and/or anthropogenic? Others?

(iv) ***Risks***
With this category is tried to establish whether the respondents perceive the risks as a consequence of the Climate Change, and if so, which ones. Both in their family daily life, and within the scope of their fishing activity and/or at other levels.

(v) ***Behaviours***
Within the scope of this category, is tried to identify whether the respondents had/have had any change of behaviour in respect of Climate Change and, if so, which ones. On the other hand, it was sought to study how the respondents understand how to deal with the consequences of Climate Change and Global Warming and also, how the respondent, himself, dealt with the acknowledged phenomenon, identifying, or not, behaviours.

(vi) ***Responsibilities for finding solutions***
This category aims at understanding whether and/or how the respondents perceive or not, what should be done or how it should be done to deal with the phenomenon, on the one hand, and if they identify which agents they consider responsible for finding those solutions. Both at the global and national level, or local and/or/personal level.

(vii) ***History of the relation with the sea***
This category analyses the space and time contextualization of the respondents with the fishing activity.

(viii) ***Perception of the Fishing Resources***
This category seeks to understand the respondents' perception regarding the quantity of fish in the sea and the quantity of fish for consumption. Which species exist in the sea—if some have disappeared and/or others have appeared.

(ix) ***How to fish—Its effects on the sea, the waste and biodiversity***
This category seeks to identify the respondents' perception regarding the different fishing gears and their impacts.

(x) ***Perception about the Artisanal Fisherman***
This category analyses the notion of the respondents about the 'Artisanal Fisherman'. On the one hand his definition and on the other the perception the others have of the 'Artisanal Fisherman', as well as its own identification, or not with the 'Artisanal Fisherman'

(xi) ***Social Capital as members of the fishing community***
This category study's if the respondents identify a network of agents who support or hamper the activity. What is the role of these agents and which sort of relationship do they keep with the former. Trust? Fear? Other? Looking for to identify the existence or not of a social support network.

(xii) ***Reflexion on Climate Change***
This category aims at identifying if any of the respondents had already been asked about the Climate Change and Global Warming phenomena, by whom and when. As well tries to identify if they had reflected on the phenomenon.

(xiii) ***Identification of the Conception of Climate Change at the end of the interview***

In this category as tried to find out if the respondents, after having had this conversation (interview), could identify if there was any difference between their attitude before and after the interview. If so, which ones.

Characterization and Analysis of the Collected Information

In accordance with the design and the primary purpose of this study (to understand how this fisherman conceive, explain and deal with Climate Change), is presented the description and is sought to interpret their contributions.

The participants don't use the term or the concept of Climate Change, except one. They talk mainly about the changes in the weather and when they use the term Climate Change most of the times is with meanings that differ from the scientific jargon.

In most answers, the participating fishermen perceive the climate, its changes and effects, including Extreme Events, mainly from their life experience, although much of the information conveyed by the media, especially television, has been frequently mentioned:

> *We speak according to what we see. That's it! Some years we realize there are years with lots of rain, others with less and things are still practical the same. It was the same in past years too. It was always like this but people didn't pay much attention. An example, one year there was lots of rain and everyone would speak of that year: Man! It rained a lot and this and that . . . Then, three or four years would go by when it didn't happen and people would forget . . . Then again the same happened: Man! Everything was flooded and this and that . . .* (Participating Fisherman No. 3)

> *Year after year, I think it seems to be ahead. As for the climate . . . the season, come on! The weather is ahead or behind . . . I guess it is, I don't know. The weather is not stable, it is not! It is not stable for the season we are living . . . But okay, year after year, with our experience, it seems, there has always been a change!* (Participating Fisherman No. 6)
>
> *From what one hear and see I think so . . . I think it's changing, but it was worse in the past! Winters were harder . . .* (Participating Fisherman No. 8)

Being found in the speeches of the respondents the perception of a certain alarmism e and excessive emphasis, considered unnecessary, around Climate Change and Global Warming:

> *I don't mean it cannot happen, this is what I was telling you: People who are more aware of those things who are more into those things, it's possible there is a change, but I think, in my opinion, that there is no big change. There is no need to alarm people that much.* (Participating Fisherman No. 4)

The ignorance and indifference about the Climate Change topic, when addressed in the abstract, appears in the speeches. Nevertheless, when asked if they feel there are climate changes, the remarks become objective and changes are identified:

> *It's that, I am not sure what it is. But, sometimes I hear things on TV and that . . . But I don't really get it. [. . .] Oh yes I do feel it! The seasons are . . . They are not what they used to*

be. In the past they were more regular. The summer was summer, the winter was winter. Now, I think the seasons are a bit out of control. I don't know the reason why ... (Participating Fisherman No. 12)

It was also found that, although Climate Change has been reported, it was also mentioned that, the scientists are the people who are incumbent with identifying, understanding and explaining those phenomena. In other words, this downplaying of the knowledges resulting from the daily contact with these changes is highlighted, reflecting clearly the subordination of this knowledge to the knowledgeable people recognised as competent:

I can't understand that ... I ask myself. The extreme events ... They already happened when I was a boy, that's why I say this is very complex ... Everything can be. I don't reply too much and I don't reason too much about that, because I leave it to the scientists. Science is more competent to give answers. (Participating Fisherman No. 1)

Regarding the causes of Climate Change, the anthropogenic activity is predominantly considered. The action to fight against the pointed out causes is divided between prevention, promotion and the fatalistic view. In this sense either investment should be made in education or no way out is nowhere in sight:

We are the ones who make the Climate Change, we are the ones who pollute the environment, and we all do silly things! [...] *That starts at school ... There is no awareness regarding that. There isn't!* (Participating Fisherman No. 1)

The human being spoils everything! Because we do everything the wrong way. Okay, in the case of a volcano or something like that, that is different, it is of natural causes. Now... if the human being knows he is harming the climate, but keeps on doing the same ... there is no chance! (Participating Fisherman No. 11)

The complexity of the relations between climate, environmental and social systems is highlighted, mentioning in addition to the anthropogenic activities the interests at play. Furthermore, bioaccumulation and biomagnification processes by the trophic chain:

I think it is a bit of everything. Everything is connected. From my experience, I think this is it. Because nature is a phenomenon. [...] *But the human being is, in my opinion, a worse phenomenon. He pollutes very much. In the past there was more humanity, now there are more interests. There is more, a little more of everything. It is not even worth publishing it!* [...] *There is too much corruption! And we ... in the market, on TV, we see certain things, which...* [...] *For example: In the past in sewage everything was dropped in the sea. Are you following me? That was also very harmful, there were all those dirty things we all know about. And those things kill lots of things in the sea. It kills the coral it kills, if necessary, creates diseases among fishes. And we eat that. We don't know if we eat sick fishes. Outside we look nice but inside we may not be that way, right? It's the same with everything. Like the fish. And the veterinary turns a blind eye to it.* (Participating Fisherman No. 10)

There are certain water passages which are very contaminated because many sick fishes can already be found. Even with diseases such as those we call cancers. Those big lumps. Fish like that can already be found. Sometimes we see croakers with clots, spongy looking. The fish is sick, you know? Bibs, which are a fish from the edge, are seen all black... It is the disease that is appearing in the fishes: It can be because of contaminated water, or water currents... Water currents that move from one end to the other... It's based on that! Sometimes we see water spots of different colours... In my opinion this will impact the whole system. (Participating Fisherman No. 7)

When asked by the Climate Change's impacts, the emerging concern is remote. With regard to the *here and now*, which concern is interweaved with the human practices, particularly with anthropogenic activity and the fishing activity itself:

> *Very well, while the said ... the said hard periods of catastrophe do not come, isn't it? We don't feel them yet ... For us, things are going ... Everything's all right. Will it reach us? We don't know*. (Participating Fisherman No. 5)
>
> *Of course I am worried with the changes, even at the level of fishing, in addition to the scarcity and the catch, the damage they make, but the climate has to do with it. If this cannot be controlled it will get worse and worse! Okay, they are trying to avoid certain things, but the main issue, I think they will never get there, I think ... But it's more dangerous for the future generations and the human race ... It doesn't affect me too much, anymore. In ten or twenty years I won't be here any longer ...* (Participating Fisherman No. 9)

Fishermen's Practices Within Their Contexts

It is known from social research that the discourses on the practices may not coincide with the discourses on conceptions. In other words, when the analysis moves to the behaviours and attitudes included in the practices, other rationalities are summoned. Regarding the waste, one of the participants explains the reasons behind the new practices regarding the local waste handling by the seafarers, even if he is not sure about its final destination:

> *The waste we take to the sea web ring back to land. What we catch in the sea we bring to land. As a matter of fact I do this ... Be it old gears, or... the waste caught in the sea I bring to shore, I out it on top of the wall ... Afterwards that waste should go to ... As a principle I think it goes to recycling, isn't it?* [...] *Because if we throw into the sea ... 'ah this is not ours' the other day we drop the gear and it resurfaces. It resurfaces and we bring it back again, we are breaking our art and we are contributing for further pollution also. Therefore, it resurfaces we bring it back to land, right?* (Participating Fisherman No. 11)

Although changes regarding the sea water temperature and atmosphere changes, more than directly it is the AG, the human practices and the anthropogenic activities which are perceived as the major cause of concern both about the depletion and the destruction of the resources and the marine and coastal habitats. However, in an inclusive narrative, in what can be thought of a search for an explanation and meaning for the present situation, the participating fishermen consider that the harmful practices are not limited, only, to their own fishing activity, and based on their life experiences, they interweave their professional practices and their life styles with moral, legal, political, safety, economic and financial issues, at the individual, local and global levels:

> *I have seen ships from all over the world! Chinese and Korean tankers! From all over the world!* [...] *You have no idea of the oil spills made by these ships, the tanks washing in high sea, very year on our coast!* [...] *More pollution than that one? Beware! Beware! There are kilometres of that madam! Lack of surveillance, don't doubt it! There should be a sensor, a satellite to be able to detect from space the ships polluting the sea, the satellite would detect*

it immediately! This would be simple! Then... we were hoisting, from time to time, the little fishes even ... The hooked fish when going through those waters and would be all black of that ... Black? Yellowish! (Participating Fisherman No. 1)

Defending their livelihood, another fisherman interlinks the pollution issue and that of the habitats and resources depletion issue:

We the fishermen are accused of putting stress, a huge stress on the animals. This is a lie! A lie! It is not us! Who are we?! If the problem was only the fishermen bringing to land then we would have no problems. There are other problems. The chemicals is something that has not been studied yet, because it doesn't need to be studied because it can be seen with the naked eye. If you look at a low tide what do we see? We see the rocks completely ... as if some acid has been thrown there and burned everything! Now if that can clean the rock ... imagine what it does to some being living near the coast! And we have many species living near the coast ... if in a very immature state ... some days after laying eggs ... That kills everything! Of course that after that species there is no recruiting and afterwards there are no more animals to catch! (Participating Fisherman No. 5)

The pollution resulting from human activities is also perceived as a major source of concern:

[...] *I started by saying that the sea was the largest waste bin in the world. Rivers flow into the sea.* [...] *Therefore, herbicides, pesticides, pig breeding, all that dirt into the rivers. Contaminated rivers, you know this is true. We cannot avoid this. And in the meantime the sea bears the blame. The sea is the largest waste bin in the world. Please note that it is I who says this. I say this!* (Participating Fisherman No. 2)

In addition to this the participant stresses also his relation with the sea, his perception of the practices which destroy the fishing activity and his concern about the future of the sea, warning for the confrontation of involved interests and the ethical and moral issues:

The sea is a dog. My grandfather died in it and I was about to die in it also! [...] *If everybody fished with hooks there would be lots of fish. Therefore, what happens is that each fisherman values his fishing gear. His sort of fishing. A sardine fisherman, pulls towards the sardine, the hooks fisherman pulls towards the hooks, the one who uses the nets pulls towards the nets, the one who fishes with trawl pulls towards the trawl and nobody yields. Envy, greed, all of that... So what happens? One of these days the sea has no future! Look here, the fishing has always been declining. And I will tell you why. Because we the fishermen are the murderers. Because there should be a close season and why isn't there one? Imagine this ... There is a pregnant woman there, and we go and cut the woman's neck. I don't know if this is a good comparison, I just used it so that you can understand what I am talking about. During these three months, January, February and March, it's a time of the year when the boats should not be at the sea. Nobody should be at the sea. Now what happens is that we have the trawl. In my opinion this is the worse murderer gear, that of the trawl. The trawl.* (Participating Fisherman No. 2)

In this context, one of the participants explains how trawling is operated nowadays and what its effects are:

And then, since the trawls have these iron balls ... to be able to trawl all the rocks. I tis very harmful ... The trawl trawled. They could only trawl in clean bottom. It only cleaned, it did not trawl rocks. Nowadays, wherever there is a bit of high rock: hillocks... They are called hillocks, everything goes. And now they trawl in the whole bottom. Do you understand? They go everywhere. And that harms the fishing a lot, kills the coral, where the little fishes

survive, and all those things. They kill the little fishes, the smaller ones and destroy the coast. This is exactly what happens, isn't it?? (Participating Fisherman No. 10)

The diversity of the existing gears and the trawl as the most destructive sort of fishing, underlining the legality of this annihilating technology:

Now this is what happens, but there is much gear and that's it! And it gets more sophisticated each year. Like the trawls. The trawls didn't go to places where they go now . . . Because they have other devices which detect the fish in a better way. And the trawl could not sail in places with very hard rock, because the device would break or the net would stay there . . . And today they do . . . with the rollers at the bow to break everything, to clean everything . . . that's it. . .! Provided the mesh is legal that is legal! (Participating Fisherman No. 6)

In addition to destructing the habitats, in their discourses they highlight the waste of trawl fishing and the lack of attention given to these sort of practices, by Science and the security forces:

The artisanal fishing catches only the fish that can be consumed because of its size and, in fact, they are not juvenile. Unlike the trawl. Only a scientific observation to be able to see. When they lift the bag! To see what they do! The "restinga"[2] *of fish which is left . . . All floating as they are no good. It would be good if someone wants to know how the fishing sector operates, that one day the State made available not too much money, and brought two scientists, rented a secret boat, made a deal with a ship-owner and that ship-owner would go on a route with those scientists and they, without being noticed, with no concerns for the people, without interfering in their lives—could film how the trawl works. How does it work!? And then they would raise their conclusions. Because what the trawls do. . . You have no idea about what they do. This is madness! 'Well, in fact, to estimate one day at the sea, it doesn't matter. We chuck it out!'. . . Everything is floating . . . Such big mistakes, so big, so big . . . And I say: 'Man! But where is the Navy to witness this?* (Participating Fisherman No. 1)

Gillnets, or equipment, is also legal, and considered a habitat destructing gear, in addition to 'marking' fish:

There are many people against trawl fishing, right? But I've been debating it with a few people and it goes like this: Trawl kills, damages, destroys the bottom of the sea, it kills from small to big fish, but trammel also does a lot of damage. Because fish create their own area. Fish has a home. But then it disappears from there! But, there it is, they've disappeared due to fishing net problems. Those that fall and end up there. The place where I used to catch a lot of fish about. . . thirty three and thirty four years ago, I used to catch a lot of fish there. Then we found out, the nets had been there, over and over. . . Now whenever I go there, I can't catch anything. Haven't caught a fish there anymore. Fishing nets destroyed the fishes' home. Hooks don't make any damage, they rotten up and disappear, while the net remains inside the fish, the fish grows around it. . . It stays there. [. . .] *There are many fish with disabilities due to that type of fishing.* (Participating Fisherman No. 3)

Speeches also note the impact on species and sin quality. Differences in fish types are pointed out:

[2] Authors' Note: Sandbank that may seem like a small island. It is the image that the fisherman has from the fish waste thrown away from the vessels.

"*I sense the climate is different and we have fish we never had before. For example, hogfish, about twenty five years ago there was no hog fish in our coast. There was none. Now I also see a lot of meagre. On the other hand, we lost others. In other words, we lose some and we gain some. Many have disappeared. It's been years since I've last seen a "besugo trombudo (Lithognathus* spp*)". I haven't seen it. I think it's almost extinct. "cação (Squalus acanthias or Mustelus asterias)", known as true "cação", we used to call it 'back run', we rarely see it. We rarely see it. Get it? "tramelgas (Torpedo* spp*)", a fish that gives electrical discharges. It gives electrical discharges. Do you get it? It's similar to skate but, attention, it's not skate. And if you touch it, it gives you an electrical discharge. I mean, it doesn't mean that there are none. You rarely see it. For example, "ruivo (Chelidonichthys cuculus, Trigloporus lastoviza, Chelidonichthys spp, Eutrigla gurnardus, Lepidotrigla, Trigla lyra* but most probable *Chelidonichthys lucerna)"... I remember when I was a kid, when I was about seven, eight years old... there were many.*" (Participating Fisherman No. 2)

Normally, participating fishermen observe changes in seawater temperature and/or quality, from the type of fish and/or its quantity or from other plants and / or existing sea animals:

From what I hear, more on the basis of our sardine pub talk, they work more on temperatures... Because, well... A few years ago, around this season, the water was already fourteen, fifteen degrees, and now it's twelve. And, all of a sudden it rises over a month, and gets higher than before... I think we have a bigger gap between low and high temperatures. We have more fluctuation and previously the temperature was maintained for longer periods of time. (Participating Fisherman No. 9)

Cold waters, cold temperatures, more wind... This year, for example, it was a very bad year... These last six months, we couldn't stay a whole week at sea! (...) Due to wind and bad weather conditions, and the temperature, extremely cold waters. We would go out to sea and come empty handed! It's been changing quite a lot. And besides, at this point the water is much colder than in the previous years. The fish simply disappears, it doesn't come. This year there was no seabass. Not much sole fish... This has everything to do, in my opinion, with the water temperature. (Participating Fisherman No. 11)

Along our shorelines... water temperature is rising or decreasing? We are lead to believe... although there are no people studying it... We are lead to believe that the water temperature is tending to rise... We suppose. Why? Then what is being inserted? We have a new species... it has already being inserted... well... we've been catching some fish... meagre. About six, seven years ago... it wasn't normal... we never had it before in our country... we were invaded with that species, in immature condition... therefore, we are lead to believe that, in truth, that the temperature has been rising, because that animal, didn't use to live on these water temperatures. I relate it with... with what I've learned down south, along the shores of Africa... Because that species is abundant in those waters (Participating Fisherman No. 5)

One other participant questions about sea level rise and water pollution as the cause of sea weed disappearing:

A few days ago a North Pole report informed that those huge ice sheets, the icebergs, everything's breaking apart. Melting due to global warming... It's already happening. Of course! Maybe... sea level is rising because the water has to flow somewhere, right?!... Everything's related. It's probably happening now, because previously we could see seaweed level, which was one of best protections for fish... We were talking about that yesterday! It was a great protection for fish. Those "limbos-correia" (seaweeds) we had, huge, that used to float up... That was an amazing protection for fish! And it was good for people! They used to come all the way from farms, collect those "limbos (seaweeds)" to transform into manure... That has disappeared! We used to go through "malhadal" and

you couldn't set one foot because it was all... Now you can't find a single "limbo". It has really disappeared. It might also be due to contaminated waters. We used to have a speedboat in Porto Novo, and there was an old man that used to go there every summer, to collect those few "limbos" still available and dry them off, to make medicinal products. Those older people... and he used to say the same: It's getting worse every year! (Participating Fisherman No. 7)

Sociocultural Dynamics and Rationalities

Seeking liaisons in memory construction, the perception and daily practices of this group of fishermen in creels, hooks and nets, it could be observed that every participant is a descendant of fishermen families not originally from Peniche, except one case, where the mother is a Peniche native. Better conditions offered by the safe haven for fishing activities was the main reason that helped them decide about coming to Peniche.

With regard to the term "artisanal fisherman" it could be observed that, besides the multiplicity of criteria in its definition, while for some participants the perception of their activity is defined, for others it's not:

I am an artisanal fisherman. What do you call artisanal? An artisanal fisherman is one that fishes on his own. That's artisanal. It becomes artisanal. Exactly. I mesh my own fishing nets, I make my own gear, you see here. Do you see it? Different categories. Do you see it? (Participating Fisherman No. 2)

We are like this, the life we live, we see ourselves as artisans. What's indeed artisanal, has no relation to creels, and has no relation to nets. We do everything manually, everything. Whatever you see after this, creels, nets, those are industrial gears. Everything we have, we pull our own gear... everything is done manually, we pull the gear manually, everything is manually, there are no machines... We release it manually, we have no machines, and we have zero machines. We have zero machines! (Participating Fisherman No. 4)

Another participant emphasizes fishermen plurality and some vulnerabilities:

When we speak about fishermen, we think about it in general... But that's not it. There are several types of fishermen... A lot! Let's see... There's the purse seine fisherman, which is definitely not related to artisanal fishing. There's the trawler fisherman, which is definitely not related to artisanal fishing. Then, we have distant-water fishing which is definitely not related to artisanal fishing. And then there's the artisanal fisherman... with than 10-meter boats an longer, which offer a certain stability, to bring a certain balance to his maintenance and sustainability, and there's the artisanal fishing fisherman, small boats which should have ended years ago.

He relates this situation to European policy guidelines to the sector and to technological, security issues and activity sustainability:

Let me tell you something: The European Union... You're aware our country makes many mistakes?! Many, many, many, many! And then some more! We all make mistakes and no one is perfect! Evidently, when the EU does this, it's 100 % wrong! We should practice artisanal fishing, which is an extremely sustainable fishing. But artisanal fishing with boats longer than X meters. A boat that is able to do some catches, not only along the coastline...

but with enough conditions to go 30, 40 miles away from the coast. The boat necessarily has to be in good conditions. Because a boat with 10 meters long, should never be less than 4 meters wide. That's the reason for stability. And there's another thing, The European Union is wrong, when it states it's doing it for artisanal fishing, it's a lie. If I own a small boat, and I have a 100hps engine, and that 100hps engine on my 10 meters long boat, runs at six miles. I need to use a 150hps engine. And the European Union doesn't give permission. The EU doesn't allow it. What's the policy? Where does stability and security stand? There's none! I never understood what's the reason behind the wrong policy adopted in Portugal.

Nevertheless, the same participant draws attention to the existence of a higher quantity of fish for human consumption:

There's more fish for human consumption due to the technological explorations carried out by trawlers. We have more fish here, but it's related to the technological explorations carried out nowadays. There are two types of fish for human consumption. Europe was invaded with fish for human consumption coming from non-partner countries... We are indeed the food source for, well not us, but Spain, and we get 50 % of fish coming from other countries. It shouldn't be like that. Coming from Chile, Morocco, down from Senegal, Mauritania, everywhere... (Participating Fisherman No. 1)

Another fisherman blames the markets, with their middle-men, in regard to the fishing effort he has to undergo and another participant refers the Government's liability for not introducing new technologies, less pollutant and more economic. Also the constraints created by the Government are mentioned, and pointed some reasons for maintaining greedy behaviours over money.

Regarding society's perception of fishermen, one of the participants shares his thoughts, his fears, his anger, and his strategy in social relations. His perception, in our opinion, indicates a low social capital:

We are not well attended, we are not treated respectfully. Why don't they speak to me just like you, madam, are doing now? When I have to go somewhere to take care of stuff, I'm put aside because I'm a fisherman. It's not what I sense, it's what I see! And I haven't been around during my father's years. You're really treated badly! And don't raise your voice, otherwise... you might be subjected to fines, fights and what else... And I can assure you it's because I'm a fisherman! Because if you're a fisherman you're the lowest in society... People live under the illusion that all fishermen are poor! And they are all dumb, they know nothing! Many people interact with me and aren't aware I'm a fisherman...

And, afterwards, his own perception filled with resistance:

I feel that because I'm a fisherman, I feel like they'll have to pay me whatever I ask for to go out to the sea. That's what will happen in fifteen or twenty years' time. They'll have to pay me whatever I ask for to go out to the sea! Because this will all be over! They find ways of finishing everything..Either they pay us whatever we ask for or we won't go out to sea. Either they comply with our rules... Because this... Things are changing. There are few young people, and they don't get it! Things are changing and in a few years' time, instead of complying with their rules, we will dictate the rules. They will ask us to go out and we'll say: No, no... (Participating Fisherman No. 3)

From a wider perspective, another fisherman, while comparing Climate Change and Global Warming, perceives poverty risks, social atomism and lack of security as his biggest fears for the future:

Either related to land or sea, in fishing. What we see and hear, face to face, is hundreds and hundreds of companies going bankrupt. And there's no help available. Nowadays you have the rich man and the poor. We used to have the middle class. Nowadays there's no middle class men, only rich and poor. Our country is in this situation and there are no improvements. If there's no assistance to fishing companies, and support, our country won't move forward. Why? Because there will be no companies paying taxes... Do you understand? To the Government and to the State, to say the least. There won't be. And then they will withdraw support policies. They will withdraw support for lower workers, with a miserable wage for his meals, surviving, sometimes with not enough money to pay his rent, not enough for his food, counting pennies. Loads of them... There has never been as much suicides as nowadays. The Company went bankrupt, people can't hold on, they can't stand it, their heads spinning the whole time, spinning, and spinning, and spinning until... leading to suicide. And it leads small couples that share... the same small wage, a minimum wage, a minimum wage, to the same situation. We can observe more people in the streets... Before there was no homeless people in Peniche. Before... we used to have more freedom. You could... walk the streets with no worries. Now you can't walk around in the streets. You can't walk around at night, it's terrible with the robberies. Robbing their own people! (Participating Fisherman No. 10)

Regarding ways of participating in behaviour's change in order to better deal with Climate Change mitigation, or adaptation, one of the participants comments, while expressing the complexity of the situation and the different levels of intervention:

If it's on my boat, I suppose I would have to initiate it. But if it starts coming from a superior hierarchy, at the highest position, and afterwards it starts flowing down, until everyone complies. Hardly, but... On my boat it would have to be me, or at my workplace, if I had a different workplace, I would try to do it, but if it's supposed to happen worldwide, only a wider organization like the UN, I suppose... That's my opinion. (Participating Fisherman No. 9)

It was observed that, sharing knowledge and responsibilities during their quest is always welcome, just as long communication forms and procedures are duly protected:

Look. Let me tell you something. I've always believed in science. Believe me. There's no doubt about it. I truly appreciate scientists worldwide. In every single field. Not only those related to Weather. In every single field, right? Every single field. And when I speak about Science, I'm referring to those whose ears stop to hear, and whose eyes stop to watch. I would say: knock at the right people's door and outline real values, so the boat reaches its destination... Because, you know there's a world of interests everywhere... If you'd knock another door instead of knocking the Municipality door first, they would be offended and it would not be possible to go through with it. Without the awareness and regard for the Municipality's interests, nothing can be done. Or some would do it, while others would ruin it.

And this participant shares an inclusive knowledge of an implementation proposal regarding a sustainable lifestyle, on the basis of goodwill, respect and work at every level:

Let's see. When children are born, parents should provide education, right? For the Municipalities to have this education to pass it on to its citizens, the order has to come from above and the governmental order has to come from the universe of all countries in the world... It begins with the universe of every country in the world, and then it's up to the

governments… and then it reaches the municipalities, and afterwards the parish councils… and following parish councils, every single human being. But we should make a sum of all human beings' responsibility. That law should be easy to make, since we have a good relationship with people, we are at ease… Because it's not acceptable with a stranger… But if it's someone well integrated and capable of exposing… approaching the subject well, and carry it out with diplomacy, it shouldn't be difficult. But you have to listen, observe and plan everything very well. That's not difficult. There should only be respect. Respect for everyone. If a person is well accepted in the community, you can do anything. By force… there's no way! (Participating Fisherman No. 1)

On the other hand, every participant, including those who collaborated with the preparation interviews for field work, denied the existence of any contact related with Climate Change or Global Warming, on behalf of any political, scientific or technical entity.

Participating fishermen also referred this interview wouldn't change much their way of thinking or acting, since it's not 'their' field. Unless, of course, next time they hear someone speaking about Climate Change they will surely remember this conversation and pay more attention. And, although they don't consider themselves the right person, most of them were willing to participate whenever necessary, just as long it's not affecting their daily fisheries.

After verifying the non-existence of a clear incentive, by political impulse, for an active polyphonic dialogue, in order to promote an environmentally responsible behaviour, entrenched in cultural senses, the political action runs, in our opinion, into a discordant and indelibly uncomfortable situation, with the loss of human lives, particularly the weaker ones, non-human and habitats. i.e., in practice and as last resort, instead of an official speech, it is observed a strong contribution of political action in maintaining harmful practices, through the protection of power and knowledge which, when submitted to neoliberal hegemony and/or personal interests, do not promote society, nor inclusion, nor the pursuit of sustainable ecological resolutions.

Findings

In the course of the investigation process, and bearing in mind the study of a social reality is the study of an intrinsically complex and dynamic reality, it was particularly interesting to observe, throughout the work's structure and elaboration, the transmutation of the emotional relation associated to the object of study to a meta-position regarding the observed.

After a theoretical framework it was tried to build an investigation work that allowed, in its execution, to satisfy the curiosity raised by knowledge and lay rationalities and, with that, have access to a knowledge slice about a context sociability, centred on the professional activity of a small participating group, of creels, hooks and net fishermen, regarding Climate Change and Extreme Events,

leading to a better comprehension of social action in this small group and, as a consequence, of the society where these people are integrated.

Thus, issues raised by the actual climate and environmental crisis and the way this crisis was built in its essence—on a diachronic perspective—is mainly related to human societies and their future. Either from the relations (de)constructed between them, or from relations (de)constructed with other beings and the environment, as a result of the effects of the inter-influences between those complex relations with the complexity of climate and environmental systems.

On the basis of what was observed during field work, and our thoughts, it's regarding a group of people trying to survive in a society where, besides not having a great social capital, isn't fully visible either for political power or scientific power. Nevertheless, these are people who pay their taxes, and work within a structured society bringing capital gain to that same society. Organized. Hierarchical.

From the work developed, it was observed in this group that this people are conscious of the social, environmental and climate crisis we are living and its complexity. They even have idea of how we, humanity, reached this situation and how we could track more sustainable paths. On the other hand, they are aware of games of interests—where they also play a role, but most of the times are victims—as well as they are aware of harmful social and environmental practices. Furthermore, they also use harmful practices, as a last resort, harmful for human beings, but on a daily basis that helps them survive in the society they are integrated.

Considering the scarcities in knowledge, power asymmetry and lifestyles, the uncertainty, space and time, ignorance, inter-influence and multi-dimension complexity, mostly conflicting or paradoxical, on the climate, environmental and sociocultural system, where the plural subject is a reflexive actor, lay knowledge is considered as a valid form of knowledge, and the observation of their practices as an heuristic capital gain.

In light of the viewed, amidst a climate, environmental and social crisis which, as a last resort, questions human survival, the question that arises, recalling Arendt (2013): If, just like a fungus, built over social structures and institutions, has spread itself and impregnated the gaps in social tissue, with the naturalization of social and environmental harmful practices amongst ordinary people?

References

Alves F (2011) A Doença Mental Nem Sempre é Doença. Racionalidades Leigas sobre a Saúde e Doença Mental—Um Estudo no Norte de Portugal. Afrontamento Ed., Oporto, Portugal, p 293. ISBN:978-9723611335

Alves F, Caeiro S, Azeiteiro UM (2014) Lay rationalities of climate change. Int J Clim Change Strategies Manage 6(1):1756–8692. ISSN:1756-8692, Emerald Group, Bingley, UK. http://www.emeraldinsight.com/journals.htm?issn=1756-8692&volume=6&issue=1

Arendt H (2013) Eichmann em Jerusalém—uma reportagem sobre a banalidade do mal, 3rd edn. Tenacitas Ed., Coimbra, Portugal, 385p. ISBN:978-972-8758-09-7

Bardin L (2013) Análise de Conteúdo, 5th edn. Edições 70, Lisbon, Portugal, p 281. ISBN:978-972-44-1506-2

Bitencourt NLR, Rocha IO (2013) Percepção das Populações Costeiras sobre os Efeitos dos Eventos Adversos no Extremo Sul de Santa Catarina—Brasil * Perception of coastal populations on the effects of adverse events in the extreme South of Santa Catarina—Brazil. Revista de Gestão Costeira Integrada/Int J Clim Change Strategies Manage 14(1):15–25. doi:10.5894/rgci408

Bohensky EL, Butler JRA, Davies J (2013) Integrating indigenous ecological knowledge and science in natural resource management: perspectives from Australia. Ecol Soc 18(3):20. doi:10.5751/ES-05846-180320

Bohensky EL, Maru Y (2011) Indigenous knowledge, science, and resilience: what have we learned from a decade of international literature on "Integration"? Ecol Soc 16(4):6. doi:10.5751/ES-04342-160406

Brace C, Geoghegan H (2010) Human geographies of climate change: landscape, temporality, and lay knowledges. Prog Hum Geogr 35(3):284–302. doi:10.1177/0309132510376259

Calado M (1968) Peniche na História e na Lenda. 2nd Author's Ed., Lisboa

Câmara Municipal de Peniche (2009a) PENICHE 2025—Diagnóstico Estratégico, Estratégia de Desenvolvimento e Programas de Actuação. Magna Carta, Peniche, 321 p. http://www.cm-peniche.pt/_uploads/PDF_MagnaCarta/Magna_Carta_Peniche2025_Completa_vFinal_imp_08_2011.pdf

Câmara Municipal de Peniche (2009b) Anexo—Metodologia de Prospectiva. In: Estratégia Peniche 2025, pp 287–317. http://www.cm-peniche.pt/_uploads/PDF_MagnaCarta/Magna_Carta_Metodologia_de_Prospectiva.pdf

Castells M (2007) O Poder da Identidade. In: A Era da Informação: Economia, Sociedade e Cultura. Vol. II., 2nd edn, Calouste Gulbenkian Foundation—Education and Scholarship Service, Lisbon, Portugal, 627 p. ISBN:978-972-31-1194-1

CE (2011) Reforma da política comum das pescas. In: Comunicação da Comissão ao Parlamento Europeu, ao Conselho, ao Comité Económico e Social Europeu e ao Comité das Regiões. COM (2011) Final. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0417:FIN:PT:PDF

Dawn T, Gray T (2005) Fisheries science and sustainability in international policy: a study of failure in the European Union's Common Fisheries Policy. In: Marine Policy. Elsevier, pp 189–197. doi: 10.1016/j.marpol.2004.03.003

Delicado A, Schmidt L, Guerreiro S, Gomes C (2012) Pescadores, conhecimento local e mudanças costeiras no litoral Português. Revista de Gestão Costeira Integrada/J Integr Coast Zone Manage 12(4):437–451. doi:10.5894/rgci349

Edelenbos J, Van Buuren A, Van Schie N (2011) Co-producing knowledge: joint knowledge production between experts, bureaucrats and stakeholders in Dutch water management projects. Environ Sci Policy 14(6):675–684. doi:10.1016/j.envsci.2011.04.004

Barbier EB (2014) A global strategy for protecting vulnerable coastal populations. Science 345 (6202):1250–1251. doi:10.1126/science.1254629

Fidalga ABP, Seixas S, Azeiteiro UM (2014) Estudo das Perceções da Comunidade da Palmeira (Ilha Do Sal, Cabo Verde) Sobre a Sustentabilidade das Pescas. Revista de Gestão Costeira Integrada/J Integr Coast Zone Manage 14(1):41–49. doi:10.5894/rgci446

Garai J (2014) The impacts of climate change on the livelihoods of coastal people in Bangladesh: a sociological study. In Leal Filho W, Alves F, Caeiro S, Azeiteiro UM (Eds) International perspectives on climate change: Latin America and beyond. Springer, Heidelberg, 316 p. 69 illus ISSN:1610-2010, 1610-2002 (electronic). ISBN:978-3-319-04488-0 ISBN 978-3-319-04489-7 (eBook). doi:10.1007/978-3-319-04489-7 Library of Congress Control Number: 2014934670, pp 151–163

Grawitz M (1993) Méthodes des sciences sociales, 9th edn. Dalloz, Paris, France, pp 569–631. ISBN:2247015581, 9782247015580

Guerra IC (2012) Pesquisa Qualitativa e Análise de Conteúdo—Sentidos e formas de uso. Ed. Principia, Cascais, Portugal. p 95. ISBN:978-972-8818-66-1

Guilherme I (2010) Amar Peniche. Author's Ed., Peniche, Portugal, 95p. Legal Deposit: PT| 312756/10

Houde N (2007) The six faces of traditional ecological knowledge: challenges and opportunities for Canadian co-management arrangements. Ecol Soc 12(2), 34. ISSN:1708-3087. Acadia University, Wolfville, Nova Scotia, Canada. http://www.ecologyandsociety.org/vol12/iss2/art34/

Mendes JM, Tavares AO, Cunha L, Freiria S (2011) Vulnerabilidade Social aos Riscos Naturais e Tecnológicos em Portugal. Revista Crítica de Ciências Sociais 93:95–128. Centro de Estudos Sociais, Coimbra, Portugal. ISBN:9789352541102

Nagy GJ, Muñoza N, Verocaia JE, Bidegaina M, Seijoe L (2014a) Adjusting to current climate threats and building alternative future scenarios for the Rio de la Plata coast and estuarine front, Uruguay. Revista de Gestão Costeira Integrada/J Integr Coast Zone Manage 14(4):553–568. doi:10.5894/rgci472

Nagy GJ, Seijoe L, Verocia JE, Bidegain M (2014b) Stakeholders climate perception and adaptation in coastal Uruguay. Revista de Gestão Costeira Integrada/Int J Clim Change Strategies Manage 6(1):63–84. doi:10.1108/IJCCSM-03-2013-0035

Paton K, Fairbairn-Dunlop P (2010) Listening to local voices: Tuvaluans respond to climate change. Local Environ 15(7):687–698. doi:10.1080/13549839.2010.498809

Santos AJFR, Azeiteiro UM, Sousa F, Alves F (2012) A importância dos conhecimentos e dos modos de vida locais no desenvolvimento sustentável: estudo exploratório sobre o impacto da Reserva Natural das Ilhas Berlengas na comunidade piscatória * The role of knowledge and the way of life of local inhabitants in sustainable development: an exploratory study on the impact of the natural reserve of the Berlengas Islands on the life of its local fishing community. Revista de Gestão Costeira Integrada/Int J Clim Change Strategies Manage 12(4):429–436. doi: 10.5894/rgci321

Seixas S, Hoeffel JLM, Renk M, Silva BN, Lima FB (2014) Percepção de pescadores e maricultores sobre mudanças ambientais globais, no litoral Norte Paulista, São Paulo, Brasil * Perception of fishermen and shellfish producers on global environmental changes in the Northern Coast of São Paulo State, Brazil. Revista da Gestão Costeira Integrada/J Integr Coast Zone Manage 14(1):51–64. doi:10.5894/rgci424

Souto H (2003) Comunidades de Pesca Artesanal em Portugal. Communication presented at the Marine Academy on March 23rd 2003. http://www.henrique-souto.net/resources/Comunidades%20de%20Pesca%20Artesanal%20em%20Portugal.pdf

Touraine A (2005) Um Novo Paradigma—Para Compreender o Mundo de Hoje. Col. Epistemologia e Sociedade. Piaget Institute, Lisbon, Portugal, 251 p. ISBN:972-771-822-1

Verocai JE, Gómez-Erachea M, Nagya GJ, Bidegain M (2014) Addressing climate extremes in coastal management: The case of the Uruguayan coast of the Rio de la Plata System. J Integr Coast Zone Manage 15(1):91–107. doi:10.5894/rgci555

Viegas VM, Azeiteiro UM, Dias JA, Alves F (2014) Alterações Climáticas, Perceções e Racionalidades * Climate change, perceptions and rationalities. Revista de Gestão Costeira Integrada/J Integr Coast Zone Manage 14(3):347–363. doi:10.5894/rgci456