



Utrecht University

MSc Sustainable Development - Environmental Governance



Controversial Fishing: the Strategies of the Fishing Industry in Response to Institutional Pressures in the Deep-Sea Bottom-Trawling Sector in France.

Master's Thesis

Samy Porteron

Supervisor: Hens Runhaar

Second reader: Frank van Laerhoven

July 2015

Preface

There is little that predestined me to delve into the topic of fisheries. Apart from my admiration for nature above and below the surface of water, it is certainly the innately human context of controversy that drew me. Personal development and reflection over the years of my studies in university has driven me to be interested in how we can make current business practices more sustainable, and with this topic one is brought at the crossroads between science, politics, business and the natural environment.

I engaged this research project after reading about deep-sea bottom-trawling from the publications of environmental NGOs and with the intention of finding out how industry interests could find their way into policy decisions that determine how we want to deal as a society with the management of our impacts on ecosystems. After signing petitions and preparing myself for what I thought would be a project entrenched on the side of environmental defense, I learned to moderate my feelings and critically approach the topic with an interest in finding out truths from both sides of this debate.

Now, I do not like to eat fish since the taste simply repulses me, however fishing is probably here to stay in one way or another. If certain practices are banned, others will always appear that will instill similar controversies as the one addressed in this paper. However I believe society is able to make progress in dealing with the relationship of interdependence that we have with the natural environment. While conflicts may always be part of the way, I also hope it is possible to reach some kind of harmony in the diversity of values and beliefs that compose our society and address the various challenges that we are facing. In this aim I tried to enter this complex topic with something that as much as possible would reach for objectivity in the aim of respecting the views of the people whom I've met and whose stories I've heard.

With this I would like to sincerely thank all the people that helped me out in carrying out my work, starting with my supervisor Hens Runhaar who has always been very supportive but also challenged me in ways to strive for excellence. I am also very thankful to the people who agreed to meet with me, as well as those who hosted me in Lorient and Boulogne-sur-Mer, some of whom were of incredible help for the advance of my research. Finally I want to thank my sisters and my parents, who offered me support and encouragements in this last step of my master studies.

Abstract

Deep-sea bottom trawling ranks among those fishing practices most decried in fisheries science due its long-term impacts on fragile deep-sea ecosystems. The call originating from fisheries scientists and the environmental non-governmental sector has in the past fifteen years or so frequently resonated in the media and reached a large audience impassioned for the protection of the natural environment against human activities. Following these trends, receptive legislators opted for swift and drastic solutions to curtail the intensity of fishing pressures and even end the practice. Were it not for the resistance of the fishing sector and a handful of supportive politicians, deep-sea bottom-trawling may have been banned in Europe as it is already in other parts of the world. Professionals however contest the socio-economic impacts that such measures could have had on a fishing sector already in crisis and plead for the recognition of their efforts to manage fisheries resources with a long-term vision.

Anxious about the future of their profession and trade, fishers evolve in a context of intense pressures from environmental groups, rapidly changing winds in policy-making, deep-rooted economic problems and the relatively modern and growing concern that their activity is able to cause serious impacts on marine ecosystems. This raises the question of how fishers perceive and are responding to these issues, but also whether they really are trying to do things differently than earlier times when European fisheries were thought to be inexhaustible.

In order to find out, this research pieces together a timeline of events for the period of 2000 to late 2014 and draws from a large extent of data, including over 500 newspaper articles and the accounts of 23 respondents from different circles of stakeholders. The results are an in-depth analysis of the evolution of the strategies and practices of the deep-sea bottom-trawling sector in the context of France, and insights into the social processes and practicalities that can bring an industrial sector to seek to address the impact of its activities on the natural environment.

Table of Contents

I - Introduction.....	8
1) <i>Problem definition</i>	8
1.1) Issues in the governance of European fisheries	8
1.2) The controversy over deep-sea bottom-trawling.....	9
2) <i>Research objectives and research questions</i>	10
3) <i>Research outline</i>	11
II - Theoretical Background	12
1) <i>Introduction to the theory</i>	12
2) <i>Theoretical framework</i>	13
2.1) Dependent variables: strategies.....	14
2.2) Dependent variables: extent of the industrial activity.....	15
2.3) Independent variables: explanatory factors.....	16
2.4) Independent variables: institutional pressures.....	22
III - Methodology	24
1) <i>Introduction</i>	24
2) <i>The case</i>	24
3) <i>Data collection methods</i>	25
3.1) Field research	26
3.2) Desk research	28
4) <i>Operationalization of variables</i>	30
4.1) Strategies.....	30
4.2) Extent of DSBT activity.....	32
4.3) Explanatory factors.....	32
4.4) Institutional pressure.....	33
5) <i>Results and analysis of the data</i>	36
5.1) Introduction.....	36
5.2) Timeline results	36
5.3) Description of events (Annex 4)	36
5.4) Identifying trends	37
5.5) Case study analysis and cross-case comparison.....	37
6) <i>Covariance, asymmetry and non-spuriousness</i>	38
7) <i>External validity</i>	38
8) <i>Biases and limitations</i>	39
IV - Case Study Background.....	40
1) <i>Introduction</i>	40
2) <i>The French industrial fishing sector</i>	40
2.1) Introduction.....	40
2.2) General trends and evolution of the French industrial fishing sector.....	40
2.3) French deep-sea bottom-trawling activity in the North East Atlantic.....	42
3) <i>The French fish supply chain</i>	44
3.1) Introduction.....	44
3.2) The functioning of the supply chain	44
4) <i>The network of fishing industry organizations</i>	46
V - Results and Analysis.....	47
1) <i>Introduction</i>	47
2) <i>Timeline results</i>	48
2.1) Industry strategies.....	48
2.2) Institutional pressures.....	49

2.3)	Extent of DSBT activity.....	51
3)	<i>Identifying trends in institutional pressures and industry strategies.....</i>	58
4)	<i>Analysis.....</i>	62
4.1)	Introduction.....	62
4.2)	Part one: the French fishing industry.....	62
4.3)	Part two: individual cases of ship-owners.....	70
4.4)	Part three: The changing extent of DSBT activity.....	76
4.5)	Part four: Counterfactual.....	77
VI - Discussion.....		78
1)	<i>Answering the research questions.....</i>	78
2)	<i>Theoretical implications.....</i>	80
3)	<i>Policy recommendations and further research.....</i>	81
4)	<i>Study limitations.....</i>	82
References.....	<i>Error! Bookmark not defined.</i>	
Annex 1 Additional information on methods.....		90
1)	<i>List of respondents.....</i>	90
2)	<i>Questions addressed to respondents during interviews.....</i>	91
3)	<i>Example of an email sent to a ship-owner (respondent).....</i>	92
4)	<i>News sources from Lexis Nexis.....</i>	93
5)	<i>Descriptions of operationalized factors.....</i>	95
Annex 2 Additional contextual information.....		98
1)	<i>What is the deep-sea?.....</i>	98
2)	<i>What are deep-sea species?.....</i>	98
3)	<i>What is deep-sea bottom-trawling?.....</i>	100
4)	<i>Issues of the controversy: what are the environmental impacts of DSBT?.....</i>	101
5)	<i>Tables and figures.....</i>	103
6)	<i>Description of FIOs.....</i>	104
6.1)	Ship-owners associations.....	104
6.2)	Fisheries and aquaculture committees (national, county and local levels).....	104
6.3)	Producer organizations.....	105
6.4)	Regional Advisory Councils.....	106
6.5)	Lobby groups.....	106
6.6)	Individual mobility within the French fishing sector.....	107
7)	<i>Scientific organizations.....</i>	108
Annex 3 July 2009-July 2010: The Deep-Sea Fisheries Mission.....		109
Annex 4 Description of events.....		110
<i>Introduction.....</i>		110
1)	<i>2000-2003: Early regulation.....</i>	110
2)	<i>2004-2008: Growing concerns.....</i>	112
3)	<i>2009-2010: The Mission on Deep-Sea Fisheries.....</i>	118
4)	<i>2011-December 10, 2013: Escalation and peak of the controversy.....</i>	122
5)	<i>(December 10, 2013)-2014: After the European Parliament's vote.....</i>	133
Annex 5 Normative pressure in the news.....		136

Table of Figures

Figure 1 Conceptual model.....	13
Figure 2 Oliver's (1991) strategies and tactics.....	14
Figure 3 Ship-owners' DSBT activity.....	15
Figure 4 Factors and sub-factors (based on Oliver, 1991).....	16
Figure 5 Conceptual model of the different networks of the case.....	18
Figure 6 Map of ICES areas surrounding the United Kingdom. Marine Scotland (2010). http://www.gov.scot/Publications/2010/09/15155811/48	43
Figure 7 Diagram of the French deep-sea fish supply chain network.....	44
Figure 8 Diagram of the network of fishing industry organizations at various levels.....	46
Figure 9 French landings and quotas of Roundnose Grenadier, Black Scabbardfish, Orange Roughy and Blue Ling in tonnes between 2000 and 2015 for France.....	53
Figure 10 Total landings and quotas of all four deep-sea species in tonnes between 2000 and 2015 for France (see the table and related notes above).	Error! Bookmark not defined.
Figure 11 Landings of selected and deep-sea species in tonnes in Boulogne-sur-Mer between 2000 and 2014..	54
Figure 12 Trawling areas by French DSBT vessels in 2003 (in red) compared to 2011 (in green) off the North-Western coast of Scotland. Pêcheurs de Manche Atlantique (n.d.).	56
Figure 13 Thirteen maps representing a portion of Scapêche's fishing zones and trawling activity (yellow lines) between 2000 and 2013, computed from VMS data.....	57
Figure 14 Layers of the ocean. Diagram retrieved from the US National Oceanographic and Atmospheric Administration, (2014).	98
Figure 15 Roundnose Grenadier. Wikipedia, 2013.....	99
Figure 16 Blue Ling. Fisheries.no, n.d.....	99
Figure 17 Black Scabbardfish. Wikipedia, 2015.....	99
Figure 18 Orange Roughy. Irish Sea Fisheries Board, 2015.....	99
Figure 19 Diagram of a bottom-trawl. Goodfishbadfish, (n.d.).....	100
Figure 20 Diagram of a long-line gear. Goodfishbadfish (2015).....	100
Figure 21 Brent crude oil prices in US dollars per barrel between January 2000 and December 2014. Source: Datamarket (2015).....	103
Figure 22 Fish and seafood supply quantity (in tonnes) available for consumption in France between 1961 and 2011. Source: FAO Statistics.....	103
Figure 23 Network diagram showing the mobility of individuals in the fishing sector.....	107
Figure 24 On the left: 'Responsible Fishing' logo. On the right: MSC logo.....	118
Figure 25 Still from the filmed press conference organized at the European Parliament for the creation of association Blue Fish (i.e. Sea to Sea, 2013).....	130
Figure 26 Illustration retrieved from the comic strip (Bagieu, 2013).	131
Figure 27 Number of news articles from the Lexis Nexis search and recorded signaling normative pressure to reduce DSBT for each year between 2000 and 2014.....	136

I - Introduction

1) Problem definition

1.1) Issues in the governance of European fisheries

The European fisheries sector is regularly facing ecological, economic and social crises to which policy-making has had trouble finding solutions. While environmental sustainability is a central concern of marine policies—for example in the European Common Fisheries Policy (CFP)—analyses recurrently have deemed the CFP to have been ineffective (European Court of Auditors, 2011; Khalilian *et al.*, 2010). Studies present examples of the blatant lack of compliance to allowable catches (Da Rocha *et al.*, 2012) and conclude that most European fisheries are overexploited, meaning that fish stocks are dwindling and marine ecosystems are impoverished (Salomon & Holm-Müller, 2013).

At the same time, scientific institutes advising policy-makers in Europe have difficulty in assessing the state of marine ecosystems, which leads to uncertainty and approximation in the formulation of clear advice (Cochrane, 2000) and impede on the consistent, unambiguous and effective implementation of regulation for fishing practices and stocks management (Khalilian *et al.*, 2010; Lequesne, 2003).

In addition the fact that fishers face dramatic fluctuations in the cost of their activity mainly due to the instability of fuel prices and that their activity is increasingly monitored and regulated has not facilitated social peace and understanding between constituents (Mesnil, 2008). Fishers have thus complained about the loss of autonomy in the profession, the lack of trust placed in their traditional knowledge, the inappropriateness of regulation to their practices, and the excessive focus on the management of biological resources at the expense of the social welfare of people in the sector (Lequesne, 2003).

Recent European policy has tried to address this combination of issues. The Marine Strategy Framework Directive ('MSFD'; 2008, p20) thus gives Member States the objectives of "achieving or maintaining good environmental status in the Community's marine environment". In this aim and according to the Framework Marine Spatial Planning Directive (FMSP), Member States must "consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector" (i.e. in establishing and implementing maritime spatial planning measures; 2014, p137). As van Hoof (2015, p23) suggests, the implementation of such a vision requires to address and understand the "traditions and visions on how to use the sea and how to manage people" in different regional contexts and the "varying degrees of influence on policy making" of "different sectors and actors (...) as a result of differing national interests and priorities". With these remarks I want to introduce the specific case of the controversy in Europe over the management of deep-sea bottom-trawl fisheries in the North East Atlantic.

1.2) The controversy over deep-sea bottom-trawling

Deep-sea bottom-trawling (DSBT) is a fishing practice whereby nets are dragged on the deep seafloor to catch benthic or demersal species (living on or near the seabed; see also Annex 2 Additional contextual information.). Although it accounts for less than one percent of the world's total fish catch (DSCC, 2005), evidence shows that DSBT can be highly disruptive of marine ecosystems (Watling & Norse, 1998; Pham *et al*, 2014). DSBT has also been criticized for the difficulty in improving selectivity and thus its important discards (i.e. throwing unwanted species back into the water) (Kelleher, 2005). In Europe the management of deep-sea fisheries has changed significantly since the beginning of the activity in the mid- or late 1980's (Avenir des Pêches Profondes, 2010) following intense pressures to reduce and ban DSBT activity to prevent irreversible harm.

Up until twelve years ago European deep-sea fishing was a largely unregulated activity. Before the introduction of a regime of access and effort for these fisheries in 2003 (EC Regulation 2347/2002) catches of deep-sea species had already dramatically decreased due to the overexploitation and depletion of the stocks (Ifremer, 2012). DSBT—as most other fishing activities—was also largely subsidized by national governments who were blamed for encouraging overfishing in European waters (Cour des Comptes, 2010; Mesnil, 2008; New Economics Foundation, 2013). These concerning trends became known in Europe in the early 2000's as science was catching up with the state of these practices, and non-governmental organizations (NGOs) and intergovernmental organizations started to raise the alarm and demand a moratorium on deep-sea fishing activity to curb its impacts on deep-sea ecosystems and stocks around the globe (UNEP, 2004). This environmental movement captured the attention of politicians and the public, flaring up a controversy over the sustainability of deep-sea fisheries in view of the sensitiveness of these species to fishing activity (see for example Norse *et al.*, 2012). The controversy was fuelled on both sides by palpable hostility and manifested by denigration and accusations, with European policy-making being in the eye of the cyclone and trying to mitigate the impacts of DSBT. Most notably in December 2013, the European Parliament voted on a reform from the Commission of EC Regulation 2347/2003 which proposed to further regulate and even ban the practice (European Commission, 2012). The Parliament adopted the text with amendments (European Parliament, n.d.) while rejecting the ban, and journalists and NGOs have underlined the role of industry lobbying in this outcome (Rabesandratana, 2013).

Fishing industry organizations (FIOs) in the DSBT sector operate in an unstable environment where scientists, political figures and environmental NGOs dispute the practice of DSBT and exert strong institutional pressure, which can be defined as the set of demands and expectations of societal actors (constituents) regarding the industry's practices or activities. These pressures aimed to curb or end DSBT activity as deep-sea fisheries are highly sensitive ecosystems which can only sustain low levels of exploitation (interview with Ifremer respondents; intervention of Philippe Cury during *Pêche profonde : l'encadrer ou l'interdire ?*, 11 March 2015). This situation raises the question of whether institutional pressures have impacted the strategies of the fishing industry and successfully reduced the extent of DSBT activity.

2) Research objectives and research questions

The literature on institutional and resource dependency theory have established that organizations are subjected to different types of institutional pressures that combine with various factors defining their institutional environment and affect their decision-making (DiMaggio & Powell, 1983; Engau & Hoffmann, 2009 & 2010; Oliver, 1991; Pfeffer & Salancik, 1978). Oliver (1991) formulated a framework to typify these strategies on a scale from conformity to resistance to institutional pressures (acquiescence, compromise, avoidance, defiance and manipulation), which choice also depends on the degree to which they agree with the objectives of the pressures. Although the literature on the factors that can foster successful fisheries management models is profuse, there exists a gap in the scientific discussion regarding the role of institutional pressures and the explanatory factors that affect strategies of the fishing industry. My intention with this research is therefore to perform a systematic study of the events that took place over the period between 2000 and 2014 (included) in order to assess the extent to which the fishing industry changed its practices in response to institutional pressures by first observing the types of institutional pressures to reduce or ban DSBT activity that the fishing industry came under; find out about the different strategies the DSBT industry employed in response to perceived institutional pressures and explain how and why the industry adopted these strategies using a set of explanatory factors proposed in the theoretical literature; and finally observe and explain the change in the extent of DSBT activity over the fifteen year period. Consequently this research asks the following main question followed by three sub-questions:

To what extent has DSBT activity changed between 2000 and 2014 in relation to institutional pressures to reduce or ban it, the industry's strategies in response to these pressures, and the factors that allow to explain them?

1. What types of institutional pressures to reduce or ban DSBT has the fishing industry faced over this period?
2. What strategies has the fishing industry employed in response to institutional pressures aiming to reduce or ban DSBT over this period, and how can they be explained?
3. How has the extent of DSBT activity changed over this period?

The case of the controversy over this practice helps understand the strategies of the fishing sector in the context of European policy-making, scientific guidance and environmental activism. With this research I hope to provide solutions for policy-makers to the practical problem of the implementation of management methods that foster conformity to societal expectations while favoring consensus among stakeholders regarding measures to mitigate the ecological impacts of fishing practices in the same time that they encourage socio-economic prosperity.

3) Research outline

In a first instance I detail the theoretical background of my research, the framework of strategies and their effect on DSBT activity, followed by the list of explanatory actors that affect organizations' decision-making and the types of pressures they can be subjected to. Then I expose the methodology and methods used for this case study, how I operationalized variables, and how the results and analysis are presented. A description of the historical development of European industrial fisheries as well as of the specific case of DSBT in the North East Atlantic then follows based on literature and interviews. In order to prepare for an analysis of this industry I provide considerations regarding the fish supply chain and political network of FIOs. The next chapter contains the results and their analysis. I then conclude the paper and provide some recommendations for policy and future research. In the annexes the reader will also find useful or interesting information which complements and enriches the different chapters of this thesis.

II - Theoretical Background

1) Introduction to the theory

The exercise of explaining the behavior of organizations in relation to their context is a long tradition in the disciplines of sociology, political science and economics. The approach upon which I based my theoretical framework is rooted in sociology and more particularly in the two theories of organizational institutionalism and resource dependence, but also borrows from the other two disciplines. It focuses on the strategies of organizations in response to institutional pressures from constituents.

Philip Selznick was one of the first academics to lay down the foundations of organizational institutional theory. At the time of his writing, rationalism was a dominant view of how organizations acted in their environment, weighing the costs and benefits of their actions before making decisions. Selznick's (1949) key contribution to institutionalism was his questioning of the rational choice model which he confronted with the idea that the formal structure and activities of organizations was characterized by imperfect decision-making constrained by environmental conditions and institutional pressures, whereby decision-makers tend to follow norms, rules and behaviors that are expected of them (Tolberg and Zucker, 1996). The work of Selznick thus focused on providing the theoretical background to study the process by which organizations conform to their institutional environment as reflected in their values, goals and activities (Scott, 2001).

The rational choice and institutional models of organizations do not necessarily exclude each other, and indeed when institutionalism came under the critique that it placed too much emphasis on conformity and therefore was unable to explain how and why organizations resisted institutional pressures, authors pulled in elements of resource-dependence theory (Oliver, 1991; Tolberg & Zucker, 1996). This approach substantiated the fact that private organizations' activities were geared towards securing access to resources via the "exercise of power, control, or the negotiation of interdependencies" (Oliver, 1991, p149). Once again, rational choice was reinserted into organizational theory to account for self-interested rather than purely externally constrained behavior (Tolberg & Zucker, 1996).

The combined approach of institutionalism and resource-dependence particularly fits my interest in understanding how institutions that surround controversial business practices are changed by analyzing how ship-owners have come to either increase or decrease their DSBT activity over time. On the one hand, institutionalism studies the way in which institutions persist but also how they evolve and are replaced; in other words it tells us how norms, values and practices are institutionalized or deinstitutionalized (Scott, 2001). On the other hand, the resource-dependence approach allows to develop an understanding of how firms influence their institutional environment to maintain their power, autonomy, and access to resources (Oliver, 1991; Pfeffer & Salancik, 1978).

2) Theoretical framework

In this section I detail the theoretical framework and describe the conceptual model (see Figure 1) derived from the institutional and resource dependence literature, as well as my additions to it.

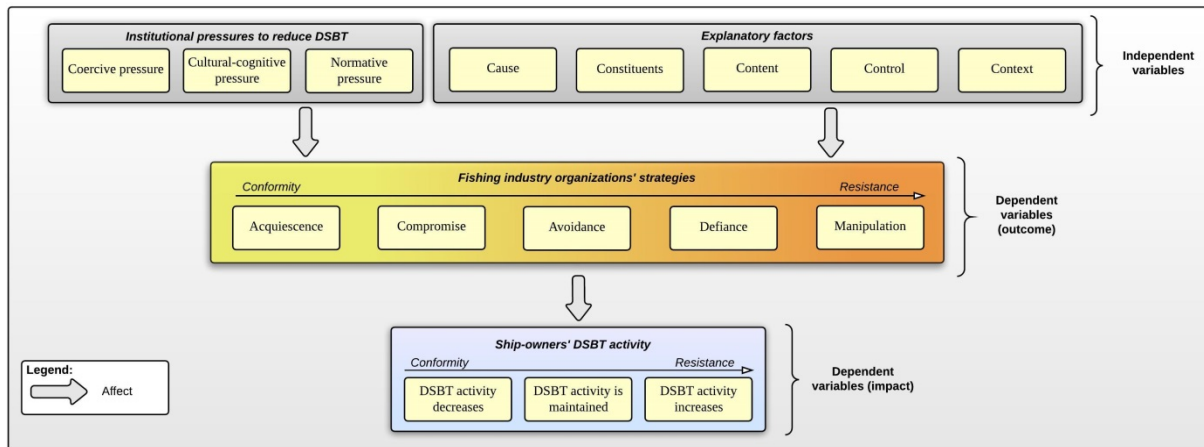


Figure 1 Conceptual model.

The dependent variables of the framework are first composed of the set of possible organizational strategies employed by *any* organization of the industry (i.e. fishing industry organizations or FIOs) in response to institutional pressures to reduce or ban this industry's activity (outcome). Second, another set of variables is used to assess the implication (impact) that these strategies have had upon the overall state of the industrial activity (DSBT) over time and find out if the pressures achieved their goal.

I then explain these strategies and their impacts using two sets of independent variables. These variables mainly serve to specify the nature of the pressures and the context in which they are exerted. First, Oliver's (1991) set of five explanatory factors mediate the relationship between institutional pressures and response strategies by identifying specific elements that characterize an FIO, its institutional environment and its constituents at a given instance of pressure. These explanatory factors allow to understand what comes into play in affecting the industry's decision-making. Second, I identify three types of institutional pressures based on Scott (2001). Typifying institutional pressures helps link them to specific constituents and identify how they can be manifested (i.e. their 'form', for example by law, through public protests, industry standards, etc.).

To sum up, this framework should make it possible to have an overview of the type of strategies adopted by industry organizations at large in response to certain constituents' and types of pressures, but also to explain these strategies and estimate the extent of the change in DSBT activity. The predicted relationship goes as follows: the greater the overall institutional pressures to reduce or ban the industry's activity, the more the industry will use strategies to conform, and the lesser the extent of the industrial activity.

2.1) Dependent variables: strategies

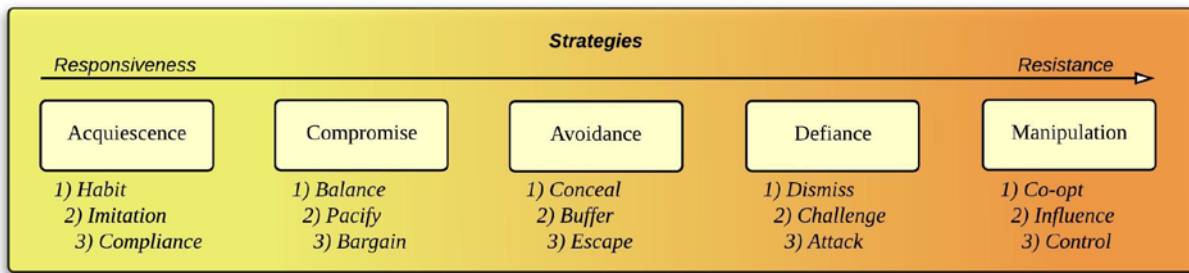


Figure 2 Oliver's (1991) strategies and tactics.

Oliver's (1991) typology of organizations' strategic responses to environmental conditions and institutional pressures sets them on a scale from conformity to resistance. In order of increasing resistance: recognizing the need to change or comply (acquiescence), balancing internal interests with constituents' expectations (compromise), safeguarding the organization from having to change by avoiding pressures (avoidance), openly refusing to accede to the pressures (defiance), and trying to influence or even control the content of the expectations or sources of the pressures (manipulation) (Oliver, 1991; see Figure 1 above and Table 2 in the Methodology chapter). Oliver (1991) proposes three 'tactics' for each strategy to further refine the analysis (*idem*).

Conformity and resistance to institutional pressures to reduce or ban DSBT activity may either be expressed or enacted, particularly in the context of a mediatized controversy where communication is an important strategic means of responding to institutional pressures (e.g. advertising, press releases, giving interviews to journalists, etc.). Conformity can be manifested by ship-owners switching to different fishing practices (e.g. long-line fishing) or by any other FIOs publicly acknowledging the need to do so. Resistance can be manifested by ship-owners ignoring pressures to reduce or ban DSBT activity and purchasing more fishing vessels, or by any FIO challenging the arguments of pressuring constituents in the media and influencing policy-making processes. In-between strategies such as compromise and avoidance can respectively be manifested by making concessions to pressuring constituents or pretending to conform to pressures while increasing DSBT activity.

Table 2 in the *Strategies* section provides a more detailed description and operationalization of each strategy and tactic also in the context of the case.

2.2) Dependent variables: extent of the industrial activity

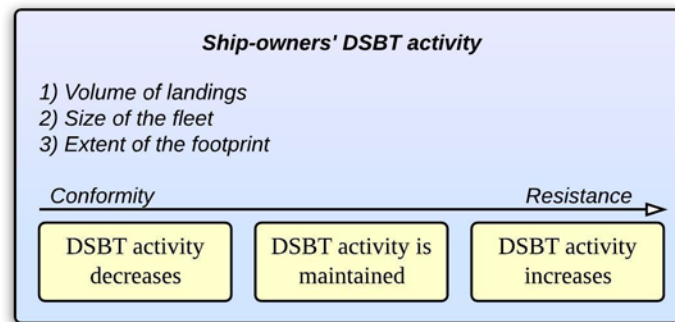


Figure 3 Ship-owners' DSBT activity.

When looking at the relationship between strategies employed as a response to institutional pressures to reduce the extent of an industrial activity, it is possible to verify whether the pressures have had the desired effect. The industrial activity is performed by a specific type of companies (i.e. ship-owners) and is monitored using a number of quantitative indicators (detailed below and in Table 3 in the Methodology chapter) showing whether it has increased, maintained or decreased in its extent. This way we also test whether the presence of conformity versus resistance strategies reflects the actual state of the extent of the activity, and determine whether conformity has primed over resistance. For example if the general strategic response of the DSBT industry is to express conformity to pressures to reduce the activity yet indicators show that it has increased in its extent, then we might determine that the mismatch is a sign that their strategy was not acquiescence but avoidance (e.g. concealment, see Table 2 in the Methodology chapter). Conversely if the industry fiercely resisted pressures to reduce DSBT yet indicators show that ship-owners have reduced the extent of their DSBT activity, then we might find that in spite of the use of resistance strategies, ship-owners still sought to comply.

I propose to do so by assessing over time DSBT ship-owners' volumes of production (landings), the number of fishing vessels they possess (size of the fleet), and the geographical extent of their fishing activity (footprint). These are represented in Figure 3 below and operationalized in Table 3 of the Methodology chapter. Overall, these variables allow to draw clear conclusions regarding the evolution of the extent of DSBT activity.

2.3) Independent variables: explanatory factors

For each concrete instance of institutional pressure against DSBT (e.g. a petition, a law, a scientific publication, etc. see Table 5 in the Methodology chapter), factors define the specific perceived (subjective, from the point of view of industry organizations) and absolute (objective) nature of the pressures, the conditions of the organizations' external environment, as well as the characteristics of the organization itself and its interests or goals.

Below is a model of Oliver's (1991) five theorized factors affecting organization's decision-making, as well as sub-factors. While most of these factors are directly derived from Oliver's (1991) paper, I also borrow from DiMaggio & Powell (1983) to add 'structuration' and propose to assess 'internal culture' as a new variable as proposed by Oliver (1991) but never tested.

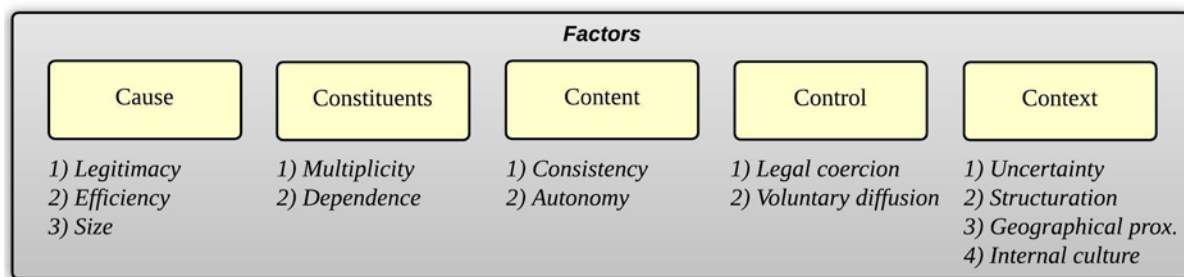


Figure 4 Factors and sub-factors (based on Oliver, 1991).

2.3.1) Cause

Cause is linked to the reasons why pressure is exerted upon an organization, and the pressuring constituent's intended objectives (Oliver, 1991). Pressure is often exerted based on concerns for social and/or economic fitness (legitimacy and efficiency) of the organization or the ecological impacts of its activity in contrast with constituents' expectations. Organizations strive to maintain legitimacy or efficiency in their activities in order to survive in the institutional environment. Before introducing the hypotheses related to this factor, I define legitimacy and efficiency based on the literature (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Oliver, 1991; Pfeffer & Salancik, 1978).

Legitimacy results from the organization's fitness with regards to societal expectations and is linked to stakeholders' acceptance and its reflected image in public opinion. Efficiency is the economic balance between input efforts or resources and output product evaluated in terms of created value i.e. quality of the product, price on the market, etc. Another way of measuring efficiency is by looking at the outcome of a strategy to decide whether the effort is worth it. Ideally firms want to invest the smallest effort at a minimal risk while reaping the most benefits (i.e. in monetary terms, but also in terms of legitimacy, access to information or to politically influential positions, etc.). In aiming for these goals, organizations either tend towards conformity (conformity) to institutional pressures (see Figure 1, yellow side of the *Strategies* box)—which increases the legitimacy of the firm but often leads to reduced efficiency—and resistance (see Figure 1, orange side of the *Strategies* box), which depends on one's ability to uphold favorable conditions within one's institutional environment, but can preserve one's efficiency while affecting legitimacy (Meyer & Rowan, 1977; Oliver, 1991).

Firms might perceive more or less **legitimacy** or **efficiency** gains from complying with pressures and decide upon a strategy based on these perceptions (Clemens & Douglas, 2005; Oliver, 1991). A pressure that drives the organization to employ less efficient practices, or that requires large up-front investments are less likely to be complied with especially if it entails little improvement from the point of view of its constituents. Oliver (1991) proposes that the more a firm recognizes the economic and legitimacy to be gained from acquiescing pressures, the less active strategies it will employ.

Hypothesis 1: *The greater the degree of legitimacy to be gained from conforming to institutional pressures, the greater the chance of conformity.*

Hypothesis 2: *The lower the potential degree of efficiency lost from conforming to institutional pressures, the greater the chance of conformity.*

The final dimension for this variable concerns the **size** of the organization. Goodstein (1994) theorizes that the larger the firm, the more it attracts attention and interest of its constituents. Large firms are more likely to have more extended networks and therefore are connected to a greater set of constituents to whom they are held accountable and therefore become more subject to public scrutiny, political influence and pressures (Goodstein, 1994, p356).

Hypothesis 3: *The larger the organization, the greater the chance of conformity to institutional pressures.*

2.3.2) Constituents

Constituents are the actors of the organizational field in which the organization evolves, and who produce expectations and demands (pressures) about how the organization should participate in social life and conduct its activities (DiMaggio & Powell, 1983; Oliver, 1991). Clemens and Douglas (2005, p1207) mention that they include “the state, professions, interest groups, and the general public”. I adapt these conceptualizations to the case and my objectives by categorizing constituents in different groups based on their roles¹ (see figure below).

The first set of an organization’s constituents is composed of actors from the economic sphere and part of its supply chain network (SCN). The other set of actors are from the social and political spheres and include policy-makers, the media, NGOs, scientists (experts and academics) and any other actor that has a link or stake in the organization’s activities and is politically involved with the governance of fisheries. These actors are part of the political network of the organization.

¹ Roles are given in The functioning of the supply chain and Description of FIOs.

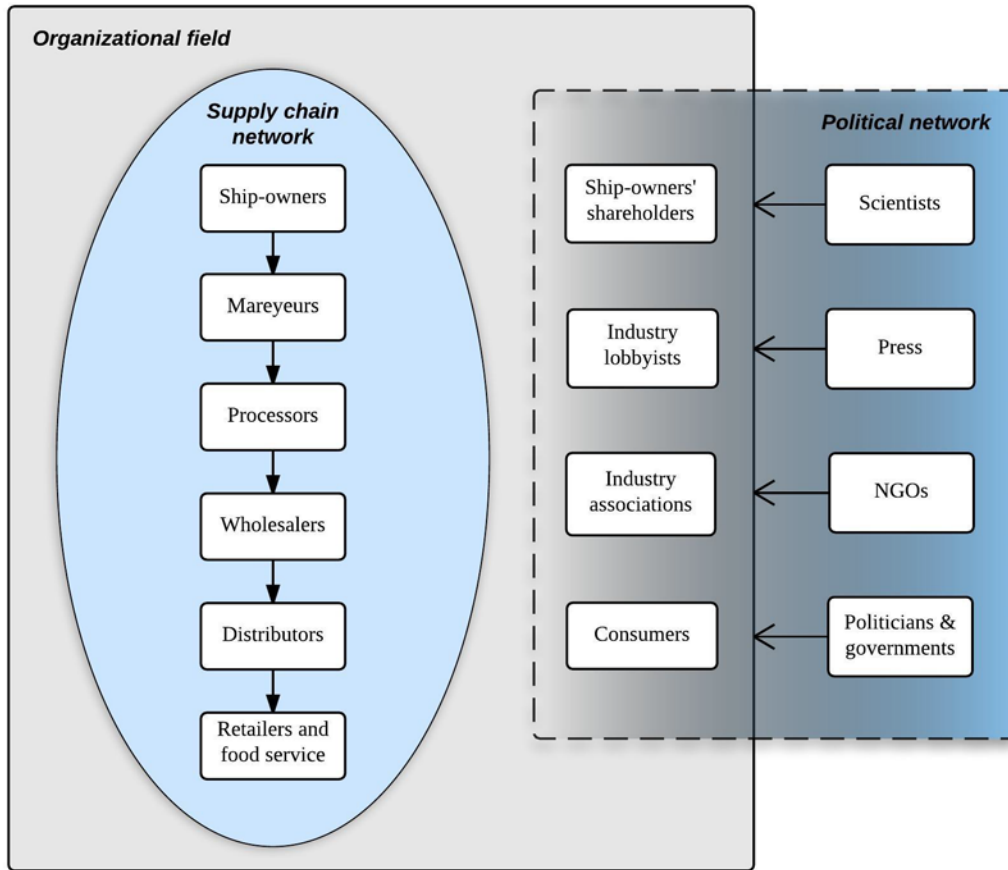


Figure 5 Conceptual model of the different networks of the case.

In Oliver's framework (1991), two dimensions are contained in the factor *constituents* and influence response strategies: multiplicity and dependence.

Multiplicity is the number and variety of constituents exerting pressures. High multiplicity is problematic for organizations when pressures and expectations conflict with each other, meaning that satisfying the demands of one group requires that those of another be ignored or defied (Oliver, 1991).

Hypothesis 4: *The greater the number and variety of pressuring constituents, the greater the chance of conformity to institutional pressures.*

The degree of **dependence** between a pressuring and a pressured constituent will affect the level of constraint that the latter will perceive in making decisions and adopting strategies. Pfeffer and Salancik (1978) say that "(it) exists whenever one actor does not entirely control all of the conditions necessary for the achievement of an action or for obtaining the outcome desired from the action" (p40). It particularly designates a relationship where one actor is in possession or control of resources that another requires for its survival (*ibid.*). Such actor is said to have influence or power (*ibid.*).

If dependence upon a pressuring constituent is high, it is more likely that the organization will adopt least resisting strategies in response to these pressures (Oliver, 1991). In case of moderate dependence, the organization might try to avoid the pressure by engaging in ceremonial conformity,

while low degree of dependence might lead to defiance and manipulation strategies as the organizations perceives less risk for its legitimacy or access to resources (Oliver, 1991).

Hypothesis 5: *The greater the degree of dependence upon pressuring constituent(s), the greater the chance of conformity to institutional pressures.*

2.3.3) Content

This factor refers the **consistency** of institutional pressures' content in terms of what they entail with internal goals of the pressured organization. The theorized relationship is that pressures driving organizations towards certain values, norms or practices inconsistent with their goals in terms of legitimacy and efficiency are more likely to be resisted (Oliver, 1991). For example organizations whose competitiveness depends on certain practices might resist switching to different practices on the basis of pressures if these entail a loss of efficiency.

Hypothesis 6: *The greater the degree of consistency between the objectives of pressuring constituents with the internal goals and beliefs of the organization, the greater the chance of conformity to institutional pressures.*

Compliance to pressures are an "admission of limited **autonomy**" for the pressured organization (Pfeffer & Salancik, 1978, p94). Therefore the more constraining the pressures are upon a firm's future decision-making (i.e. discretion, for example in terms of resource acquisition and therefore efficiency), the more it is likely to resist (Oliver, 1991). In fact, firms are more likely to conform if the resulting change is small, while they might try to manipulate pressures if threat to their autonomy are too high (Oliver, 1991).

Hypothesis 7: *The lower the potential degree of constraint imposed by institutional pressures, the greater the chance of conformity.*

2.3.4) Control

Control designates "the means by which pressures are imposed" (Oliver, 1991, p168) and enforced (Goodstein, 1994, p359), which are differentiated between two types of pressure: legal coercion and voluntary diffusion.

Legal coercion includes prescriptive regulations which limit the choice of organizations by means of possible punitive measures in case of non-compliance. The greater the punitive risk, the more organizations will conform to pressures (Oliver, 1991).

Hypothesis 8: *The greater the potential risk incurred from not complying with institutional pressures, the greater the chance of conformity.*

Voluntary diffusion relates rather to the process of isomorphism described by DiMaggio and Powell (1983), whereby that organizations of a same field all tend to conform to similar sets of values, norms and practices. Empirically, conformity develops as successful practices are recognized in the field and spread, industry-wide standards are decided upon or imposed, crises are collectively dealt

with and common solutions are found, partnerships form and foster harmonization of practices, etc. Conformity to pressures will be more likely when a practice is already widely diffused and voluntarily accepted throughout an organizational field (Oliver, 1991). Pressures to adopt less diffused norms and practices are predicted to lead to more resistant strategies (Oliver, 1991).

Hypothesis 9: *The greater the spread of practices or activities related to the content of institutional pressures, the greater the chance of conformity.*

2.3.5) Context

The conditions of an organization's environment and organizational field constitute the last factor affecting firms' strategic responses in Oliver's (1991) framework. I propose four dimensions to *context*: environmental uncertainty, structuration, geographical proximity and internal culture².

When "future states of the world cannot be anticipated and accurately predicted", we also say that there is **environmental uncertainty**³ (Pfeffer & Salancik, 1978, p67). Oliver (1991) proposes that environmental uncertainty is likely to be present when there is high multiplicity of constituents because of the greater range of possible reactions to an organization's strategies. Uncertainty obscures the acquisition of resources and of legitimacy and conducts to the use of manipulation and defiance strategies while also increasing imitation of successful practices (Oliver, 1991).

Regulatory uncertainty is defined by Engau and Hoffmann (2009, p767) as the "unpredictability of the actions of governmental agencies which create and enforce regulations". Hamprecht *et al.* (2011) proposed that in response to regulatory uncertainty, organizations will bet on several strategies simultaneously to reduce risks entailed with not being able to predict outcomes of a single strategy (e.g. especially when a policy-making process might lead to very coercive regulation). I add that in the present case, uncertainty may subsist regarding the economic prospects of an organization's activities (**economic uncertainty**) as well as regarding the impact of its activities on the natural environment (**ecological uncertainty**), and want to test whether these two other types of uncertainty lead to increased conformity.

Hypothesis 10a: *The greater the degree of regulatory uncertainty, the broader the scope of organizational strategies.*

Hypothesis 10b: *The greater the degree of economic uncertainty in an organization's activities, the greater the chance of conformity to institutional pressures.*

Hypothesis 10c: *The greater the degree of uncertainty regarding and organization's impact on the natural environment, the greater the chance of conformity to institutional pressures.*

An organizational field is **structured** when its professions are highly institutionalized, meaning that its values, norms and practices are well established; when patterns of dominance and coalitions form;

² Oliver (1991) proposes environmental uncertainty, and interconnectedness. I add geographical proximity from Goodstein (1994) and internal culture which Oliver (1991) suggested for future research.

³ Where 'environmental' here does not only refer to Nature but to the economic, ecological, social and political environment.

when organizations develop a mutual awareness of each other's activities and formulate common goals; and when they are more interconnected⁴ (DiMaggio & Powell, 1983; Jennings & Zandbergen, 1995). DiMaggio & Powell (1983) further specify that structured fields can be identified by the presence of industry associations bridging individual firms. The more structured the field (and therefore the more interconnected), the more likely organizations are to adopt similar strategies and practices in the face of pressures (DiMaggio & Powell, 1983).

***Hypothesis 11:** The greater the degree of structuration of the organizational field, the greater the conformity of different organizations' strategies with each other in response to institutional pressures.*

Geographical proximity is a variable which also increases the likelihood of conformity (Goodstein, 1994). Firstly physical proximity facilitates the process of peer organizations observing, communicating and influencing each other. Secondly local organizations are surrounded by the same local social, cultural, political, economic environment as well as local ecological conditions that they deal with and must adapt to (DiMaggio & Powell, 1983; Jennings & Zandbergen, 1995). This may lead to individuals knowing each other and forming informal ties of people with similar backgrounds, values and core beliefs.

***Hypothesis 12:** The greater the geographical proximity between organizations of the organizational field, the greater the conformity of their strategies in response to institutional pressures.*

Organizational culture is a variable which Oliver (1991) proposes to test in future research and which has not been assessed in research using this framework. On page 173, Oliver (1991) writes: "Organizations that are highly cohesive and that have strong internal cultures may be more prone to resist external expectations and beliefs."

***Hypothesis 13:** The weaker the internal culture of an organization or field, the greater the chance of conformity to institutional pressures.*

⁴ Interconnectedness means that organizations come in contact with each other and become linked by means of trade, agreements, communication, etc (DiMaggio & Powell, 1981). It is also defined by Bansal and Roth (2000, p730) as the "intensity and density of formal and informal network ties between constituents".

2.4) Independent variables: institutional pressures

Pressure is attributable to specific constituents and is manifested in concrete forms. Because each set of constituents has a different role and relationship with regards to the context of the case (see The functioning of the supply chain and Description of FIOs), it is possible to differentiate these constituents in terms of the types and forms of pressures they can exert. Here I detail different types of pressures conceptualized by Scott (2001). It will allow to attribute different types of pressures to categories of constituents and find what FIOs conformed to—or resisted—the most.

2.4.1) Regulative pressure

Regulative pressure is exerted by organizations who hold power or authority within a field to "establish rules, inspect others' conformity to them, and, as necessary, manipulate sanctions—rewards or punishments—in an attempt to influence future behavior" (Scott, 2001, p59). Whereas power is institutionalized and occurs as an actor is able to control resources (e.g. large retailers; Pfeffer & Salancik, 1978), authority is itself conferred and constrained by law (e.g. legislators; Scott, 2001).

Regulative pressure can be either constraining or enabling. In the first case, it can be more or less coercive and can entail a loss of legitimacy or efficiency via sanctions (DiMaggio & Powell, 1983). The threat of being caught breaching regulations must be perceived as high enough in order for this type of pressure to be effective (Scott, 2001). Enabling regulation is created to entice organizations to adopt a certain practice. Similarly, incentives should be rewarding enough in for example granting public recognition and therefore legitimacy or financial support for competitiveness (*ibid.*).

Formal regulative pressure is manifested by government agencies by virtue of their authority and via laws and regulations. Regulations have goals and suggest a way in which organizations should comply or are expected to behave, for example the North East Atlantic Fisheries Commission's (NEAFC) bottom-fisheries closures prevents FIOs from doing DSBT in certain marine areas or switch to different fishing methods (Druel *et al.*, 2012). Market-based incentives such as subsidies entice industry to follow a certain course of action in their activities in order to or after receiving financial support. . The European Union thus supports the efforts of FIOs to reduce their fleet by granting subsidies for the scrapping of ships to reduce the overall fishing effort (Markus, 2010). States are also able to regulate the activities of organizations via the deliverance of licenses of operation (Scott, 2001). European policy thus directs states to renew deep-sea fishing licenses of ship-owners on an annual basis (EC Regulation 2347/2002).

Powerful industry actors are also able to exert coercive pressure by enforcing their own rules and standards upon organizations with whom they trade and who are dependent upon them (Pfeffer & Salancik, 1978). For example a changing trend in large supermarket chains' seafood demand can force the rest of the supply chain to reorient their activities to other species (Gagalyuk *et al.*, 2009).

2.4.2) Normative pressure

Normative pressure comes from the norms, values and beliefs in society (Devereaux Jennings & Zandbergen, 1995) and spreads as knowledge, information and opinions are shared. Scott (2001) on page 64 makes the difference between values and norms, and explains the purpose of normative systems:

“Values are conceptions of the preferred or the desirable together with the construction of standards to which existing structures or behaviors can be compared and assessed. Norms specify how things should be done; they define legitimate means to pursue valued ends. Normative systems define goals or objectives (e.g., winning the game, making a profit) but also designate appropriate ways to pursue them (e.g., rules specifying how the game is to be played, conceptions of fair business practices) (Blake and Davis 1964).”

Normative pressure—similarly to regulative pressure—also constrains and enables behavior in a more permeating and informal way. By ascribing roles to each other, actors within their networks create expectations about what each is supposed to do (Scott, 2001, p65; Citing March & Olsen, 1989, p21). These are binding as an actor becomes accountable of certain tasks and behaviors with regards to others. For example NGO’s normative pressures on the fishing industry encourages them to switch to more selective fishing methods to reduce bycatch and discards. The question that Scott (2001, p65) poses as representing the imperative that actors face is therefore “Given this situation, and my role within it, what is the appropriate behavior for me to carry out?”

2.4.3) Cultural-cognitive pressure

Cultural-cognitive pressure is linked to the process in an organizational field whereby the organization conducts its activities based on its perception of its environment (DiMaggio & Powell, 1983; Scott, 2001). People possess an internal cognitive system of symbols and meanings constructed and shared in interaction with others which form cultures, and determine the way we process information and interpret the facts of our environment (Scott, 2001). For example, cultural-cognitive pressure leads to isomorphism and mimesis whereby ship-owners learn from and imitate other ship-owners’ fishing methods (see **Content** in the above list of explanatory factors).

Cultural settings affect decision-making in response to institutional pressure, as an organization or actor set might refer to cultural aspects tied to its values and practices to accept or reject certain pressures. Cultural beliefs are raised to the rank of objective truths, and thus justify conformity as simply the way things ought to be done (see Scott’s definition of ‘orthodoxy’; 2001, p68). Thus fishing industry actors often have a strong attachment to the traditional knowledge and lifestyle of fishers and resist pressures that contradict it. Scott (2001, p68) warns from conceiving cultures as “unitary systems, internally consistent across groups and situations”. It is important not to assume that all individuals of a same group, profession, or organization hold the same set of cultural beliefs.

III - Methodology

1) Introduction

This thesis uses the case study method to shed light on the evolution of DSBT activity in France following institutional pressure to reduce or ban DSBT and the response strategies of the fishing industry. Due to the explanatory nature of this research, where ‘how’ and ‘why’ questions are asked, the case study method and a qualitative methodology are considered appropriate (Yin, 2003). In view of the set of objectives of the study, theory is used as a lens to structure research questions and guide the analysis; but also tested to verify whether its hypotheses are true in the case at hand (Yin, 2003). This chapter begins with the choice of the case, then I detail the data collection methods; followed by the operationalization of variables; the methods for presenting the results and doing the analysis; how findings can be generalized; and finally address the limitations and biases of my approach.

2) The case

This section contains the choice of the case and time period, the units of analysis and sample, and conclude on how the characteristics of the case affect the type of relationship between the variables.

The case for this research is the French fishing industry and its DSBT activity over fifteen years (2000 until the end of 2014). The French DSBT industry (individual ship-owners on the one hand, and other FIOs including actors of the political network and of the fish supply chain network; see The French fish supply chain and Description of FIOs) make an interesting case for the analysis of FIOs’ strategies in response to institutional pressures: preliminary results indeed indicated that levels of institutional pressure increased from moderate or low to very high between 2000 and 2014 (See Timeline results and The controversy over deep-sea bottom-trawling), and FIOs showed significant variation on the determinant variables (more on this in the next paragraphs). Although DSBT started in France in the 1970’s and 1980’s (see French deep-sea bottom-trawling activity in the North East Atlantic), the chosen time period starts from the year 2000 because it encompasses both a time of unregulated DSBT activity and the beginning of legislation efforts for deep-sea fishing in Europe together with a more pronounced scientific interest in DSBT activity in France and Europe. Furthermore, the post-2000 period also offers greater availability of data consistent with the rising interest of constituents in the issue.

The method is the embedded case study, whereby three ship-owners (Scapêche, Dhellemmes and Euronor) constitute sub-units to the larger unit that is the French fishing industry (Verschuren & Doorewaard, 2010, p181). There are therefore two levels of analysis.

At the lower level the strategies and DSBT activity of ship-owners in response to institutional pressures to reduce or ban DSBT are recorded individually and compared. These three ship-owners are at the center of the case study due to being the target such pressures for being the most

prominent French ship-owners practicing DSBT between 2000 and 2014 (Bloom, 2011)⁵. Scapêche was subjected to very intense institutional pressures from constituents and in particular NGOs to reduce its DSBT activity while Euronor and Dhellemmes were somewhat less targeted. Factors of size, geographical location and therefore more generally their local socio-economic and political setting (including their network of organizations and constituents) also had ship-owners employ different strategies. These differences allow for a diverse set of results for each ship-owner and ensure that enough variation is present to understand the relationships between the independent and dependent variables.

The second (higher) level of analysis concerns the larger network of FIOs (i.e. the industry), which has also been subjected to institutional pressures to reduce and ban DSBT and in response to which I recorded a number of strategies. Fishing industry firms (i.e. from the supply chain) are represented by—and interact with—many other actors and organizations. In Annex 2 - Description of FIOs are the FIOs I found to be particularly involved in the governance and representation of industry actors of the DSBT fishery and for which strategies were recorded. Their relevance for this research is assessed based on their salience in the media and in other documents. However I do not consider the attribution of strategies to specific FIOs to be important for the sake of my analysis (see justification in the Introduction of the Analysis chapter).

The goal of this case study is to observe covariation between the independent variables (institutional pressures) and dependent variables (organizations' strategies and DSBT activity; see Figure 1) —taking into account the mediating effect of the explanatory factors—both between the different ship-owners individually and for the French DSBT industry as a whole over time ('diachronically', see Gerring, 2004, p343). The nature of this causal relationship is assumed to be probabilistic (Gerring, 2004, p349).

3) Data collection methods

To ensure that a maximum of information could be collected for all variables and over the selected period of time I used different data collection methods including interviewing, attending debates in the regions of interest (in Lorient and Paris) organized by civil society organizations; collecting newspaper articles, academic papers, NGO and FIO publications; and searching for online video recordings of debates and documentaries. My general approach for this research has been to try to get as close as possible to the subject by making field trips to the places where the cases' constituents were located to gather first-hand observations. This combined approach of desk and field research conveys greater validity to the results as information is triangulated from different sources and via different methods. For each of these sources I indicate the methods used, successes and shortcomings in their application, as well as how the data was used.

⁵ Other ship-owners were involved in a much less systematic way and at a lesser extent in DSBT activity (interviews with industry and Ifremer respondents).

3.1) Field research

Interviews

Type of organization (or program)	Name of the organization (or program)	Location of the organization/ interviewee	Number of respondents interviewed and method	Number of respondents reached (with method of contact) but not interviewed
Consultancy firm	Marketing Seafood	Paris	1 (by phone)	-
Development agency	Audélor	Lorient	1 (in person)	-
Environmental NGO	Bloom	Paris	1 (by phone and in person)	-
Environmental NGO	Greenpeace	Paris	-	1 (by phone)
Environmental NGO	World Wildlife Fund	Paris	-	1 (by email)
European Members of Parliament	European Parliament	-	-	3 (by email and phone)
Fish processing firm	-	Boulogne ⁶	1 (in person)	-
French policy-making and implementation	Ministry of Ecology and Sustainable Development	Paris	1 (by phone)	-
Ifremer on-board marine observation program (OBSMER)	<i>(Various companies subcontracting for Ifremer)</i>	-	3 (in person and by email)	-
Local association	Collectif Pêche et Développement	Lorient	2 (in person)	-
Mareyeur	Moulin Lorient Marée	Lorient	1 (in person)	-
Regional fishing committee	CRPMEM Nord Pas de Calais / Picardie	Boulogne ⁶	1 (in person)	-
Scientific organizations	Ifremer and ICES	Boulogne ⁶ , Lorient and Nantes	7 (in person)	-
Ship-owner	Dhellemmes	Concarneau	1 (by phone)	1 (by phone)
Ship-owner	Euronor	Boulogne ⁶	-	1 (by email and phone)
Ship-owner	Scapêche	Lorient	3 (in person and by phone)	-
Ship-owner (Dhellemmes shareholder)	Cornelis-Vrolijk b.v.	Ijmuiden, The Netherlands	-	1 (by email and phone)
Ship-owner (Euronor partner)	Parlevliet & van der Plas b.v.	Valkenburg, The Netherlands	-	1 (by email and phone)
Ship-owner (Euronor shareholder)	UK Fisheries Ltd.	Hull, Great Britain	-	1 (by phone)
			Total = 23	Total = 10

Table 1 Number of contacted respondents by organization, location, and interview method.

⁶ “Boulogne” in this paper always refers to the city of Boulogne-sur-Mer in the Nord-Pas-de-Calais region.

A total of 23 interviews were conducted with respondents chosen for their role in the fishing sector (13 semi-formal and 10 informal interviews; see Table 1 above). The interviewing style (semi-formal or informal) depended on the respondent and setting of the meeting. Semi-formal interviews were generally set up after an email and/or a phone call, or through other respondents which knew some of the persons I had planned to interview⁷. These interviews consisted of prepared sets of questions adapted to the person's position, role and expertise⁸. In some cases, respondents were asked to react to statements found in documents or interviews with other actors to elicit their view. The interviews often did not follow a set course and sometimes respondents would answer questions before I could ask them⁹. My role in that situation was to ensure that the main themes and topics were covered (perceptions of pressures, response strategies, influencing factors, and general information on the case) and based on the hypotheses formulated in Chapter II. In order to keep informants and myself on track with the topic, I always had a sheet with questions and took notes during the interviews. Seven of these semi-formal interviews were recorded with the participants' prior consent. Informal interviews followed a less structured procedure and took place after contacts in the field were able to set up informal meetings with acquaintances (friends and colleagues). Some resistance was sometimes encountered from respondents who needed to be assured that the research was of scientific nature and not journalistic work. Other respondents refused to let me record the interview. All of them were informed of my identity and of the purpose of my research.

Several respondents were contacted but the exchange did not lead to an interview (see table above), possibly due to a wish to avoid gaining too much visibility with regards to the topic (see the Analysis) by participating in this research, and/or for other more simple reasons e.g. the person did not feel they knew enough about the topic, did not have time, etc. Particularly, attempts to reach three (current or ex-) members of the European Parliament and ship-owners' shareholders did not lead to any substantial contact, meaning that no representatives of this constituent groups could be interviewed. A version of the Results and Analysis and Case Study Background chapters were sent to four Ifremer interviewees for member check, of whom two replied with comments.

Attending debates

On March 11th, 2015 I attended an organized by environmental NGO Bloom for the projection of a new documentary on the 'French fishing lobby' (i.e. Ducos, (2014) and followed by a debate animated by Bloom's founder, two French National Assembly deputies and a French scientist, who also replied to questions from the public. This debate was informative in keeping up to date with the topic.

While in Lorient I was able to attend several viewings of films about fishers during the annual festival Pêcheurs du Monde ('Fishers of the World', taking place over six days between Tuesday 17th and

⁷ See Annex 11 Example of an email sent to a ship-owner (respondent).

⁸ See Annex 1 Questions addressed to respondents during interviews.

⁹ The context of controversy made for lively discussions regarding the activities of the DSBT industry, particularly with respondents that lived or followed the events that took place.

Sunday 22nd of March 2015). One viewing was particularly relevant since it was a documentary on DSBT fishers of ship-owner Euronor (i.e. Castier & Bouilly, 2011). I also attended a roundtable on fishing where associations, fishers, persons in the sector and the public debated. The debates that took place after screenings were generally informative about the climate surrounding the practice of DSBT in Lorient, where the largest DSBT ship-owner (Scapêche) was located.

3.2) Desk research

The topic of DSBT is discussed, studied and reported in many newspapers, research papers, publications from NGOs, public organizations, and FIOs. Additionally, video recorded debates between important stakeholders on the issue are available online, for example on the French Senate's website (Sénat, 2015). The issue of DSBT in France received vast media coverage and a lot of information could therefore be found covering most questions and hypotheses of the research.

Newspaper articles

I searched and collected about 900 French news articles from the Lexis Nexis database for the period between January 2000 and December 2014. The articles were quickly read to identify relevant pieces, which were picked out and read over twice more in greater depth (before the field trip and after). In the end 546 articles were retained (the criteria for this choice are explained in the next paragraph). The first two readings allowed me to formulate relevant questions and address respondents with enough background knowledge. The second reading served to refresh my overview of the case in the light of the insights gained from observations and interviews in the field.

The relevance of the 546 articles retained was determined based on whether the piece contained information on events pertaining to the variables (strategies and pressures) as they are operationalized (see Operationalization of variables). Some of these events are international (e.g. UNGA meetings), but I consider them relevant to the case if they are mentioned in a French newspaper which all constituents (industry, politicians, NGOs, the public... i.e. the entire French population) can read. I therefore do not take non-French speaking news into account. I particularly looked for instances where constituents (industry, scientists, environmental NGOs, politicians, etc.) were interviewed, quoted or paraphrased; where events (or the article itself, see Table 5 in the Operationalization of variables) were reported that represented normative institutional pressures to reduce or ban DSBT (e.g. environmental NGOs' actions, scientific publications, etc.; see Table 5); where new legislation or political discussions were brought up; etc. However it became evident that some articles which did not mention the search terms were also useful to give me some background and context about the fishing industry in general considering my relative lack of prior knowledge on the topic. Those articles were sometimes found less systematically while doing online searches on the topic and allowed to include other news sources which Lexis Nexis does not take into account (e.g. blogs, some specialized news such as industry news or non-French news). Some articles were kept that did not strictly pertain to DSBT, such as those from which cultural aspects related to fishing could be extracted.

Several searches using different terms were performed to find a maximum of articles related to DSBT, institutional pressures and FIOs' strategies in the French context. The search terms included the names of the three ship-owners (*Scapêche, Dhellemmes* and *Euronor*), common names of deep-sea fish species (*Grenadier, Lingue Bleue, Sabre Noir* and *Empereur* or *Hoplosthète*¹⁰), but also *pêche, chalut, eau* and *profonde*¹¹. Some terms were added to exclude recurrent and unrelated articles, such as *éolienne, naufrage* and *Erika*¹². Only a few of these terms were used at a time in combinations of three or four to obtain a maximum of relevant results.

An excel file containing all the selected articles (without the actual piece) was created for referencing and for some (minimal) coding. Coding consisted in identifying news pieces which could be counted as normative pressures (see table and figure in Annex 5).

These data sources contain a risk of bias as articles are tainted with political opinions and geographical differences (Saunders *et al.*, 2009). Since the selection of articles is based on results obtained from a Lexis Nexis search, the variability in news sources depends on the search engine's options. Luckily the engine searches from a relatively large sample of 229 French online and paper news sources (Lexis Nexis, 2015). Furthermore, bias in reporting could be assessed based on comparison of articles when important facts or events were discussed. Contradictions were found mostly on the sensible issues of the controversy which were not determinant for my analysis (i.e. impacts of DSBT, consequences of a ban, etc.).

Articles were found in major national news sources as well as regional and local newspapers (including those where ship-owners are located) and some European francophone news sources (see News sources from Lexis Nexis in Annex 1).

Despite its importance in news related to the maritime and fishing sector, one source (Le Marin) was only partially reviewed due to its absence in the Lexis Nexis search engine and its unavailability to readers without a paid subscription. Thankfully the content of its articles could sometimes be found relayed in other news sources. One association in Brittany also gave me access to their paper collection of the publication, allowing me to spend some time finding relevant articles from this source. The search was however less exhaustive than with other sources.

Research papers

Scientific and academic research for example from the International Council for the Exploration of the Sea and the Ifremer and other organizations were used to recover important quantitative data relative to DSBT activity (landings, number of vessels, etc.) and to understand the roles of these organizations. Furthermore in Case Study Background I review some of the international literature on fisheries management and governance but also to give a background understanding of the state and impacts of DSBT activity as part of normative pressures against the fishing practice.

¹⁰ Roundnose Grenadier, Blue Ling, Black Scabbardfish, and Orange Roughy, commonly referred to in French as either *Empereur* or *Hoplosthete*.

¹¹ Fishing, trawling, deep, water.

¹² Windmill, shipwreck, and Erika (the French oil tanker which was wrecked in 1999).

Organizational publications

Some FIOs such as industry associations, French fisheries committees¹³ and regional advisory councils (see Description of FIOs) publish information, minutes and reports from industry and public debates or meetings, as well as reports of their activities. These publications inform industry actors and the public but also target policy-makers to help them decide on policies. They are used in the Analysis.

Video recordings

The French Senate, European Parliament and Commission websites were particularly useful to see and hear French stakeholders debate about the governance of deep-sea fishing and European members of parliament discuss relevant pieces of legislation (e.g. the reform of EC 2347/2003 on deep-sea fishing). Some television documentaries, institutional videos (from the fishing sector and associations) or archived news pieces could also be found online reporting on the French DSBT industry and fishing culture.

4) Operationalization of variables

In this section I detail each set of indicators for each set of variables (strategies/tactics, extent of DSBT activity, explanatory factors, and institutional pressures) and how they are assessed for the analysis. The operationalization of variables is based on both their conceptualization in the theory chapter and on the analysis of the case. It reflects how the literature suggests they can be operationalized combined with several readings of the events to choose how they can be interpreted in the context of the case and from the sources of data.

Consistent with the two levels of analysis, some pressures, factors and strategies particularly pertain to ship-owners while others pertain to any FIO or the industry at large. The distinction is stated whenever relevant.

4.1) Strategies

Strategies were identified when collected data was found to relate to actions of a constituent, or when a statement was made that described its actions (see Table 2 below). In some cases the document containing the data may be the strategy itself: communication in newspapers or via press releases, letters, etc. may be an expression of acquiescence, an attempt to compromise with constituents, to defy criticisms, or try to manipulate expectations. Furthermore, data used to measure the Extent of DSBT activity such as landings, areas of DSBT activity (footprint) and the evolutive size of a ship-owner's fleet can be used as an indicator to a strategy (see the Results and Analysis). This data is however sometimes too aggregated to distinguish individual FIOs or ship-owners' activities (see Extent of DSBT activity below).

¹³ In French 'Comités des pêches'.

Strategies		Tactics		
Name	Conceptual definition (Oliver, 1991)	Name	Conceptual definition (Oliver, 1991)	Indicator
Acquiescence	Expressing of willingness to conform to institutional pressures complemented by acts signaling conformity.	Habit	Routinely adhering to taken-for-granted rules or values.	FIOs work along the expectations of their institutional environment regarding deep-sea fishing and bottom-trawling out of habit.
		Imitation	Imitating other organizations' institutional models.	FIOs recognize other FIOs' practices and activities in relation to fishing and imitate them.
		Compliance	Consciously accepting and complying with values, norms and requirements.	Compliance with institutional pressures (e.g. shareholders' directives, NGOs' expectations, rules and regulations).
Compromise	The act of engaging with pressuring constituents by debating or negotiating with them openly to obtain concessions.	Balance	Achieving parity between multiple constituents' expectations and organizational interests.	FIOs make an arrangement to accommodate their constituents' expectations with their own interests to reduce pressures.
		Pacify	Partial conformity to expectations in order to placate constituents.	FIOs try to appease pressures from constituents by acquiescing pressures to reduce their DSBT activities while maintaining it.
		Bargain	Seeking concessions from pressuring constituents	FIOs negotiate with pressuring constituents in order to obtain concessions regarding DSBT.
Avoidance	Avoiding of the sphere of pressuring constituents and of institutional pressures by not taking part in discussions or by pretending to conform to their expectations.	Conceal	Covering up nonconformity by purporting acquiescence.	FIOs conceal information about their DSBT activities and purport conformity.
		Buffer	Alienating or decoupling activities from external constituents.	FIOs avoid contact between pressuring constituents and themselves or their activities.
		Escape	Changing the organization's activities to evade the scrutiny of constituents and avoid having to conform.	FIOs escape pressures by reporting their effort towards other fishing practices.
Defiance	The expression of unwillingness to conform to institutional pressures complemented by a reluctant or aggressive attitude in the organization's tactics.	Dismiss	Ignoring institutional pressures, rules and values.	FIOs pursue business 'as usual' despite pressures.
		Challenge	Openly refusing to conform and questioning the content of the institutional pressures.	FIOs challenge the pressures and expectations of constituents with the belief that their activities and values are legitimate.
		Attack	Vehemently attacking the sources of pressures (people and organizations) or the values they represent.	FIOs attack pressuring constituents or the values they represent regarding DSBT and via communication or through legal action.
Manipulation	The act of engaging with constituents to obtain their favorable attitude towards the organization's activities by way of communication, lobbying and concealed tactics of influence.	Co-opt	Taking in members of pressuring constituencies in order to "neutralize institutional opposition" (Oliver, 1991, p157).	FIOs try to rally members of pressuring constituencies to their cause to neutralize opposition or validate their DSBT activities.
		Influence	Influencing the beliefs, expectations and standards of external constituents.	FIOs participate in decision-making processes. FIOs communicate to try to change the beliefs and expectations of external constituents.
		Control	"(establishing) power and dominance over the external constituents that are applying pressure on the organization" (Oliver, 1991, p158).	FIOs exercise coercive power or influence over a pressuring constituent to neutralize them.

Table 2 Operationalizing strategies and tactics.

4.2) Extent of DSBT activity

The extent of DSBT activity is based on the size of ship-owners' fleets over time, landings of deep-sea fish in French ports, and then extent of the DSBT footprint at sea. There is a number of limitations associated with these data used and that are stated in the Results and Analysis chapter.

	Size of the DSBT fleet (number of vessels)	Volume of landings (in tons)	Size of the affected area (footprint)
DSBT activity increases	Increased number of DSBT vessels for a ship-owner.	Higher landings of deep-sea species globally and by port (when available).	Greater extent of the footprint of French DSBT activity.
DSBT activity is maintained	Same number of DSBT vessels for a ship-owner.	Stabilized landings of deep-sea species globally and by port (when available).	Similar extent of the footprint of French DSBT activity.
DSBT activity decreases	Reduced number of DSBT vessels for each ship-owner.	Lower landings of deep-sea species globally and by port (when available).	Smaller extent of the footprint of French DSBT activity.

Table 3 Indicators of the extent of DSBT activity.

4.3) Explanatory factors

The operationalization of explanatory factors is based on the set of hypotheses formulated in Chapter II. For each factor I indicate the measures I used and specify if the results are presented as graphs, tables or charts (see table below and the more detailed Descriptions of operationalized factors in Annex 1).

Although the ideal method to test each hypothesis would be to question respondents about each dimension in order to allow them to explain their strategy for each event of pressure and strategy recorded, interviews or questionnaires would have required much more time due to the complexity of the case and the number of hypotheses. This also assumes that all FIOs should be interviewed, which was not possible (see Field research in the present chapter).

I assumed that when a dimension did not appear in relation with a strategy or event, its absence meant that it had little importance in the strategic decision-making process. In other words, only the dimensions that seem to hold the greatest explanatory power for each event and strategy within the given context are considered. This may naturally constitute a bias if factors are omitted on purpose or accidentally. This bias could only be addressed via triangulation and reduced by making informed assumptions, but it can hardly be estimated.

Explanatory variable	Dimension	Measurement method
Cause	Size	Visibility of the ship-owner in number of DSBT vessels and relative importance in French DSBT activity.
	Legitimacy	Degree of legitimacy to be gained or lost from a strategy.
	Efficiency	Degree of efficiency to be gained or lost from a strategy.
Constituents	Multiplicity	Identity, number and variety of pressuring constituents at a given event of pressure.
		Consistency between the multiple constituents' expectations.
	Dependence	Degree of dependence upon pressuring constituent(s).
Content	Consistency	Degree of consistency between the objectives of the pressure and the FIO's practices, internal goals or interests .
	Constraint	Potential degree of constraint imposed by a pressure in reducing the FIO's autonomy as a result of acquiescence.
Control	Coercion	Potential risk incurred from not complying.
	Diffusion	Present spread of practices or activities as alternatives to DSBT and among other ship-owners.
Context	Uncertainty	Degree of uncertainty in accessing resources in anticipation of an event (e.g. a future regulation, a change in fishing practices...).
	Structuration	Presence of coalitions formulating concerted strategies and involved in collective action. Individual mobility among FIOs, informal relationships .
	Internal culture	Attachment to values and symbols of the profession or to those of the organization.
	Geographical proximity	Location of FIOs in a confined geographical area (i.e. cities).

Table 4 Operationalizing explanatory factors.

4.4) Institutional pressure

Institutional pressure is a very abstract concept describing a complex social process. Using Scott's (2001) typology of institutional pressures, it becomes easier to envision and identify the different forms which pressures can take and the type of constituents exerting them.

Following Oliver's (1991, p172) recommendations, it is important to try and assess institutional pressures both objectively using external indicators and from the point of view of the subjects (i.e. FIOs). I have established the presence of objective pressure to reduce the extent of DSBT activity from a qualitative analysis of the different forms of pressure identifiable in documents and news. This analysis culminates into a categorization by constituent and type of pressuring activity (e.g. NGO activities, consumer activities, European-level legislative activity, industry activities, etc; see Table 5 below). Perceived pressure was assessed qualitatively from reading documents relating the perception of pressures by FIOs after an event and from interviews with respondents.

Type of pressure	Definition	Constituent(s)	Examples from this study
Regulative pressure	Rules and regulations of the fishing effort and for the management of deep-sea fisheries.	Government and relevant authorities.	Legislation: fishing opportunities (TACs and quotas), area-based management (closures and MPAs), subsidies, monitoring measures and sanctions.
	Directives for ship-owner's success in their activities.	Industry associations, SCN actors.	Industry standards. Shareholder organizations' directives to ship-owners. Practices in the supply chain.
Normative pressure	Norms and expectations regarding the management of deep-sea fisheries and fishing practices.	NGOs, the general public (consumers), politicians.	News articles, petitions, NGOs' actions to reduce or ban DSBT.
		Scientists	Scientific advice, petitions, publications.
		Industry	Other FIOs' opinions.
Cultural-cognitive pressure	Isomorphism: the presence of other institutional models in the management of deep-sea fisheries.	Industry at large	Other ship-owners' practices. Values and traditions proper to the fishing industry's professions

Table 5 Operationalizing the different types of institutional pressures.

Regulative pressure

Regulative pressure is identified from the national and European legislative framework and from the directives given by companies with power over ship-owners, particularly their shareholders.

The legislative framework contains measures of coercion, financial incentives, measures to monitor the fishing activity as well as sanctions. These include fishing opportunities (allowable catch per fishing zone) reported to European authorities by providing catch data, subsidy schemes for the scrapping of vessels, the obligation to land deep-sea fish only in designated ports, but also to equip vessels with a geographical positioning device (vessel monitoring system or VMS), and to respect no-catch zones (bottom-fisheries closures and marine protected areas (or MPAs)). Sanctions are mainly in the form of fines imposed by Member States. Monitoring as well as the risk of sanction is part of the pressure, therefore I tried to find out to what extent ship-owners are being monitored. This can be found in legislative texts, news articles, and from interviews.

Legislation allows or prevents access to subsidies, which are an important financial tool for ship-owners. In the Timeline results I note all subsidy-related events.

Company directives to ship-owners are also part of the regulative pressures. Despite their generally confidential nature, they can sometimes be uncovered from the data.

Normative pressure

Normative pressure is manifested when a constituent questions the values, norms and practices of an FIO. It is manifested in the content of news articles reporting scientists' advice, the publication of new research, environmental NGOs' actions, comments from politicians or industry actors, etc.

News articles where DSBT is described as having negative impact on ecosystems rather than being presented as sustainable are first identified. These articles contain comments from the journalist, an interviewee, or in an organization's or individual's statement that DSBT should be more regulated or that it should stop, or otherwise could allow the reader to draw the conclusion that DSBT activity should decrease or stop. Those articles are counted for each month in order to have a sense of the level of pressure at a certain period of time (see Table 14 in Annex 5). This number in fact rather reflects the salience of the topic, but is used as a proxy for normative pressure on DSBT ship-owners¹⁴.

Secondly, I assume that scientific publications and advice reported in the media increase normative pressure due to the authority that scientific research holds in normatively defining DSBT and influencing regulation. These publications provide arguments for stakeholders opposing DSBT, such as environmental NGOs. However I also counterbalance scientific arguments against DSBT with those of scientists' moderating the assessment of the extent and impact of DSBT and therefore not arguing for further reduction by looking at their presence in the media.

Thirdly, I note reported environmental NGOs' actions including campaigns, petitions and publications. Each action generally has a motivation or a central argument (e.g. DSBT harms coral reefs, the ship-owners are in deficit, etc.) which I take into account in my analysis and to which FIOs tend to respond.

Cultural-cognitive pressure

Cultural-cognitive pressure is identified during interviews when FIO respondents state their attachment to certain values and existing practices which support their strategies. Ship-owners may base their strategies and fishing activities on those of another more successful ship-owner, who managed to overcome a problem, increase their legitimacy or efficiency. This is directly linked to imitation strategies (see Dependent variables: strategies in Chapter II).

¹⁴ Normative pressure can hardly be directly measured in a quantitative manner, meaning that there is no straightforward indicator of normative pressure. Using this method only indicates the salience of the topic, and may help inform and mobilize constituents (e.g. the public, politicians) at a moment when an opportunity arises for example when a petition circulates giving people a chance to express their opinion about DSBT. This is only a working assumption and is therefore not tested.

5) Results and analysis of the data

5.1) Introduction

The different data collection methods were used for several purposes: to collect background information regarding DSBT activity in France ([Case Study Background](#) chapter); to find out about constituents and their role ([Case Study Background](#) and [Results and Analysis](#) chapters, and [Description of FIOs in Annex 2](#)); and to produce a timeline of the events signaling pressures and FIOs' strategies and to be able to interpret them ([Results and Analysis](#) chapter). The [Results and Analysis](#) chapter is where answers are explicitly given to the research questions. It also tries to establish a counterfactual case. In the following section I detail how I presented and analyzed core results of my research.

5.2) Timeline results

The figures illustrate the fifteen year period in terms of industry strategies (Timeline 1), legislative pressure and uncertainty (Timeline 2), normative pressures (Timeline 3). These were created from the reading of news articles and reviewing of all the other data. They facilitate the chronological interpretation of the timeline and serve to illustrate the findings by comparing them to observe the correspondence between pressures and strategies (establishing asymmetry, see section below). Interpreting the industry's strategies can be tricky as one event or action contains more than one tactics. I also would not consider my description of events (or that of any other person external to the case) to be comprehensive and flawless. Consequently I chose to avoid visually defining strategies in Timeline 1 as this would simplify this complex reality. Instead a more detailed interpretation of each of them is given in the [Annex 4](#).

Normative and regulative pressures on the contrary are rather easily identified and differentiated (see Timelines 2 and 3). Cultural-cognitive pressures are more ethereal and rarer in this case, therefore I simply address them in the analysis.

5.3) Description of events ([Annex 4](#))

The description of events summarizes my findings in terms of institutional pressures and industry strategies by referring to news sources, interviews and other data. It chronologically describes events of institutional pressure (e.g. pressure event 5. Scientists advise a closure of the Orange Roughy fishery) and other types of events that have incited responses from the industry (e.g. pressure event 8. Fuel costs fluctuations) as well as events signaling strategies (e.g. strategy event 5. Responses to scientists' advice to close the Orange Roughy fishery). Each 'pressure event' is numbered and described under a red heading. Note that only a few small and punctual events of normative pressure that appear in the Timeline 3 are mentioned under a numbered event heading, such as scientists' advice in the news, petitions and publications. These events may not always have had visible effects and therefore are not discussed in detail but are mentioned in the summary to the year or period.

Below events of pressure (in red) are industry's responses under an orange heading and with a same number. Some events signal strategies which are not associated with a specific event of pressure, these have a letter instead of a number (e.g. strategy event C. The creation of Euronor).

Some pressure events were not met with any specific strategy (e.g. pressure event 27). When this could not be explained from the data, I explicitly mention it. In the analysis I provide an interpretation when there are reasons or leads which allow to explain the absence of strategy (e.g. the absence of response can be an avoidance strategy from FIOs).

These events do not reflect everything that happened during the period. The data naturally limits an extensive description of those fifteen years, for example there was more information about the topic for the second half of the period as the controversy grew, capturing the media's attention and marking respondents' memory (see also Biases and limitations below).

5.4) Identifying trends

From the events I identified trends borrowing from the method of process analysis found originally in Langely (1999; cited in Guse, 2013). I distinguished four periods in which trends in institutional pressure could be identified ('temporal bracketing'; Langely, 1999) based on the observation of peaks, drops, or changes in their type or form (based on their conceptual categorization in Chapter II - Constituents). Each period is named based on the observation of such trends. The justifications for the definition of the time period and its name are given in the each summary. For example the second period is named 'Growing concerns' because it follows early expressions of concerns by scientists and is characterized by an increase in publications and NGO campaigns (normative pressures) as well as international policy-making events to regulate DSBT (regulative pressures).

The identification of trends helps prepare the analysis of individual events and understand relationships between variables (Langely, 1999). After having defined periods where certain types or forms of pressures are more prevalent, I look at the industry's strategies and the change in DSBT activity in response to these trends. Some strategies or collection of strategies are not a response to one specific event of pressure but to a combination of institutional pressures and other factors not related to pressures from constituents, therefore I also signal general trends in terms of the industry's strategies and DSBT activity.

These trends are summarized in Table 10 and Table 11, and described in more detail in the section that succeed these tables (see Identifying trends in institutional pressures and industry strategies).

5.5) Case study analysis and cross-case comparison

Finally I compound these efforts into an analysis (see Analysis) based on themes that I was able to identify throughout the fifteen year period to analyze the interaction between events signaling pressures and explanatory factors to explain the industry's responses and individual strategies (see Part one: the French fishing industry and Part two: individual cases of ship-owners). In doing so I refer to the data (figures and tables) and events contained in the Timeline results and Annex 4 while

still citing news articles, interviews and other data sources to substantiate my analysis. For example I found that institutional pressures related to quotas and strategies in response were often similar, therefore I discuss this theme under a same heading (see The quota system). The main research question is also addressed by interpreting the evolution in the extent of DSBT activity in light of the previous sections (see Part three: The changing extent of DSBT activity).

6) Covariance, asymmetry and non-spuriousness

I tried to design this research in order to make sure that the identified strategies of FIOs and the extent of DSBT activity were responses to identified institutional pressures (covariance), that the pressures preceded the strategies (asymmetry), and that other rival explanations were taken into account which could affect the dependent variables (non-spuriousness). Covariance was assessed by checking in the data whether a specific event of pressure was associated with a strategy described as a response from the industry, and FIO respondents were asked to elaborate on what pressures they perceived and how their organization had responded to them. Asymmetry was established via the chronological reading of the events that constituted the case and ensuring that each strategy was preceded by a corresponding event of pressure. To assess non-spuriousness I tried to integrate as many of the explanatory factors proposed in the theoretical literature and which can determine organizational strategies.

The extent of DSBT activity can particularly be impacted by all the variables i.e. institutional pressures, explanatory factors and strategies. To find out what has impacted this dependent variable I looked in the data for statements that made the link between it and other variables. For example news sources sometimes cite industry representatives speaking about measures they took to reduce their DSBT activity due to the diminution in quotas. However it was not always possible to pinpoint the specific reasons due to the impossibility to interview some ship-owners. I therefore offer a possible explanation which would have to be confirmed in further research.

7) External validity

There are two types of external validity: the first in which the results are generalized from one case to another, the second in which the results are generalized from one case to the theory (Yin, 2003).

The particular findings of a case study can be generalized to broader theory using a logic of replication, which can be achieved as theory is tested “by replicating the findings in a second or even a third (case study), where the theory has specified that the same results should occur” (Yin, 2003, p37). The case of DSBT in France is highly specific: despite the rise of scientific literature regarding the impacts of DSBT and consequent European-wide institutional pressures, it is reasonable to assume that the institutional setting of the fishing sector in France differs from that of other countries (i.e. due to geographical location, cultural identity, characteristics of ship-owners, the composition of networks and actors, the functioning of supply chains, and the specific social, political and economic setting in general). However if a fishing industry or ship-owner in a different national or regional context presents similarities with those in France on the variables, then chances are that

findings for the French fishing industry can be replicated to other fishing industries (e.g. other European countries).

In order to allow for replication and to increase the generalizability of the findings of a qualitative case study, a researcher can “provide sufficient detail about the circumstances of the situation or case (...) so that readers can engage in reasonable but modest speculation about whether findings are applicable to other cases with similar circumstances.” (Schwandt, 2007, p128). I also try to make sure that the elements of the theoretical framework (constructs and hypotheses) and their operationalization; the data sources and collection procedures; and the methods of analysis are specified in detail to increase their reliability and allow other researchers to repeat this study in other contexts (see Yin’s ‘case study protocol’; 2003, p67). However the interpretation of constructs (especially strategies) contains a risk of bias as one can draw different conclusions based on a same event and also because not all explanatory factors could be assessed in each instance of pressures and strategies.

8) Biases and limitations

In addition to biases already addressed specifically for certain sections of this chapter, I want to make a number of remarks regarding the potential biases and limitations to this study linked to a problem inherent to the topic of this case study.

FIOs generally want to protect sensitive business information and will not expose their full range of strategies. As a consequence, this information cannot be expected to systematically emerge from oral interviews (rather than a survey questionnaire) for each year and each event of the chosen period. Furthermore when dealing with historical data it is possible that the information collected is sparse and more focused on memorable events (Langely, 1999). In order to address this, I have continued collecting data until no new event could be recorded. Where data could not be obtained to explain a strategy or detail an instance of pressure, the gap is made explicit and interpretation is offered with greater caution based on available evidence, first- or second-hand observations and reasonable conjectures. Member check also allowed two Ifremer respondents to check that, if not the analysis, then the facts are accurate to avoid any misreporting.

Furthermore, data sources such as those used in this research are unavoidably value-ridden and therefore offer potentially biased information. Biases can be handled by acknowledging their subjective nature and by comparing information from different sources whose views and interests are known to differ (e.g. industry respondents vs. environmental NGOs and scientists). The epistemological approach to this research is that reality is composed of a set of subjective views (relativism; see Harling, n.d.) which must necessarily be taken into account to answer research questions (perceived pressures, motivations for response strategies, etc.), therefore by highlighting these actors’ positions and triangulating them we are actually reflecting the social reality of the case and tackling biased reporting of facts.

IV - Case Study Background

1) Introduction

Before delving into the analysis of how DSBT activity has evolved in response to institutional pressures to reduce or ban DSBT activity, I want to provide a historical, geographical and economic analysis based on literature and interviews of the French industrial fishing sector, French DSBT activity, the fish supply chain and the political representation of the industry. This background information serves to understand the context of the development of DSBT activity and the socio-economic trends that characterize the French fishing industry. It forms the basis for the more detailed analysis of French DSBT activity and of its industry's strategies. As such this chapter does not contain the systematic application of the theoretical framework and the few events cited are not the ones analyzed in the timeline (see next chapter [Results and Analysis](#)). In Annex 2 the reader will also find useful information defining what is meant by DSBT in this thesis.

2) The French industrial fishing sector

2.1) Introduction

In this section I address general socio- economic trends in the French fishing sector and how these affected its organization in the period after World War II. Due to the difficulty in finding data anterior to the 1980-90's, trends is partly discussed in qualitative terms based on literature. The second section describes more specifically the rise of French DSBT activity between the 1970's and 2000 and as it has been during the period of interest (2000 to 2014 included).

2.2) General trends and evolution of the French industrial fishing sector

After World War II the French fishing fleet entered an era of modernization with the appearance of new fishing methods and the ambition of higher catches (Mesnil, 2008). Large-scale industrial fishing progressively replaced smaller-scale fishing and changed macro-economic trends: the intensification of the sector (larger, more powerful boats with greater catch capacity) led to a reduction of the number of employed fishers, increased fuel consumption per vessel as well as catches (Mesnil, 2008). This evolution was aided by the upsurge of French state and European Community subsidies for the construction of these new vessels and modernization of old ones (FAO, 1992), on top of tax exemptions on fuel for fishing vessels existing in France since 1949 (Mesnil, 2008, p5). In fact European Community aids for European fisheries rose from \$80 million to \$580 million between 1983 and 1990 alone (FAO, 1992, p22).

The globalization of trade meant that French fishers had to compete not only in fishing the same stocks but also in selling their product on the market. The price of French-caught fish became increasingly dependent on a global supply as buyers in France could purchase cheaply imported fish (Mesnil, 2008). Over time imports of fish rose significantly to become much larger than the share of

consumed and exported fish originating from French fleets (see Table 6 below), and fishers had trouble maintaining decent incomes from their activity.

	1990	1995	2000	2005
Landings	946 315	955 920	970 241	853 755
Exports	354 877	391 469	485 950	430 015
Imports	886 008	919 601	1 029 220	1 141 666
Trade balance (exports-imports)	-531 132	-528 131	-543 271	-711 651

Table 6 Total production and foreign trade in fishery products in (tonnes live weight) in France in five year increments between 1990 and 2005. Source: European Commission (2007).

The system really started to show signs of weakness when the oil crises of the 1970’s hit the global economy and increased the cost of fuel (Mesnil, 2008). A pattern of crises followed by the input of direct subsidies as a short-term fix accustomed fishers to receive government money whenever the sector was in difficulty and meant that ship-owners would be operating at a loss without them (Mesnil, 2008). Due to the propensity of French fishers to protest at every crisis and capture the attention of politicians, subsidies continued to be injected for a long time even after they became illegal in European law in 1976 by exploiting various legal loopholes (Mesnil, 2008, p5). Subsidies became—and still remain—a controversial topic in France as fishers and the government tend to take these aids for granted, and subsidy schemes were rolled out and attributed in total lack of transparency to avoid monitoring and sanctions (Mesnil, 2008). In 2010 a report from the French Court of Auditors thus deemed the French subsidy schemes to be ‘pervaded with contradictions’ and ‘not governed by reason’ (Cour des Comptes, 2010).

Fishing became increasingly regulated internationally with the European Common Fisheries Policy in the 1970’s but also United Nations’ policies such as the Law of the Sea Convention of 1982. The confinement of the fishing effort to specific zones and the introduction of the system of quotas meant that fishers were no longer able to fish freely and became partially dependent on scientist’s advice informing public policy. Regulative efforts also tried to shrink the overall size of the European fishing fleet and succeeded to do so by reducing the number of vessels by 16.4% between 1994 and 2010 (from approximately 100,000 to 84,000 vessels; Lagares & Ordaz, 2014). In France scrapping efforts have not managed to reduce the number of vessels, in fact the fleet has increased (from 6,831 in 1994 to 7,242 in 2010) while maintaining roughly the same or lower power (from 1,010,928 kW in 1994 to 996,189 kW in 2011) (Lagares & Ordaz, 2014).

In order to face competition and crises but also to facilitate mobilization to defend its interests against European regulation, the sector underwent a process of structuration in which the industry increasingly organized its activities collectively within the framework of its associations (see The network of fishing industry organizations) which increased their participation in policy-making (as explored in the Analysis).

2.3) French deep-sea bottom-trawling activity in the North East Atlantic

Before 2000: Beginning of the fishing activity and creation of the market

This account of DSBT in the North East Atlantic is based on triangulated descriptions from interviews with various respondents and from documents. It provides context for the reader to understand how the activity has evolved prior to the period of interest for this case study.

The need to fish deeper and farther from the coasts originated from the rapid diminution of stocks on the continental shelf and near coasts (interview with Ifremer experts). Deep-sea exploration by French trawlers started in the early 1970's particularly thanks to the improvement of the cable winch (used to lower or raise nets into the sea) which allowed for longer cables to be mounted on the vessels (Avenir des Pêches Profondes, 2010). In those years, fishers from Boulogne-sur-Mer and from the Brittany region targeted Saithe¹⁵ and Blue Ling, with substantial bycatch of other species including Roundnose Grenadier and Black Scabbardfish. These species were unknown to the French market and were therefore discarded in important quantities due to absence of demand, however they raised interests for ship-owners who were not able to obtain quotas on other species and thought they could expand their activities in those new fisheries¹⁶. It is in the mid-1980's when reportedly a mareyeur (i.e. fish processor and sellers¹⁷) in Boulogne started promoting these new products to his clients and effectively opened new possibilities for their marketization (interviews with M-C. Monfort and industry respondents).

The species inserted well into the national market due to their low price, 'neutral' taste, and for some the absence of bones (especially the Black Scabbardfish; interview with M-C. Monfort and with a mareyeur). According to industry respondents deep-sea species also always need to be fileted before sale¹⁸, which came as a benefit for the processing sector (interview with a mareyeur).

In the late 1980's, fishers started catching Orange Roughy in large quantities (interviews with industry respondents). This species on the contrary had a high commercial value and was very appreciated for its taste. Deep-sea species in the North East Atlantic met the same fate as other stocks with declining landings (interview with M-C. Monfort) particularly due to the combined effect of unregulated fishing effort by several European fleets¹⁹ (interview with T. Douard).

¹⁵ Another deep-sea species generally considered separately from the identified deep-sea species in this fishery.

¹⁶ See La Tribune 28 August 2000 LES PECHEURS DE BOULOGNE REFUSENT LES QUOTAS SUR LES POISSONS DE GRANDS FONDS

¹⁷ The main difference between a mareyeur and a wholesaler is the former's implantation near the fishing port, therefore being the first buyer of the product; see also The French fish supply chain.

¹⁸ Deep-sea species are generally considered rather unattractive, especially after being lifted from great depths and as changes in barometric pressure causes their body to bloat up.

¹⁹ This effect was reduced in 2003 when French vessels reaped most quotas on these species. See The quota system in the Analysis.

3) The French fish supply chain

3.1) Introduction

In this section I describe the general functioning of the French FSC and give a few economic considerations regarding the deep-sea fish supply chain; followed by a description and analysis of the evolution of the FSC in France based on interviews and literature.

3.2) The functioning of the supply chain

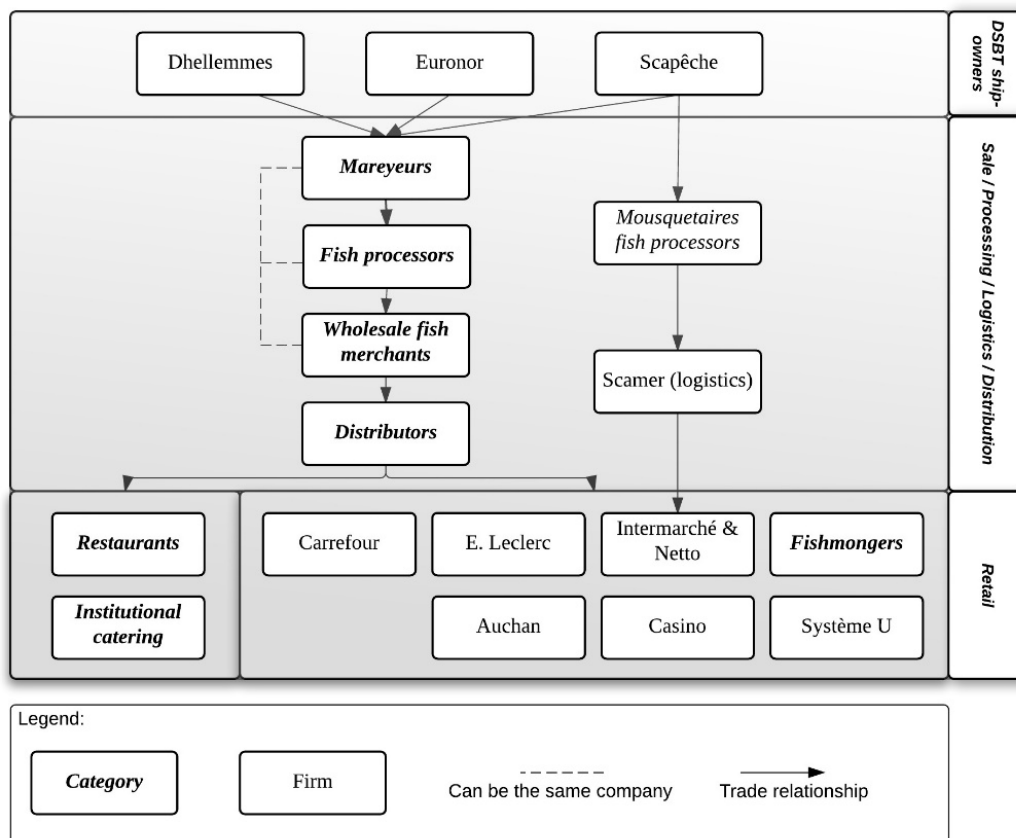


Figure 7 Diagram of the French deep-sea fish supply chain network.

The fish supply chain in France typically follows the model presented in the Theoretical Framework (Figure 5) and above (Figure 7), and does not differ for deep-sea fish (interview with a fish market consultant). Fish is caught by fishermen and landed in a port where it is purchased from the ship-owner at the 'criée'²⁰ by mareyeurs in an auction-style of trading (interview with a mareyeur). Mareyeurs may then process the fish or sell it to a processing company. The product is traded with a wholesaler, who sells it to retailers, fishmongers, or to actors of the food service industry (private and institutional, e.g. restaurants or school cafeterias) to finally reach consumers. In practice this chain may be shortened as fish sometimes bypasses wholesalers, particularly when the customer is in the vicinity of the mareyeur's shop (interview with a mareyeur).

²⁰ From the word 'crier' meaning 'to shout', as sales used to be animated by a 'shouter' giving prices out loud.

Economic considerations: price and interdependence

The regularity at which ship-owners can land fish at a port guarantees economic stability for the rest of the chain locally: mareyeurs, wholesalers and processors want to have access to sufficient quantities and variety of fish throughout the week, month and year in order to sustain their business and continue to attract customers (interview with a mareyeur²¹). The price of fish varies importantly over time and between species based on the dynamic of supply and demand, but also freshness, size and overall quality of the fish (e.g. whether the fish was damaged during catch; *ibid.*). The price is also impacted by the amount of fish landed at once: with larger volumes, mareyeurs will be less in competition with each other and can purchase fish at a lower price (*ibid.*). This means that ship-owners do not have so much interest in catching 'as much as possible', otherwise their activity becomes no longer profitable (on top of having limited quotas which in theory should prevent fishing beyond catch limits²²; interview with Scapêche respondents). It also means that other variables which otherwise affect the overall balanced cost of the fishing activity (e.g. available quotas, access to subsidies, cost of fuel, etc.) are not reflected in the price of the fish but depends on the rules of the market (interview with a mareyeur).

As stated above *General trends and evolution of the French industrial fishing sector*, deep-sea species have a particularly low price compared to other species, which makes them attractive to actors of the supply chain. For that reason, according to a mareyeur in Lorient, the volume of deep-sea fish unsold and wasted remains very low.

²¹ See also La Voix du Nord 3 March 2013 Le mareyage à Capécure souffre : les raisons et quelques clés pour s'en sortir.

²² Compliance with deep-sea fish quotas is relatively good but not constant over the period of this case (see Table 7).

4) The network of fishing industry organizations

Private FIOs and professionals (i.e. fishers, ship-owners, mareyeurs, etc.) are represented by—and interact with—many other actors and organizations which work together to structure the market, distribute quotas among ship-owners, defend the interests of the industry in policy-making instances and overall participate in the governance and management of fisheries (see Description of FIOs in Annex 2 for a description of each FIO relevant to this case). In the following diagram, I present how the organizations described in Annex 2 are organized.

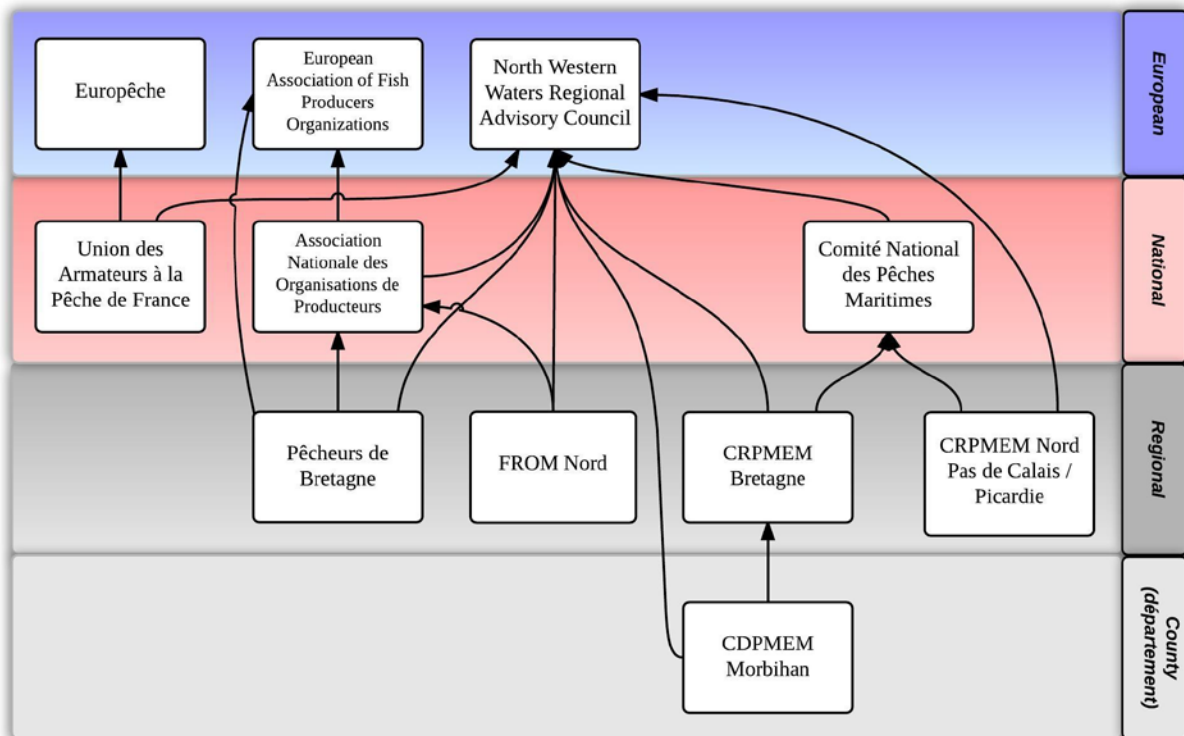


Figure 8 Diagram of the network of fishing industry organizations at various levels.

FIOs are imbricated in different levels from local or county (French ‘départements’) to regional, national and European. Arrows in the diagram represent either partnerships or memberships from one (lower) level to higher one. This illustrates the structuration and interconnectedness of the fishing industry (see Theoretical framework - Context). There are dozens of other organizations which structure and coordinate the fishing industry’s activities and represent it, however here I chose to represent the most salient of them in the data. I also recommend the reader to take a look at Figure 23 also in Annex 2 to further realize the level of interconnectedness between FIOs.

V - Results and Analysis

1) Introduction

In the Results and Analysis chapter I answer in depth the research questions set in the first chapter of this paper. This chapter is structured so that events are first identified and described individually in terms of events of pressures and of industry strategies (sections 2.1 and 2.2). A more complete description of events is found in Annex 4 and referred to by these event's types (whether they are pressure or strategy events) and number or letter (1-27 and A to M). The last part of the Timeline results (section 2.3) presents the data I was able to find related to the changing extent of DSBT activity.

The first part of the analysis also answers questions 1 and 2 by organizing the fifteen year timeline into distinct periods based on trends of institutional pressures (Langely, 1999; Identifying trends in institutional pressures and industry strategies), which are presented in two tables and a text referring to each events of Annex 4. Finally I compound these efforts into an analysis based on themes that I was able to identify throughout the period (Analysis). This part aims to answer the third sub-question in explaining the industry's strategies in response to institutional pressures and explanatory factors (Part one: the French fishing industry and Part two: individual cases of ship-owners) and the main research question by interpreting the evolution in the extent of DSBT activity (Part three: The changing extent of DSBT activity).

The context of the case makes it almost irrelevant to try and distinguish which FIO or person employed what strategies. This is because the French fishing industry showed high levels of structuration (presence of a coalition with the same values, interconnectedness and high individual mobility among organizations of the sector) which led to a concertation and conformity of their response strategies in facing institutional pressures. I therefore rarely name FIOs, also because I do not assume all readers will be able to follow the names or abbreviations of each organization or persons. In consequence in this chapter I refer to 'the fishing industry/sector' and 'industry representatives', without differentiating among FIOs apart from their location (Lorient and Concarneau in Brittany or Boulogne-sur-Mer in Nord-Pas-de-Calais). The position of certain individuals is sometimes mentioned, and ship-owners are of course named since they constitute the sub-cases of this study.

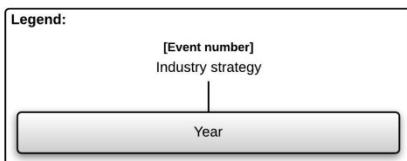
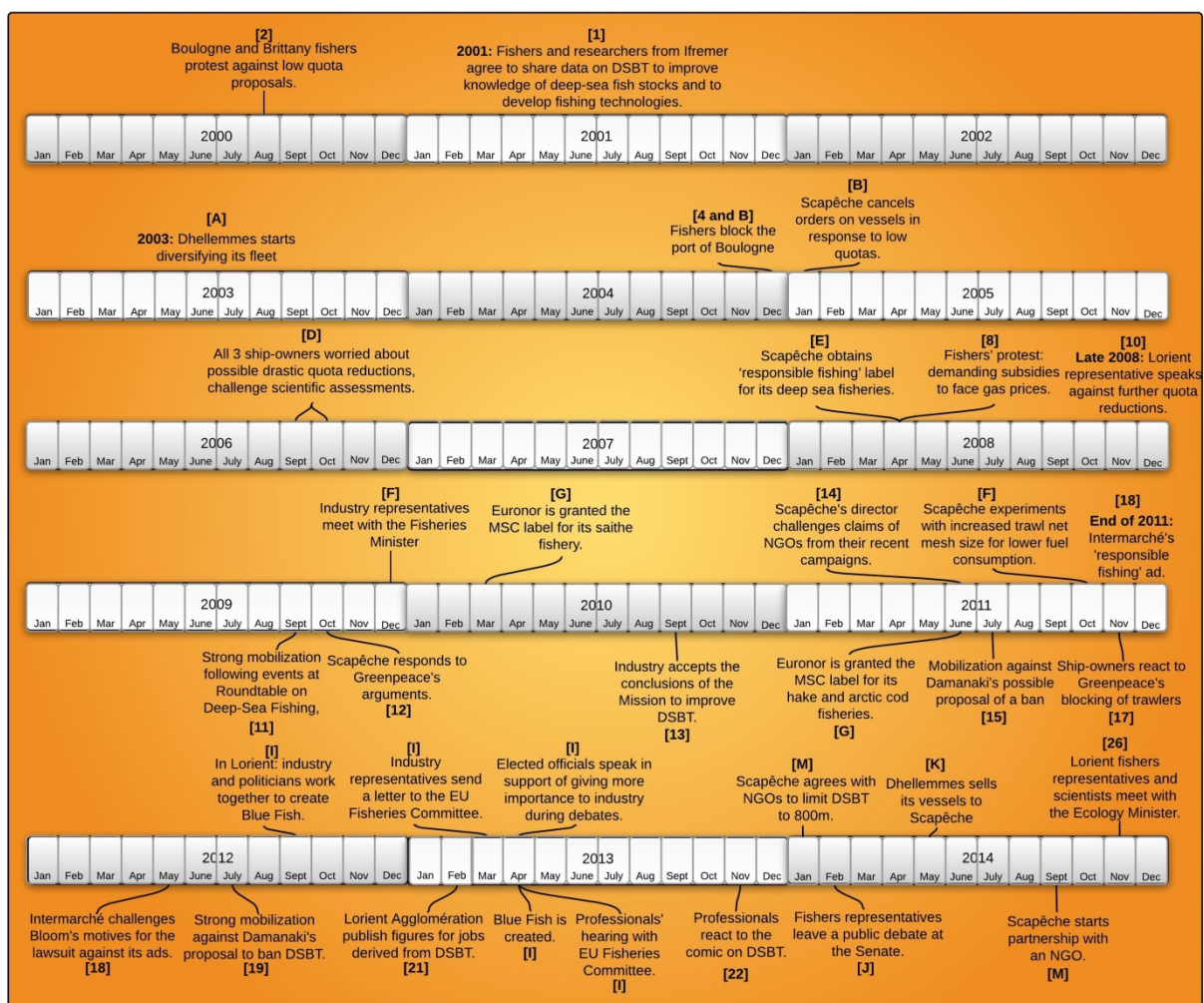
In order to facilitate reading in this section I put all citations of news sources in footnotes rather than in the text. Furthermore, note that phrases in *italics* indicate a type or form of pressure, phrases in **bold** indicate strategies, and explanatory factors are in ***bold italics***.

2) Timeline results

From the list of events in Annex 4 I created a number of timeline figures which serve to represent simply the collection of events that happened over those fifteen years. The first timeline represents the industry's strategies. The second timeline contains legislative events and moments of regulatory uncertainty, and the third contains events of normative pressure. These events are mostly collected from news sources and therefore do not reflect the full extent of what happened during the period.

2.1) Industry strategies

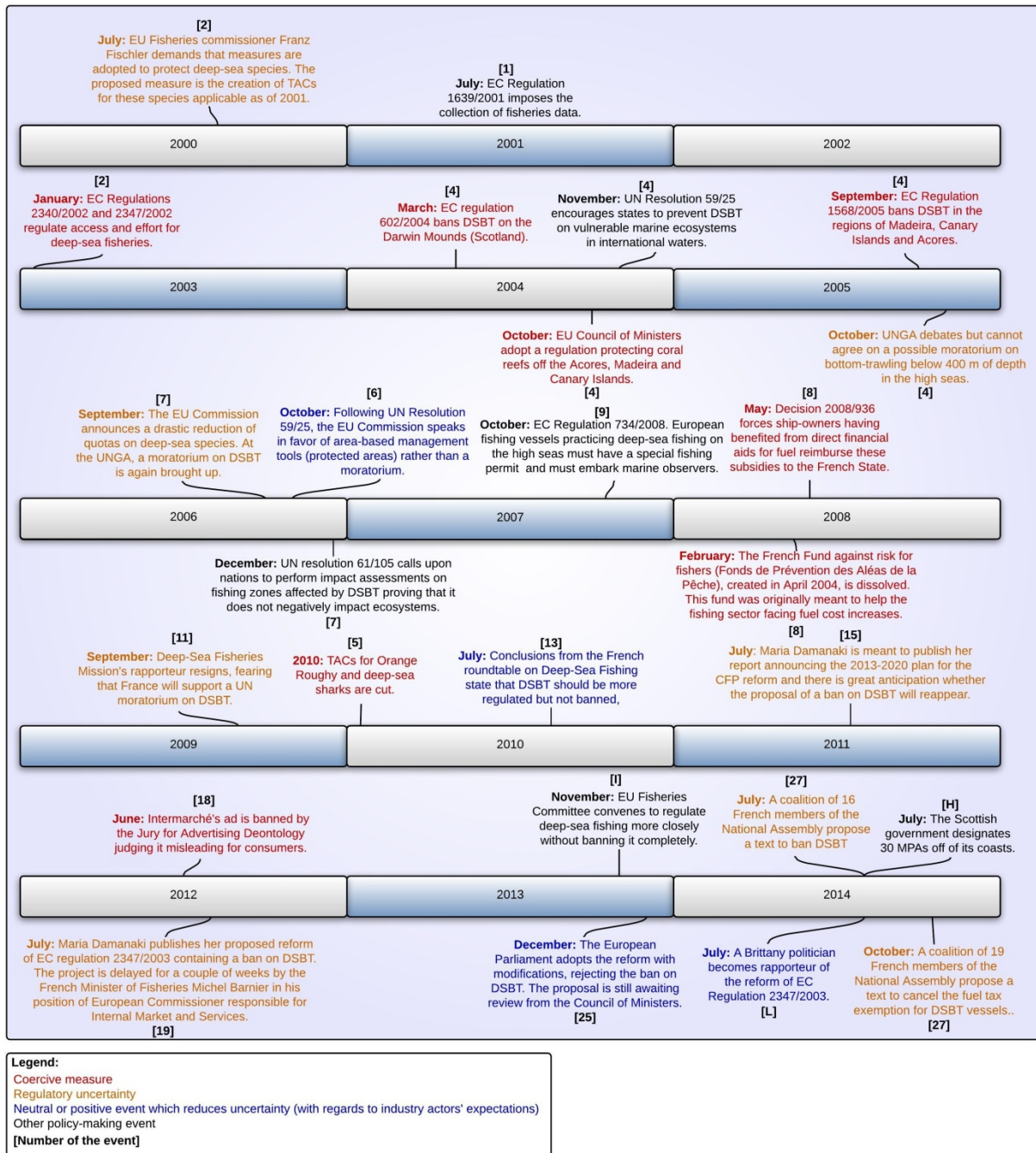
The first timeline represents the industry's strategies. I do not identify strategies here using the framework (see Timeline in the Methodology chapter).



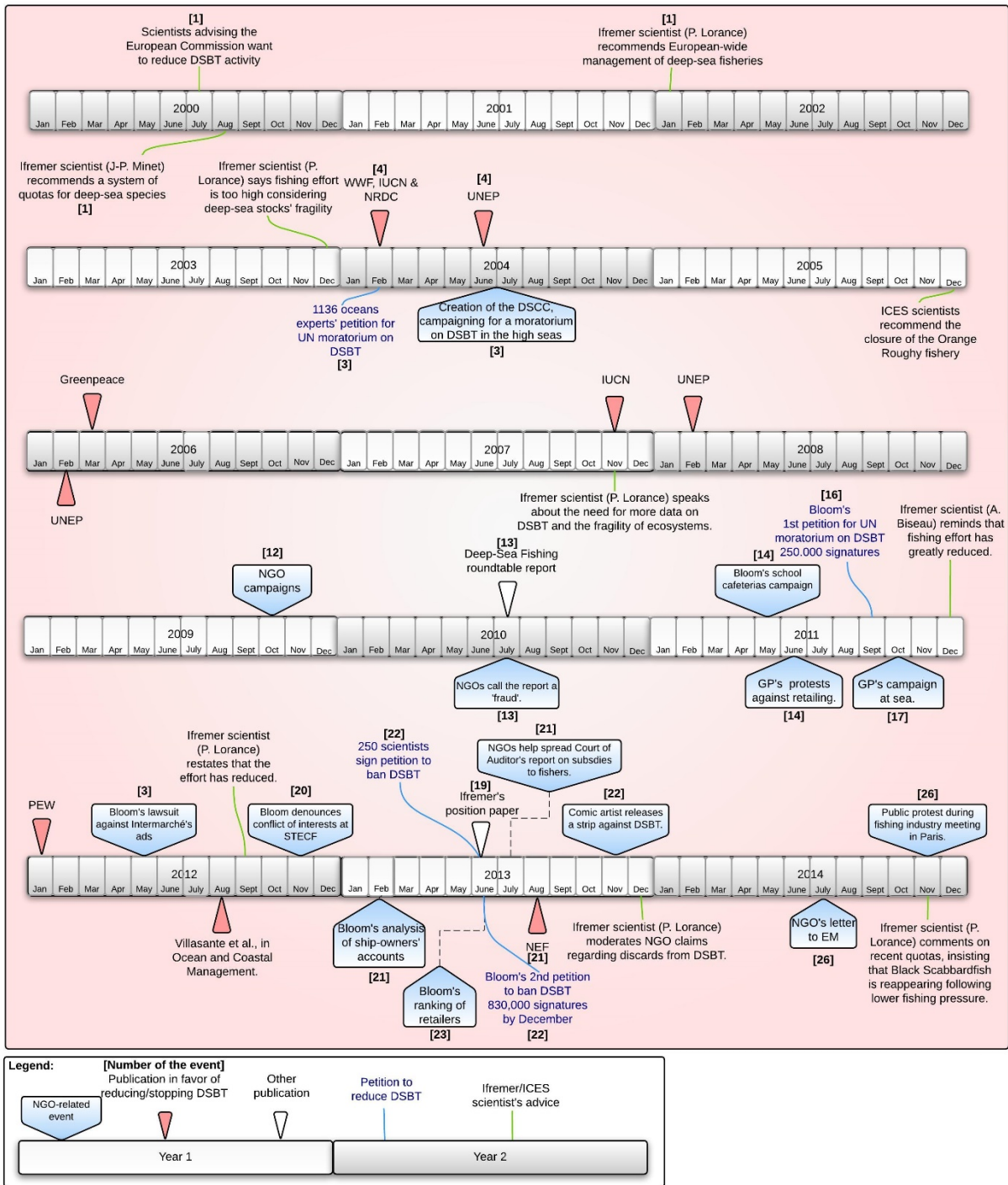
Timeline of events 1 Industry strategies

2.2) Institutional pressures

Here are the main events of institutional pressure that marked the period 2000 to the end of 2014. The first timeline shows both legislative pressures (new legislation) and catalyzing moments of uncertainty for the industry, and the second timeline shows events of normative pressure.



Timeline of events 2 Legislation and regulatory uncertainty



Timeline of events 3 Normative pressure

Some events in this timeline are not associated with a numbered event, particularly some publications and scientists' advice. This is because although they appeared in the news sources, they could not be attributed specifically to certain events that are described (i.e. in Annex 4). They simply contributed overall to the sum of normative pressures. The references for publications are in the references list of the paper.

2.3) Extent of DSBT activity

In this section I present the results for each of the four indicators chosen to assess the evolution of the extent of DSBT activity: fishing effort, footprint, landings and size of the fleet. Each set of results has limitations which are detailed before the figures and tables. The different figures and tables are not interpreted in this section but in the Analysis section.

1. Landings

Landings data in most cases was not available to me for either specific ship-owners, ports, years or species, therefore I chose to mostly use data aggregated at the national level. Landings in the port of Boulogne-sur-Mer (Euronor's home port) were available for each year and each deep-sea species from 2000 til 2012 (see **Table 8**). After 2012, deep-sea species were no longer differentiated from a number of other species in the harbor's statistics due to very low catches. Port authorities of Lorient, Le Guilvinec (where Scapêche lands part of its deep-sea fish), and Concarneau (Dhellemmes) did not grant me access to relevant landings data, redirecting me to their publications. These publications were missing some years or did not specify the species, for these reasons I chose to exclude them. Data for sales of deep-sea species in each port were available from FranceAgrimer, however these figures showed discrepancy with actual landings data²³ and were discarded.

The following figures and tables allow to compare landing figures with set quotas and can thus be used to assess fisher's compliance. They also show the changing extent of DSBT activity. In that sense, all indicate a clear decreasing trend. Explanations are offered in the Analysis.

²³ The discrepancy is due to the fact that they sales are only recorded in 'criées' and therefore exclude direct sales from the ship-owner to a buyer (as indicated by an employee from the chamber of commerce in Boulogne-sur-Mer).

Year	Roundnose Grenadier		Black Scabbardfish		Orange Roughy		Blue Ling		Total Landings	Total Quotas
	Landing (all areas)	Quota (all areas)	Landing (all areas)	Quota (all areas)	Landing (Areas V, VI, VII)	Quota (all areas)	Landing (all areas)	Quota (all areas)		
2000	10 036		3 713		1 120		5 724		20 593	
2001	8 767		4 975		1 214		3 601		18 557	
2002	8 432		4 474		463		3 140		16 509	
2003	6 329	4 410	3 349	2 610	453	1 077	3 680	2 849	13 811	10 946
2004	5 067	4 410	2 985	2 610	337	1 077	3 933	2 849	12 322	10 946
2005	3 227	3 988	2 807	2 474	213	972	3 072	2 423	9 319	9 857
2006	2 261	3 988	2 180	2 474	483	972	2 976	2 423	7 900	9 857
2007	1 818	4 005	2 295	2 469	158	203	3 213	1 940	7 484	8 617
2008	1 483	4 005	2 686	2 469	94	135	2 501	1 552	6 764	8 161
2009	1 151	3 405	1 794	2 221	61	70	2 547	1 546	5 553	7 242
2010	1 327	2 921	2 000	2 066		0	2 453	1 334	5 780	6 321
2011	1 146	2 569	2 118	1 914		0	1 480	1 341	4 744	5 824
2012	1 137	2 238	1 855	1 772		0	1 624	1 467	4 616	5 477
2013	964	3 668	2 166	2 478		0	1 689	1 847	4 819	7 993
2014	685	3 656	1 981	3 204		0	1 727	1 732	4 393	8 592
2015		3 433		2 950		0		3 622		10 005

Table 7 French landings and quotas of deep-sea species per year between 2000 and 2015. See also associated graphs in the next pages.

As stated in *French deep-sea bottom-trawling activity in the North East Atlantic*, most deep-sea fish is caught in the North East Atlantic. However it is sometimes difficult to find landing and quota figures for the associated ICES areas. I therefore indicate in this table the landings and quotas for all ICES areas. This creates a slight incoherence but is difficult to avoid. Landings data comes from ICES-WGDEEP (2015), quotas are from the European Commission. I included quotas for the year 2015 because they are available and give an idea of the current trend.

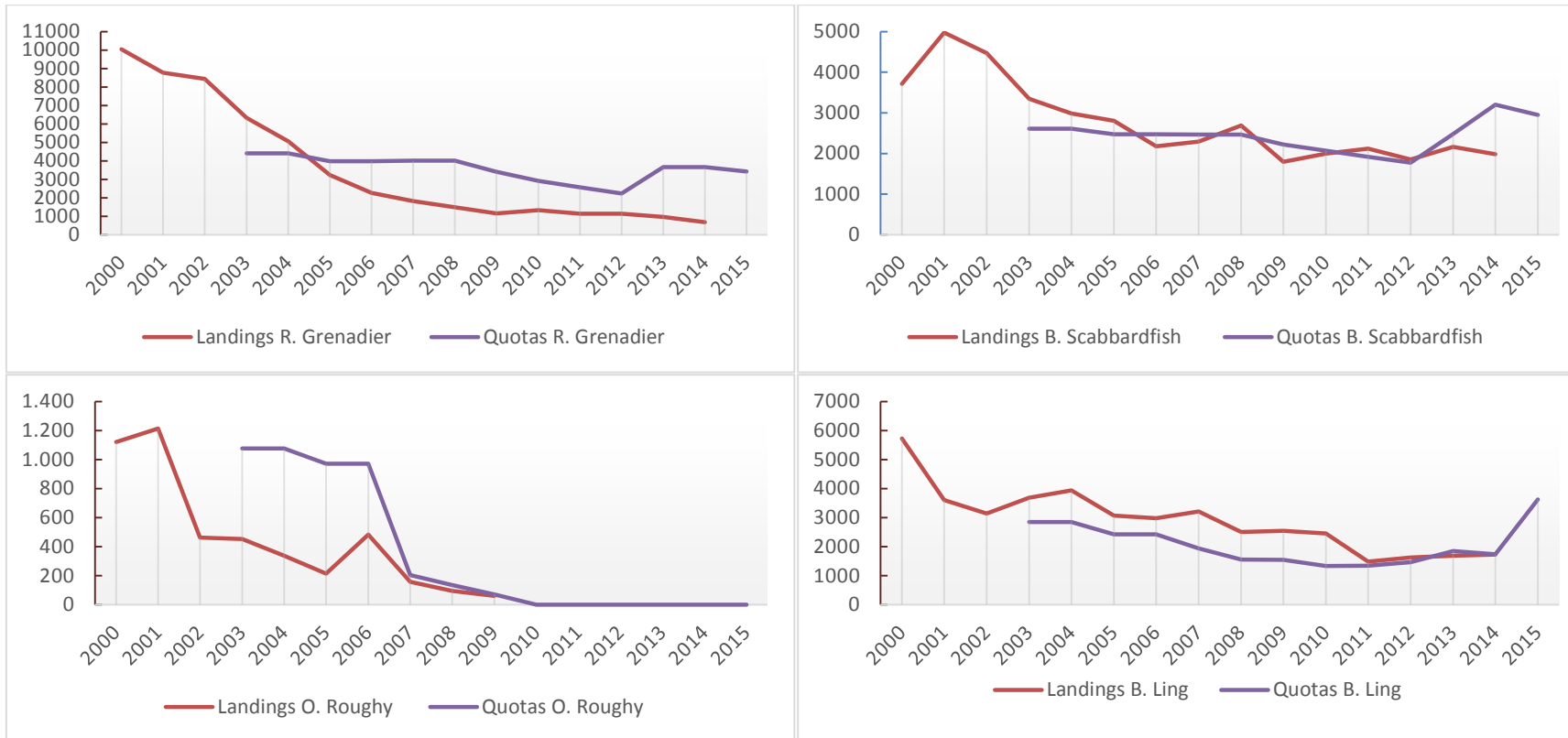


Figure 9 French landings and quotas of Roundnose Grenadier, Black Scabbardfish, Orange Roughy and Blue Ling in tonnes between 2000 and 2015 for France.

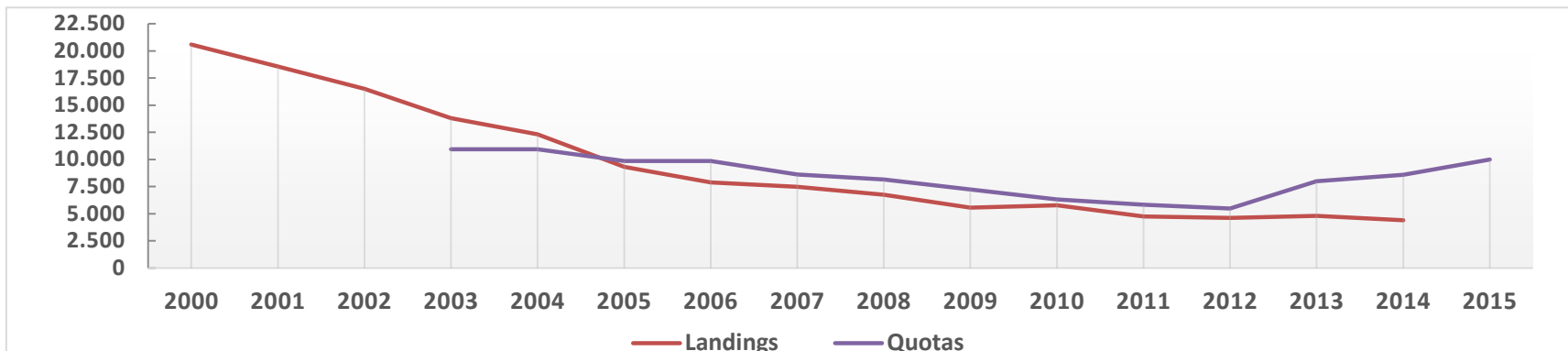


Figure 10 Total landings and quotas of all four deep-sea species in tonnes between 2000 and 2015 for France (see the table and related notes above).

Year	Saithe	Round-nose Grenadier	Blue Ling	Orange Roughy	Black Scabbardfish	Total deep-sea fish ¹
2000	10 818	3 993	2 254	682	640	7 569
2001	9 321	3 251	955	677	1 083	5 965
2002	11 710	3 175	961	270	461	4 866
2003	9 087	2 387	1 602	179	799	4 966
2004	4 871	3 130	1 370	97	297	4 895
2005	3 091	1 916	1 025	36	345	3 321
2006	6 781	1 219	1 105	15	153	2 492
2007	6 738	997	1 279	10	172	2 458
2008	5 610	469	1 038	0	427	1 934
2009	3 641	440	1 053	4	467	1 963
2010	2 039	509	1 020	1	421	1 951
2011	3 789	49	380		393	822
2012	4 223		388			
2013	3 977		459			
2014	3 764		406			

Table 8 Landings of selected and deep-sea species in tonnes in Boulogne-sur-Mer between 2000 and 2014. See notes below.

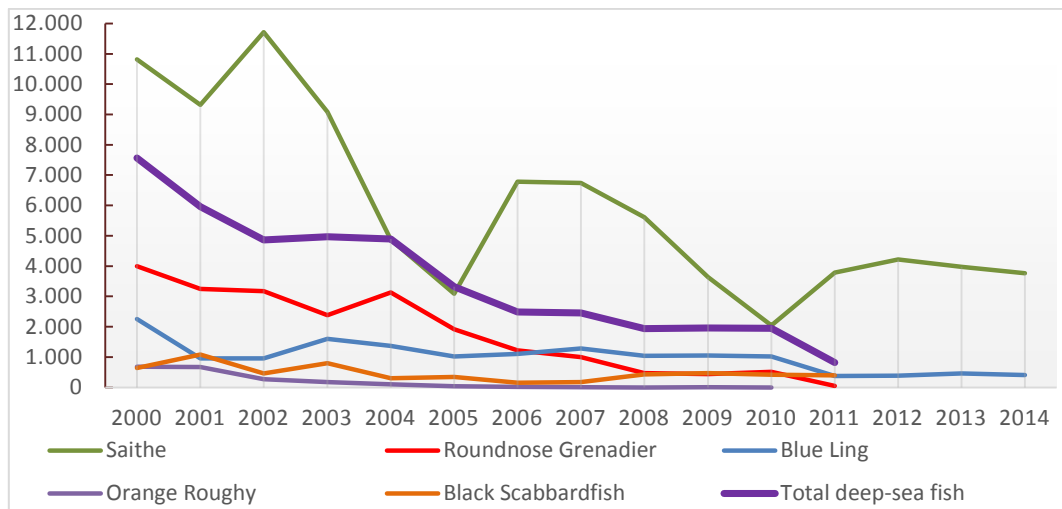


Figure 11 Landings of selected and deep-sea species in tonnes in Boulogne-sur-Mer between 2000 and 2014.

This data was provided directly by the chamber of commerce of the port of Boulogne-sur-Mer. Landings of deep-sea species are missing from 2012 onwards due to their decreasing volumes (discussion with a chamber of commerce employee). These figures mostly represent Euronor's landings since it was the only industrial ship-owner in Boulogne targeting these species.

¹: Total landings of Roundnose Grenadier, Blue Ling, Orange Roughy and Black Scabbardfish, i.e. excluding Saithe.

2. Size of the DSBT fleet

Fleet management activities of each ship-owner are not all reported at the time they occurred but at certain points in time when the information was given. News articles would for example sometimes report the number of vessels belonging to a ship-owner. Whenever possible, I try to indicate the number of DSBT vessels out of the total number of vessels owned by the company. I also indicate the total French DSBT fleet for available years.

Here again, the figures indicate a declining trend particularly for Euronor and Dhellemmes.

Year	Scapêche		Euronor		Dhellemmes		Total French DSBT vessels with over 10% of the weight of landings composed of deep-sea fish
	Total	Targeting deep-sea species	Total	Targeting deep-sea species	Total	Targeting deep-sea species	
2000			14 ²⁴	9	26 ²⁵		49 ²⁶
2001	40 ²⁷	12 ²⁸					48 ²⁶
2002						12-13 ²⁵	40 ²⁶
2003				9 ²⁴			34 ²⁶
2004							30 ²⁶
2005	31	6 ²⁸	13	10 ³⁰			28 ²⁶
2006							27 ²⁶
2007	25 ²⁹						16 ²⁶
2008			8	5 ³⁰			17 ²⁶
2009			8	6		5 ³¹	
2010	17 ²⁶	7 ²⁶	7 ²⁶	2 ²⁶	11 ²⁶	3 ²⁶	12 ²⁶
2011				1 ³²			11 ³³
2012							
2013	18 ³⁴		7 ³⁵	1			
2014	24 ³⁶			1 ³⁷		0 ³⁸	

Table 9 Number of vessels for Scapêche, Euronor and Dhellemmes between 2000-2014.

²⁴ Ouest-France 27 January 2009 **La pêche boulonnaise en chute libre**

²⁵ Bloom, (n.d.). *En France*.

²⁶ Avenir des Pêches Profondes, 2010.

²⁷ Ouest-France 8 June 2010 Bretagne Edition Les Mousquetaires et la seconde vie du Zubernea

²⁸ Agence France Presse 20 July 2012 Colère en Bretagne contre l'UE qui veut interdire les chaluts en eau profonde

²⁹ Le Point du 22 January 2007 « Les mousquetaires de la mer »

³⁰ This number corresponds to the number of fresh fishing trawlers the company owns but which may not all target Grenadier, Black Scabbardfish, Orange Roughy and Blue Ling.

³¹ Bloom, (2011), p90.

³² La Voix du Nord 3 August 2012 Chalutage en eaux profondes : le mareyage boulonnais redoute la casse sociale

³³ Ifremer, (2014).

³⁴ Ouest-France 24 January 2014 Lorient Edition La Scapêche se lance à la pêche à la ligne!

³⁵ Le Marin 12 Fevrier 2013 Un nouveau chalutier pour l'armement boulonnais Euronor

³⁶ Ouest-France 26 September 2014 La Scapêche s'implante à Douarnenez

³⁷ La Voix du Nord 12 November 2013 Boulogne : menacé d'interdiction, le chalutage en eaux profondes obtient un sursis.

³⁸ Interview with Dhellemmes respondent.

3. Spatial extent of DSBT activity in the North East Atlantic.

This part of the data to assess the extent of DSBT activity is also incomplete due to the difficulty in finding the appropriate maps. The first following map was found from a French blog specialized in fisheries and aquaculture-related news and information and originates from organization Pêcheurs de Manche Atlantique (n.d.). I cropped the original picture due to the presence of information unrelated to my own purpose, but which can be found in the link in the figure's caption. The second set of maps was provided by Scapêche and concerns only the spatial footprint of its own trawlers.

These maps generally show the diminishing extent of the DSBT footprint.



Figure 12 Trawling areas by French DSBT vessels in 2003 (in red) compared to 2011 (in green) off the North-Western coast of Scotland. [Pêcheurs de Manche Atlantique \(n.d.\)](#).

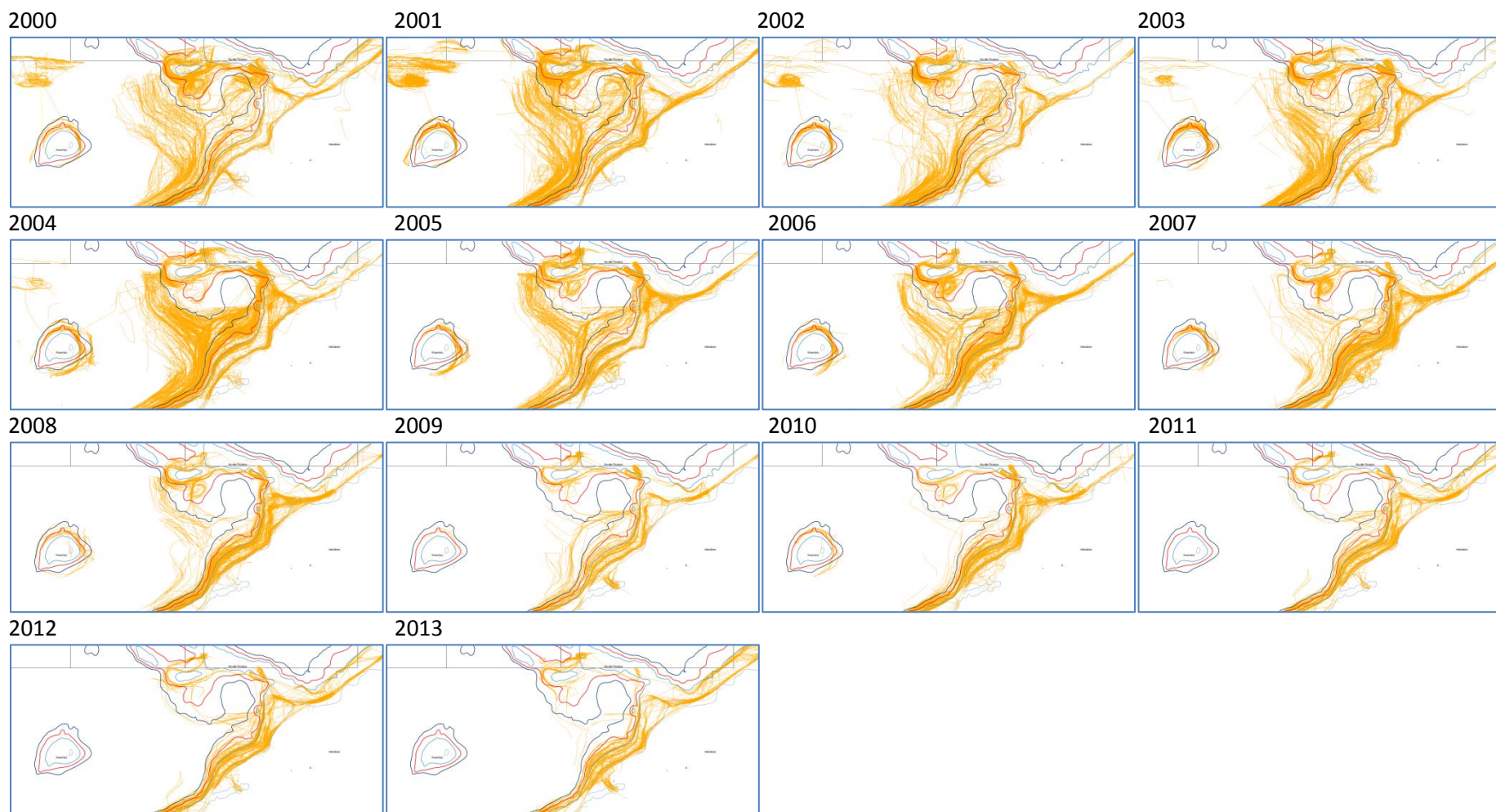


Figure 13 Thirteen maps representing a portion of Scapêche’s fishing zones and trawling activity (yellow lines) between 2000 and 2013, computed from VMS data.

The map for 2014 was also made available to me but could not be shared in this paper reportedly due to errors in the data.

3) Identifying trends in institutional pressures and industry strategies

Using Langely's (1999) method of temporal bracketing, I distinguished four periods which signal different trends in institutional pressures (mainly normative and regulative types of pressure, cultural cognitive being more of a constant type of pressure). Each period is characterized by similar or related events defining the period, I therefore give it a name and summarize these events as well as the prevailing forms of pressure (as conceptualized in the Methodology chapter) in Table 10 and below.

I did not include reductions in quotas for deep-sea species and the industry's responses due to their constant recurrence, except in 2012 to signal that quotas were raised again and indicating a change in European policy (see also Table 7).

Time period	Name of the period	Summary	Prevailing types and forms of pressure
2000-2003	<i>Early regulation</i>	Beginning of the European regulation effort (EC Regulation 2347/2003) following scientific advice.	<i>Regulative</i> : legislation. <i>Normative</i> : Scientific advice.
2004-2008	<i>Growing concerns</i>	Protection of vulnerable ecosystems and UNGA Resolutions. Two retailers stop selling deep-sea fish. Beginning and slashing of the French subsidy scheme (reimbursement of direct aids by ship-owners).	<i>Normative</i> : scientists' petition, publications. <i>Regulative</i> : Financial aids and sanctions on ship-owners. <i>Regulative</i> : Area-based management measures.
2009-2010	<i>Mission on Deep-sea Fisheries</i>	Mission on Deep-Sea Fisheries in Paris. Debates and policy decision-making.	<i>Normative</i> NGO pressures (campaigns, communication). <i>Regulative</i> : French policy-making.
2011-December 10, 2013	<i>Escalation and peak of the controversy</i>	Actions in anticipation of the European Parliament's vote on a reform for EC Regulation 2347/2002. Very intense NGO activity, media battle. Retailers almost all pledge to stop selling deep-sea fish. 2012: increased quotas for deep-sea species.	<i>Normative</i> : NGO campaigns, lobbying, petitions, publications. <i>Normative</i> : scientists' advice and publications. <i>Regulative</i> : European policy-making.
December 10, 2013-2014	<i>Post European Parliament's vote</i>	Reduced pressures but continued efforts to ban or reduce DSBT by some NGOs and politicians.	<i>Normative</i> : NGO campaigns. <i>Regulative</i> : legislation proposals by French officials. <i>Regulative</i> : retailers' reduced demand in deep-sea fish.

Table 10 Trends in institutional pressures between 2000 and 2014.

Time period	Name of the period	Characterizing strategies	Prevailing forms of strategies
2000-2003	<i>Early regulation</i>	Application of the new regulatory framework.	Partnership with scientists.
2004-2008	<i>Growing concerns</i>	Absence of responses to international NGOs and policy events. Protests against rising fuel costs.	Protests.
2009-2010	<i>Mission on Deep-sea Fisheries</i>	Mobilization of the sector and politicians against NGO pressures.	Communication, advertising.
2011-December 10, 2013	<i>Escalation and peak of the controversy</i>	Mobilization of the sector and politicians against NGOs' and the Commission's pressures.	Communication, negotiation, lobbying, one lawsuit.
December 10, 2013-2014	<i>Post European Parliament's vote</i>	Scapêche's concessions to NGOs. Avoidance of the sphere of the debate.	Agreement(s), exchange of information with NGOs.

Table 11 Trends strategies between 2000 and 2014.

1) 2000 - 2003: Early regulation

In the early 2000's DSBT was not specifically regulated (Mission Pêches Profondes, 2010). Deep-sea fisheries of the North East Atlantic were open to all European nations and French fishers were fishing the same zones as Irish and Scottish fishers (Mission Pêches Profondes, 2010; interview with T. Douard). Due to scientist raising issues with the sustainability of these fisheries, the European Commission formulated legislation to regulate DSBT with a system of quotas which fishers challenged yet started to follow, also creating partnerships with a scientific institute for the improvement of knowledge and technologies related to DSBT (events 1 and 2). Dhellemmes in Concarneau initiated in 2003 a diversification strategy by adopting new fishing methods such as the Danish seine (Strategy A in the early regulation period).

2) 2004 - 2008: Growing concerns

The first three years (2004-2006) of this period were marked by an increase in normative pressures as reported in the media (29 articles; see Table 14) in the form of petitions from the international scientific community and by an emerging international coalition of environmental NGOs which tried to influence the UNGA and the European Commission for a moratorium on DSBT on the high seas (event 3). These growing concerns were reflected in 2005 and 2006 in the agenda of the UNGA and the European Union to decide what policies to adopt, tending towards either a moratorium on DSBT on the high seas or area-specific closures for the protection of VMEs (events 4, 6 and 7). In the end the policies adopted (UNGA Resolutions 59/25 and 61/105) were non-binding were not the subject of responses that could be recorded from the data (Responses 3, 4, 6 and 7). The European Union however pursued on a pathway of quota reductions (event 4) against which the industry in Lorient and Boulogne-sur-Mer continued to protest (Strategy B). In 2005 scientists launched the idea of a

closure of the Orange Roughy fishery which was soon to be adopted by the European Commission and which the industry accepted without protest (event 5).

The year 2007 was particularly quiet in relation to DSBT as it yielded very few articles. Event 9 signals the creation of a regulation of DSBT replicating the measures of EC Regulation 2347/2002 on the high seas (EC Regulation 734/2008), however the fishing industry was not active in response to this event. On the contrary, severe economic disturbances related to rising oil prices and Europe's tough measures to restrict subsidies to the industry in 2007 and 2008 led to strong tensions and penalties for ship-owners who had to reimburse perceived subsidies (Event 8). Quota negotiations in 2008 also were met with some responses from the industry (Event 10). Notably also in 2006 Euronor was created from the fusion of two industrial fishing ship-owners in Boulogne and the company expressed its wish to target deep-sea species less systematically (strategy C).

3) 2009 - 2010: Period of the Mission on Deep-Sea Fisheries

No important new legislation was introduced in 2009 and 2010, however these two years were marked by very intense debates during the Mission on Deep-Sea Fisheries³⁹ of the Grenelle de la Mer (Event 11). The Mission was the focus of national media attention raised mainly by environmental NGOs who used this event as a platform to speak up against DSBT and target French ship-owners and retailers individually (Event 12). This context forced the industry to durably reshape its strategies by working closer together and form a united coalition, engage with French politicians to obtain their support and increase their presence in the media to produce a counterweight to environmental NGO campaigns (Responses 11 and 12). The conclusions of the Mission in 2010 came in the form of recommendations for the improvement of the DSBT activity and which the industry generally agreed with while NGOs felt their vote had been excluded (Event 12 and 13). The year 2010 also marks Euronor's acquirement of new fishing opportunities and certifications for species allowing it rely less upon deep-sea species (event G).

4) 2011 - December 10, 2013: Escalation and peak of the controversy

The next three years were extremely tense particularly for Scapêche and retailers as environmental NGOs and politicians intensified the frequency of their actions against ship-owners (see particularly Events 14, 16, 17, 21, 22 and 24) and retailers (see particularly Events 14, 18 and 23) in anticipation of the European Fisheries Commissioner's upcoming reform of the regulation on deep-sea fisheries (EC 2347/2002; see Events 15 and 19). The increase in normative pressures is manifested in the very high number of news articles where arguments to reduce or ban DSBT were relayed (127 articles; see Table 14 in Annex 5). The controversy was animated by the prospect of a ban on DSBT as a part of the reform. This provoked the industry in Lorient to fiercely defend its interests with the help of lobbyists and politicians mobilized to influence the decision process and amend the proposal (see

³⁹ In French "Mission Pêches Profondes", referred to from here on as the Mission. See Annex 3 for a description of this policy process.

responses to the events cited above and Strategy I). Dhellemmes and Euronor were targeted to a much lesser extent and their representatives were less active in defending DSBT (see Event 17). Most retailers however gave in to the increasing pressures and the public's mobilization by pledging to stop marketing deep-sea species in the coming future (Response 23).

5) December 10, 2013 - 2014: Post European Parliament's vote (Lingering controversy)

After the European Parliament's vote which rejected a ban NGOs continued to mobilize the public and French policy-makers in 2014 to still try and put an end to DSBT activity (Events 26 and 27), however none of these attempts posed a real risk to the DSBT industry. Industry representatives and supportive politicians indeed managed to tame the pressures by pacifying an important politician and delaying the arrival of the reform on deep-sea fisheries to the European Council's agenda for the last round of decision-making (Response 26 and Strategy L). In view of their relative success, industry representatives started avoiding the spheres of debates (Strategy J) while Scapêche and Intermarché made concessions to NGOs in spite of some industry representatives' disapproval (Response 25), and even expressed their openness to starting partnerships with them (Strategy M). It is also the year that Dhellemmes fully stopped its DSBT activity as Scapêche purchased its last trawlers (Strategy K).

4) Analysis

4.1) Introduction

The first part of the analysis addresses the first level of analysis (i.e. the industry at large). It summarizes pressures and strategies and explains how factors and the pressures the industry faced affected their responses and is structured according to themes that are based on recurrent events or the role of specific constituents. In order of discussion is 1) the quota system, 2) measures to regulate the spatial impact of DSBT, 3) pressures for selectivity, 4) the cost of oil and fuel subsidies, 5) moratoriums and banning measures, 6) the involvement of scientists and 7) of politicians in the controversy, 8) the industry's strategies of communication and 9) pressures on retailers. Each theme is addressed chronologically and I continuously refer to the events and periods identified in the Results section. In doing so I also refer the reader to the sources that support the description of these events while also sometimes citing news articles and interviews. Below is a table that summarizes this analysis.

In the second part I analyze and compare the specific cases of the three ship-owners and their strategies as well as the impact on the extent of their DSBT activity individually. The third part concludes and discusses how the overall evolution of the extent of DSBT activity can be interpreted in the light of the previous analyses. Finally, a counterfactual case is presented in the fourth part.

4.2) Part one: the French fishing industry

1. The quota system

The creation of quotas on deep-sea species had the particularity (compared to quotas on other species) of having been set at levels much lower than recorded landings of the previous years (interview with P. Lorance). Landings of deep-sea species were thus in 2000 above 20 000 tonnes; in 2002 they were at about 16 500 tonnes; while the first quotas in 2003 were set at 11 000 tonnes. In the next years quotas on deep-sea species have further decreased down to 5 477 tonnes at their lowest in 2012 (see Table 7). The fishing sector found issue with these extremely **constraining** figures and blamed the European Commission for "not taking into account the socio-economic impact"⁴⁰ of these reductions in terms of local jobs and the financial stability of ship-owners (see also strategies 2, B, D and 10)⁴¹. Indeed the system created a "lack of visibility"⁴⁰ in not knowing how much fish could be sold each year and made it difficult to plan each year ahead as negotiations took place at the end

⁴⁰ La Tribune 13 January 2005 LES PÊCHEURS FRANÇAIS DÉNONCENT "L'EUROPE DES POISSONS"

⁴¹ Among many examples : EuroNews 20 December 2004 Blocus des pêcheurs français à Boulogne-sur-Mer

Le Figaro Économie 23 December 2004 Les quotas de pêche réduits en 2005

Agence France Presse 22 October 2006 Les pêcheurs d'espèces de grands fonds tempêtent contre la baisse des quotas

Ouest-France 12 January 2010 Moins de quotas pour les grands fonds

of the year⁴². Quotas therefore introduced an element of *economic* and *regulatory uncertainty* which ship-owners addressed by **challenging** the Commission and scientists' assessments (explained in the next paragraph) and trying to **negotiate** with these constituents **influence** their objectives at each round of negotiations with the Commission (as will be developed in The industry's relations with scientists and Gaining the support from French politicians below).

Fishers (and later industry experts) routinely make their own estimates of deep-sea fish populations based on observation of catches during fishing trips or more systematic analysis of catch data (interview with Scapêche respondents; see also Strategy event D). The industry's responses to ICES scientists' assessments and the Commission's proposed quotas thus differed based on the *consistency* between that and their knowledge and expectations regarding the state of deep-sea fish resources. In the early 2000's the industry generally **acquiesced** the concerns of Ifremer and ICES scientists when they expressed uncertainties about the sustainability of these fisheries and the fragility of deep-sea species (see Annex 2) but **challenged** their advice on quotas due to a disagreement on the exact volumes that could be taken from the sea without endangering the whole stock (interview with an ex-Scapêche director; see also pressure and strategy event 1). During interviews industry respondents stated their awareness that deep-sea stocks in those years were depleting, and should be exploited instead in a way that allowed stable harvest. The example of the progressive closure of the Orange Roughy fishery seems to reflect this attitude (see event 5): while fishers protested against quota reductions on other species, this measure was generally **acquiesced** due to the fragility of the stock and fishers complied with catch limits (response 5 and interview with Scapêche and Ifremer respondents; see also Blue box 2). *Ecological uncertainty* was therefore a factor influencing their decision-making: when scientists from the ICES or Ifremer said that their activity put deep-sea species critically at risk of depletion, fishers would sometimes recognize it and conform to pressures in order to maintain the economic stability of their activity.

Interestingly the system of quotas was for French fishers also a very desirable measure to set up in the early 2000's and the industry always reportedly supported the new regulatory framework (interviews with industry respondents; see also strategy event 2). Thanks to the principle of relative stability, whereby historical fishing activity of each nation is taken into account in the allocation of area-specific fishing opportunities, French fleets reaped 60 to 85% of the total European TACs for the Blue Ling, Black Scabbardfish, Roundnose Grenadier and Orange Roughy in 2003 in ICES areas V and VI (West of Scotland and Ireland; see European Commission, 2015)⁴³. Furthermore, monitoring measures (e.g. the VMS), the obligation to have a deep-sea fishing license and potential sanctions prevented unreported fishing activity (interview with a Scapêche director). Quotas thus reduced *economic uncertainty* from the competing presence of Irish and Scottish fishers for deep-sea stocks of the North East Atlantic (interview with a Scapêche leader).

⁴² La Tribune 28 August 2000 LES PECHEURS DE BOULOGNE REFUSENT LES QUOTAS SUR LES POISSONS DE GRANDS FONDS

⁴³ According to one industry respondent this was also the result of successful political manoeuvres from French politicians defending the national fleet's interests.

2. Regulative measures to manage the spatial extent of DSBT

Measures aimed at the protection of VMEs (pressure events 4 in 2004-2005 and strategy event H in 2013), for the restriction of the DSBT footprint (pressure events 6 in 2006 and 13 in 2010) and to regulate the activity on the high seas (pressure event 9 in 2008) all aimed to regulate the spatial extent of DSBT and its impacts in one way or another and were generally met with little resistance from the industry (except for event 4 explained later). In this section I explain why that is.

In the early 2000's the DSBT footprint was no longer expanding to other areas from its earlier years and even decreased as can be seen from VMS data (interviews with Scapêche and Ifremer respondents; see also the maps of Figure 12 and Figure 13). Ifremer and Scapêche respondents stated this strategy aimed to reduce fuel expenses related to longer trips and the risk that the fish would lose in freshness before landing (*efficiency*). Fishers had also already discovered a number of fishing zones where they could find deep-sea species and to which they returned periodically, meaning that they rarely explored new areas (interview with Scapêche respondents). For these reasons a freezing of the footprint and regulation of DSBT on the high seas was *consistent* with their practices and fishers seemed to *dismiss* these pressures when they were first suggested in 2006 (event 6) and *acquiesced* them in 2010 when they were chosen over the more constraining measure of a ban and were voted by the parties of the Mission as France's official approach (i.e. in the Mission on Deep-Sea fisheries' recommendations, event 13 and Annex 3).

Measures to protect VMEs (events 4 and H) and particularly those populated by coral reefs were either *challenged* or *acquiesced*. An example of the first strategy is event 4 when Boulogne fishers in 2004 blocked the port in response to closures naming the measures "ineffective and unsuited" as they would transfer the fishing effort from one fishery to another and potentially lead to overexploitation of other species⁴⁴. Closures by definition reduce fishers' freedom to fish in certain areas, and therefore affect their *autonomy* and their economic activity. Based on the related article, it seems that Boulogne fishers did not agree with these types of measures due to being adopted without their participation and the *inconsistency* with their objectives⁴⁴. A more peaceful case of the industry's acceptance of such measures is the participation in 2013 of Scapêche in the designation of MPAs in the North Western Scottish sea, when the ship-owner was given the chance to *negotiate* with Scottish marine authorities in a stakeholder involvement process to find *compromise* on the exact shape of these protected areas so that they could be compatible with their fishing zones (interview with Scapêche respondents; strategy event H).

The industry often denied the impacts of DSBT on corals while recognizing anterior (pre-2000) practices as having caused the most damage (interviews with Scapêche respondents; see also e.g. event 24). There are factors to explain why the industry would avoid this impact and accept measures for the protection of certain VMEs and particularly those containing corals: Scapêche for example indicated that trawling on coral reefs could destroy expensive equipment as trawl gears are

⁴⁴ EuroNews 20 December 2004 Pêche. Blocus des pêcheurs français à Boulogne-sur-Mer

costly (60,000 euros according to its director), and therefore was avoided to the extent possible. Independent on-board marine observers I interviewed in that sense further asserted that the bycatch of corals was a rare occasion during DSBT fishing trips.

3. Pressures for selectivity

Discards and selectivity are recurrent themes when the impacts of DSBT are discussed by NGOs and legislators⁴⁵. While the industry (and the Ifremer) often contested the statement that DSBT had inordinately high discard rates (e.g. Ifremer, 2012)⁴⁶, their efforts also tended towards improving this aspect (e.g. Ifremer, 2011; Cofrepeche, Ifremer & Scapeche, 2014). There are factors which in combination with increasing institutional pressures converge to explain why ship-owners take measures to fish selectively and reduce bycatch⁴⁷. One of the main factors is probably **efficiency**: with larger and differently shaped mesh, a trawl net catches less undersized fish and other non-marketable species in the same time that it can reduce the pulling effect of the water and thus reduce fuel consumption (interview with an Ifremer fishing technologies expert). The second is **legitimacy**: NGO and legislators' pressures combined with the growing awareness among the public of this issue makes the improvement of selectivity a goal for ship-owners concerned with their image as environmentally conscious companies. In the future the implementation of the landing obligation will crystallize these concerns into policy by coercively preventing discards and forcing fishers to further improve selectivity to avoid sanctions and return to port with a catch they can sell at a decent price (Campos *et al.*, 2013).

4. Oil prices and subsidies

The fisheries sector is very much used to perceiving subsidies and has been considered as one which cannot survive without some form of public aid (Mesnil, 2008). To face the reduction of quotas or rising oil prices (see event 8), fishers often expected to receive subsidies to maintain their competitiveness (see event 8)⁴⁸. The dissolution in 2008 of the French direct aids scheme (FPAP) following strong pressures from the European Commission (event 8) thus presented a risk of **economic uncertainty** from not having the government's financial support and a serious strain on trawlers' **efficiency**, for which fuel expenses rose from 15% of their revenue in 2004 up to 50% in May 2008 (see also Figure 21)⁴⁹. The sector thus had to adapt via the reduction of their fleet (see e.g. event 8) and by improving fishing technologies (see also Pressures for selectivity above)⁵⁰. Overall

⁴⁵ See for example : Ouest-France 7 September 2009 Pêche profonde : l'Élysée interpellé

⁴⁶ In the news : Le Télégramme 22 November 2013 Pêche en eaux profondes. La Scapêche contre-attaque
News sources sometimes gave discard rates as high as 90% of the catch, see for example : Agence France Presse 22 September 2006 Pillage des grands fonds marins : l'UE pour un moratoire "au cas par cas"

⁴⁷ As reported in the news : Le Télégramme 19 January 2006 Robert Bouguéon (Guilvinec) mise sur la sélectivité

⁴⁸ See also : La Tribune 13 January 2005 LES PÊCHEURS FRANÇAIS DÉNONCENT "L'EUROPE DES POISSONS"

⁴⁹ According to this news source : Le Monde 21 May 2008 SOCIAL Les marins pâtissent de coûts d'exploitation trop élevés et d'une concurrence mondiale exacerbée

⁵⁰ See for example : Ouest-France 11 October 2011 La Scapêche embarque le chalut économe

there are reasons to think that this factor combined with reduced access to subsidies has had an impact on the diminution of DSBT activity (addressed in the Discussion).

5. Moratoriums and banning measures

Regulative pressures which caused the most concern for the industry were naturally those that aimed at ending DSBT activity (see events and strategies 4, 6 and 7, 11, 12, 15, 16, 19, 20, I, 22, 25, 26 and 27), however the responses were not always the same. The first few events were UNGA meetings where a moratorium on DSBT on the high seas was debated (events 4), 6 and 7) and led to few recorded responses. It seems that on this issue the repeated position of Europe against such a measure might have curbed the uncertainty of a moratorium for French fishers (see event 7). It is difficult to say if this (lack of) response is a dismissal strategy, a lack of structuration in the industry's ability to act upon these uncertainties, or simply a lack of data in this research. The industry however was much more active in response to the prospect of a moratorium on the UNGA's agenda in late 2009 (event 12) and that of a ban proposed by Fisheries Commissioner Damanaki in 2011 onwards (events 15, 19, I and 22). This may be explained by the context of the industry's involvement at the time in the policy process of the Mission on Deep-Sea Fisheries and in parallel the rise in France of NGOs gaining the approval of key European legislators for a ban, increasing **uncertainty** (see pressure and strategy events 15, 16, 19, 20, I, 22 and 25). In response to these pressures the industry restructured and intensified its communication strategy in order to **challenge** pressures in favor of a ban and **influence** public opinion to assert its **legitimacy** facing NGOs' campaigns and risks of highly **constraining** regulation (see Pressures in the media and the industry's communication strategy below).

Strategies to lobby and mobilize political constituents were also recorded and the industry benefited from the support of some French politicians (mainly from Brittany) while using the assessments from Ifremer scientists to support their claims. These strategies also sought to respond to actions from NGOs who also were influencing politicians and the public in the media and via campaigns, petitions, etc. I will address these themes individually, starting with the industry's relations with scientists.

6. The industry's relations with scientists

As strategy event 1 suggests, partnerships with scientists aimed to both monitor the impact of DSBT activity on stocks and improve fishing technologies. The industry was thus interested in improving the **efficiency** of its gears and the **competitiveness** of its activities. It also reduced **uncertainty** regarding the activity's ecological impact, and therefore reduced **economic uncertainty** (see The quota system). This strategy however also took on a political role as the industry often reminded the public and politicians of this partnership during heights of the controversy⁵¹ (in the media and in my

⁵¹ See for example: Ouest-France 3 April 2008 Poisson responsable chez les Mousquetaires
Le Télégramme 1 September 2009 Pêches profondes. Le Pensec claque la porte
Le Télégramme 17 September 2010 Grands fonds. Scapêche salue la sagesse de la commission
Le Télégramme 6 November 2013 Pêche profonde. Les acteurs soulagés

interviews) which was indeed a convincing argument for influential constituents (e.g. politicians and legislators, see for example events 24 and 26⁵²). It thus served to improve DSBT ship-owners' **legitimacy** by showing **compliance** with expectations to improve DSBT practices and regulation (e.g. EC Regulations 1639/2001 and 2347/2002) as well as transparency in their activities.

Green box 1 The Ifremer caught up in the controversy.

The Ifremer got caught in this controversy due to their close partnership with FIOs which at times discredited the objectivity of their role and advice in the eyes of NGOs due to their contradiction with the international literature on DSBT (see pressure events 13 and 20). In my interviews, Ifremer respondents emphasized their critical approach to all fishing activity, one of them saying that "(he) always told fishers when they messed up". The institute's mandate and research activities (see Scientific organizations) has led the institute to formulate both favorable and more cautious advice on the exploitation of deep-sea species (indicated in Timeline 3 in Timeline results - Institutional pressures). This suggests that Ifremer experts had a role in reducing the extent of DSBT activity and to manage its ecological impacts by communicating with the industry and with the European Commission via the ICES' advice on quotas⁵³.

On the contrary, other scientists who did not work with ship-owners and critiqued fishers' practices stating that DSBT should end were denigrated by industry respondents particularly during my interviews. Actions were taken by the industry **challenging** the methods and findings of their research for hurting the industry's **legitimacy**, such as a letter sent in response to a 2012 publication in the Ocean and Coastal Management journal (i.e. Villasante *et al.*, 2012)⁵⁴.

The fishing sector and supporters I have met have often regretted or criticized the fact that the main detractors of DSBT and of French local fishing sectors at large had never actually witnessed this economy at work and did not base their conclusions on current practices. Whether it is the international scientific community, legislators in Brussels or NGOs in Paris, these pressuring constituents seem like distant opponents with little acquaintance or direct interaction with the sector, which serves to discredit their viewpoint. **Geographical proximity** with pressuring constituents (such as Ifremer scientists) thus helps the industry to better accept critiques if they perceive them as **consistent** with practices in place and constructed to address commonly defined objectives.

7. Gaining the support from French politicians

Throughout the 2000-2014 period, pressures from the French political constituency constantly evolved with political turnover and as politicians and legislators publicly or more covertly took

⁵² See also Europolitique Environnement 7 September 2012 PÊCHE : LA COMMISSION DURCIT LES RÈGLES POUR LA PÊCHE ENEAU PROFONDE

And : Ouest-France 8 November 2013 Cette pêche est-elle durable ou pas ?

⁵³ It is important to note that the position of each expert differs, and some have expressed opposition to DSBT in petitions and in newspapers.

⁵⁴ Made accessible by Bloom: http://www.bloomassociation.org/wp-content/uploads/2013/09/2012_Oct_UAPF_lobbies_lettre_intimidation1.pdf

position in favor or against DSBT⁵⁵. This caused **uncertainty** for the industry since these constituents could propose and implement potentially **constraining** measures that could reduce ship-owners' **autonomy** and strain their economic development (as was already developed in the previous sections of this analysis). In order to stabilize their institutional environment the industry and its representatives regularly sought to **negotiate with, pacify** and **influence** political constituents regarding new policies or quotas (see e.g. strategy events 6 & 7, 8, 11, 26...). The industry also benefited from an extended network of politicians who negotiated or influenced policy-making processes in their favor. These politicians were often from the same region of the fishing sectors they defended (i.e. Bretagne and Nord-Pas-de-Calais), and counted for example the mayors of Lorient and Boulogne (the latter also having been a Fisheries Minister and therefore participating in quota negotiations and other major policy events during the period of the case) and Brittany MEPs who influenced the reforming process of EC Regulation 2347/2002 (see e.g. strategy events 11 (Green box) and 27). These elements are crystallized in the creation of lobby association Blue Fish in 2013 during the 'Peak' period (see strategy event I). The reasons for this support are given below and in the analysis of the cases of [Euronor](#) and [Scapêche](#) below.

Politicians by definition dwell in the public sphere and could be identified in news sources voicing their support for the industry (strategies 8, 11, 15, 19, I, 25, L, 21). In doing so they took an active role in communicating in favor of the industry's interests in relation to the socio-economic impacts that certain policies (e.g. a ban, or quota reductions) would have on employment and local economies in their region (see events cited above). With this opening I want to introduce the theme of the industry's communication strategy in the context of the mediatized controversy.

8. Pressures in the media and the industry's communication strategy

The presence of fishers' representatives in the media was regularly recorded throughout the fifteen year period in response to legislator's pressures to regulate the activity (see most strategy events), however it seems that a really structured communication strategy only shaped during the period of the Mission and in response to the rise of NGOs' anti-DSBT discourse, their campaigns in the media, and the risk of measures to ban DSBT (see event 11 and events during period 3) Escalation and peak of the controversy).

During the first two periods (1) Early regulation and 2) Growing concerns) the industry gave few responses in the media, and these mostly took the form of **challenging** quotas (see events in those period and The quota system). My interviews with Scapêche respondents who were also within the sector at the time emphasized the poorness of the sector's communication strategy, and it seems true particularly in these earlier years of the controversy when politicians were probably more active in defending the industry publicly (see strategy events 8, 11, 15, 19, I, 25, L, 21 and Gaining the support from French politicians). One could therefore interpret a lack of **structuration** as being one factor explaining the sparsity of responses.

⁵⁵ Citing events is almost unnecessary as this theme reappears extremely regularly.

The industry's communication strategy however really shaped in 2009 during the period of the Mission as **uncertainty** related to a UN moratorium and NGO pressures started to gain momentum (see pressure events 11 and 12). Then the sector showed more **structuration** with the formation of a distinct coalition of diverse constituents with the same claims and discourse (see green box 1 under strategy event 11). This extended during the 'Escalation and peak' of the controversy (3) and the 'Post-vote' period (4) to the creation of links with local media outlets and consequent increase in their presence in the news (CNP MEM, 2010, p42).

The industry and more particularly Scapêche expressed during interviews that they were very sensitive to NGO actions against them as these would negatively increase their visibility and hurt their public image. In the next section I suggest that, particularly during the 'Mission' and 'Escalation' periods, NGOs managed to make the industry more vulnerable to their actions due to their ability to raise awareness among a larger extent of the French public and important constituents (see particularly event 22). I now want to address the responses to these pressures of a particularly central group of constituents in the supply chain, namely retailers.

9. Pressures on retailers

The Deep-Sea Fisheries Mission's final report details considerations of the retailing sector discussed during the debates, noting that consumer's increasing demand for sustainable seafood was influencing retailers' practices in marketing fish products and would change the situation if the unsustainability of deep-sea fisheries was established (see *Avenir des Pêches Profondes*, 2010, p62). Indeed in France the share of fresh seafood products purchased by households from supermarkets has dramatically increased and now hovers around 72% of total seafood purchases (including supermarkets, fishmongers, markets, restaurants and institutional catering; France Agrimer, 2007; *ibid.*, 2012; *ibid.*, 2014). This concentration of sales in large retailing chains has increased the centrality and influence of these actors on the rest of the FSC network as manifested in the share of mareyeurs' and wholesalers' business and turnover that the demand of retailers now represents (Gagalyuk *et al.*, 2009; Iles, 2006; also: interview with a mareyeur). This position of centrality has increased the responsibility borne onto retailers for the quality of fish found in supermarkets, and raised their profile for concerned consumers and NGOs (Gagalyuk *et al.*, 2009). As a consequence, these large companies tend to impose strict standards on quality and are very receptive to the mobilization of consumers who are accustomed to the brand (*ibid.*).

Retailers' sensitiveness to consumers' opinions was from the 'Escalation' (3) period the focus of NGOs' efforts who on several occasions addressed retailers directly or mobilized internet users against them via social media (pressure events 17, 18 and 23). Although two retailers had stopped selling Orange Roughy as early as 2007, and Blue Ling in 2007 and 2008 respectively (also a third one at an unknown date; Bloom, 2013-c); it was not until late 2013 in the days anticipating or following the European Parliament's vote on the ban that most of the six larger retailers in France promised or restated their policy to stop marketing most deep-sea species in the coming future (strategy event 23). NGOs' campaigns had increasingly targeted retailers and pressured them to encourage

ecological responsibility in the supply chain and to provide a lever for consumers to pressure the entire DSBT industry, and succeeded as retailers wanted to avoid pressures like boycotts that could hurt their business (*competitiveness/efficiency*) and their *legitimacy* (interview with Bloom and industry respondents). Almost all retailers (apart from Intermarché) eventually stated their engagements to stop marketing (some) deep-sea species for which the sustainability was not demonstrated, and their withdrawal from this market had impacts on the rest of the supply chain by reducing the overall demand for these products (interview with a mareyeur; see event 23).

Ship-owners faced a similar dilemma but were put under different levels of pressure. Therefore the way in which each of the three handled the pressures as well as the level of involvement of their local political and industry representatives and local media differed.

4.3) Part two: individual cases of ship-owners

Before I start with the analysis of the cases of individual ship-owners I need to make a few remarks regarding the data collection process and its implications for my findings. The first two cases (Dhellemmes and Euronor) are described with less data than the case of Scapêche for which more respondents could be interviewed and was also more present in news sources. This constitutes on the one hand an important limitation as statements from the companies were more difficult to obtain in order to explain their strategies, however and on the other hand it is also consistent with their systematic avoidance of the controversy on DSBT both in public (in the media) and in their business strategy (developed in the following sections). One respondent could be interviewed from Dhellemmes but none for Euronor, however I was able to speak with other people from the sector in Boulogne, and the inputs of on-board marine observers as well as news sources also allow to draw some conclusions regarding their cases.

Starting with Dhellemmes and Euronor, I describe the change in their fishing strategy and resulting extent on DSBT activity in light of data that allows to identify the factors and types of pressures that influenced their decisions. Finally I analyze the case of Scapêche with the greater level of detail that it offers. Throughout this part of the analysis I particularly refer to Table 9 for the number of vessels each ship-owner possessed throughout the period and to landings data (Table 7 and Table 8).

1. Dhellemmes

Dhellemmes has overall stayed relatively absent from the controversy, being only very occasionally named by NGOs and in the media⁵⁶ as among French ship-owners practicing DSBT (see e.g. Bloom, 2011) and specifically targeted in only one recorded event (pressure event 17). Dhellemmes started its DSBT activity (at least) during the 1990's (as the other two ship-owners) and still possessed a

⁵⁶ Five articles were recorded: Agence France Presse 10 May 2011 La pêche en eau profonde: peu de bateaux mais un impact écologique majeur

Le Télégramme 17 November 2011 Greenpeace. Une action en mer contre un chalutier concarnois

Le Monde 19 July 2012 La France s'oppose à l'interdiction de la pêche en eaux profondes

EurActiv.fr 4 September 2012 Les eaux troubles de la pêche profonde

LExpress.fr 17 February 2014 Cinq choses à savoir sur la pêche au chalut en eaux profondes

dozen DSBT vessels in the early 2000's (Bloom, 2011). However strategy event A indicates early on this ship-owner's diversification strategy in 2003 towards Danish seine fishing in anticipation of economic strains from the increasing cost of fuel and to which DSBT vessels are particularly vulnerable. Another news source further indicates that the switch to other fishing methods was also a response to the diminishing quotas on deep-sea species⁵⁷.

In 2014 Dhellemmes sold its remaining last DSBT vessels (see strategy event K). It is difficult to pinpoint the exact reason, however it is known that the ship-owner was facing economic difficulties⁵⁸ and it seems that fleet management measures were taken at the expense of their DSBT activity. In an interview with Dhellemmes' fishing fleet captain, this respondent indicated that their shareholder (a Dutch fishing company specialized in pelagic fishing; Cornelis-Vrolijk, n.d.) had plans to invest in other more interesting ventures which DSBT simply did not match, particularly in terms of the low fish volumes (from quotas) of this fishery and in comparison to larger scale pelagic fishing. These elements further comfort the idea that the ship-owner sold its vessels to lighten up its expenses (**efficiency/competitiveness**) and avoid the **economic** and **regulatory uncertainty** related to quotas on deep-sea species (see the first section of the analysis). Further interpretation of the factors and pressures that came into play in Dhellemmes' (and the others') strategy to reduce DSBT activity are given in the Discussion. Based on this analysis, the silence of this ship-owner in relation to the controversy (and their decline to participate in this research) can be explained as a **dismissal** strategy in view of their diminishing interest for the practice of DSBT, a way to avoid public exposure that would hurt their **legitimacy**, and/or simply a characteristic of this company's **internal culture** in avoiding media attention.

2. Euronor

The years 2006 and 2011 were particularly decisive for Euronor's business and fishing strategy (strategy events C and G). Similarly to Dhellemmes and only a few years later, Euronor seems to have chosen in 2006 to decrease its reliance on deep-sea species due to lower economic prospects and high fuel consumption of these fisheries (strategy event C). This choice is further comforted in the events that followed.

In 2010 a British ship-owner purchased Euronor (strategy event G). The move was a strategy for the British group to expand its activities but also provided Euronor with the financial support to renew its fishing equipment and technologies⁵⁹. It also allowed Euronor to reduce its targeting of deep-sea species by obtaining fishing opportunities for other species with its new partners, including some with a higher market value⁶⁰. Overall it allowed Euronor to save its business from the economic strains of event 8 with new capital while improving its **competitiveness**.

⁵⁷ Bloom (2011, p76) citing : Le Marin 21 August 2009 Grands fonds : les experts au travail

⁵⁸ Marine et Océan 19 June 2014 La Scapêche achete 4 chalutiers a un armement de Concarneau (Dhellemmes)

⁵⁹ La Voix du Nord 20 January 2012 2011 : une année de transition pour Euronor, seul armement industriel de Boulogne

⁶⁰ La Semaine dans le Boulonnais 12 January 2011. « On ne jouait plus dans la cour des grands »

Rather than switching to entirely different fishing gears as Dhellemmes did, Euronor chose to target other species for which it was able to obtain MSC certifications in 2010 and 2012, i.e. Saithe, Hake and Arctic Cod (strategy event G). In 2010, its deputy director stated regarding Saithe: "It is very important since it concerns over 80% of our fishing activity (...). We knew we were doing things right, but there are so many negative examples of fisheries in the world that we feared being mixed up (with them). We needed an independent and recognized organization to tell it for us."⁶¹. Further in this article the same representative states that the company had become aware of the trend in northern European fisheries becoming MSC certified, and that this opened the way to new markets such as Switzerland where consumers demanded certified fish⁶¹. Certification was therefore an attempt to increase the firm's *legitimacy* in an increasingly scrutinized and fustigated sector, and an *imitation* strategy in response to market trends in which certified fish was becoming more *competitive* and could be sold at a higher price⁶¹. Finally, in another article in Le Monde the same spokesperson stated that certification also could serve to fight the erosion of the status of the fisherman and may encourage applications for fishing jobs at their company⁶², thus increasing their *competitiveness* and *legitimacy* also on the job market.

These strategies were adopted at the expense of deep-sea fish catches and operated with the reconversion of vessels. Landings of deep-sea fish in Boulogne consistently decreased since 2000 from 7 569 tonnes to 1 950 tonnes in 2010 and divided by more than two in 2011 (800 tonnes), while for example landings of Saithe increased from 2 000 in 2010 to almost 3 800 tonnes in 2011 and 4 200 tonnes in 2012 (see Table 8). From 2011 onwards Euronor only had one ship targeting deep-sea species⁶³ (see Table 9).

Because Euronor possessed most of the European quotas on Saithe and therefore had a guaranteed access to the resource from a regulatory and economic standpoint (*certainty*)⁶⁴, it was able to *avoid* the *economic uncertainty* and stigma associated with DSBT and focus on this more stable fishery for which the ecological sustainability was recognized by the ICES (see for Saithe: ICES, n.d., *ICES-Fishmap Saithe*) and certifiable by the Marine Stewardship Council. The situation for deep-sea fisheries was much more *uncertain* due to the ongoing controversy, and Euronor (like Dhellemmes) proved that it wanted to steer clear of public attention and the media by only rarely commenting on the events related to the controversy⁶⁵.

⁶¹ La Voix du Nord, 18 March 2010, L'armement Euronor à Boulogne labellisé pour sa pêche responsable

⁶² Le Monde 29 April 2010 A Boulogne-sur-Mer, Euronor donne l'exemple d'une pêche durable et bien gérée

⁶³ Probably in order to be able to rely on a diversity of species for its business and to be economically resilient in case of unforeseen quota reductions. See Le Marin 12 December 2013 Pêche de grands fonds : les Boulonnais soulagés

⁶⁴ Le Marin 28 December 2006.

⁶⁵ See for example : La Tribune 28 August 2000 LES PECHEURS DE BOULOGNE REFUSENT LES QUOTAS SUR LES POISSONS DE GRANDS FONDS

La Tribune 13 January 2005 LES PÊCHEURS FRANÇAIS DÉNONCENT "L'EUROPE DES POISSONS"

Le Télégramme 1 October 2009 Pêche de grands fonds. Les ONG partent au combat

Le Marin 12 December 2013 Pêche de grands fonds : les Boulonnais soulagés

Euronor was however more involved than Dhellemmes in the defense of the sector as it for example participated in the Mission on Deep-Sea Fisheries (Avenir des Pêches Profondes, 2011) and benefited from the political support of Boulogne industry representatives and of its mayor and Fisheries Minister who openly spoke in defense of DSBT activity as an important factor of employment (see e.g. strategy events 15 and 19)⁶⁶ and took part in the creation of lobby association Blue Fish (strategy event I). The fish processing sector also mobilized against institutional pressures to reduce or ban DSBT in view of the importance of this activity for their business⁶⁷. The **structuration** of the sector in Boulogne thus perhaps explains Euronor's ability to withstand pressures and continue its DSBT activity.

3. Scapêche

Scapêche has the particularity of being owned by a large French retailing group (Les Mousquetaires). The ship-owner was therefore often associated with the more notorious name of its shareholder and vice versa, for example Scapêche has commonly been referred to as 'Intermarché's' or the 'Mousquetaires' fleet⁶⁸. This relationship between ship-owner and retailer has been a central characteristic of this case. Consequently I want to first address it by first explaining the origins and nature of this relationship. I then describe and explain the support that Scapêche benefited from the local fishing sector, politicians and media, and finally derive implications from this as to how and why Scapêche has responded to pressures throughout the fifteen year period.

Retailing group Les Mousquetaires have developed the business strategy of integrating the entire supply chain of their products under a same entity (i.e. Les Mousquetaires; interview with Scapêche respondents). Consequently the Mousquetaires group has streamlined its fish supply chain by setting up or acquiring companies that also process and transport fish, thus reducing transaction costs (see Figure 7 in The French fish supply chain). This strategy is explained in Bloom (2011, p61) by Intermarché's general director as aiming for "a real independence in supply"⁶⁹. The group thus relies in part on the ship-owner's activity for its stores' fish supply, meaning that part of the catch is bought in priority by the retailer based on their needs while the rest is sold on the local fish market (interview with a mareyeur). This peculiarity constitutes a pride in being able to sell "traceable", "good quality" and "cheap" seafood to its stores (**competitiveness**; interviews with Scapêche respondents). Scapêche is therefore an important arm of the Mousquetaires group both economically and symbolically for its **internal organizational culture**. Indeed the history of Scapêche's creation also constitutes a pride and a reason to resist pressures that threaten its values and practices (interview with Scapêche respondents).

⁶⁶ The mayor of Boulogne is found making such a statement for example in : Agence France Presse 8 July 2014 La pêche profonde: peu de chalutiers Mais des espèces fragilisées (ONG)

⁶⁷ See for example : La Voix du Nord 3 August 2012 Chalutage en eaux profondes : le mareyage boulonnais redoute la casse sociale

⁶⁸ 'La flotte d'Intermarché' in French. See for example the title of this news article : Agence France Presse 26 June 2011 Greenpeace accuse la flotte d'Intermarché de "piller" les grands fonds

⁶⁹ Citing LSA 29 May 2008 Bonne pêche pour les mousquetaires

During the periods of 'Growing concerns' (2) and that of the Mission (3) and when DSBT was being increasingly regulated and pressured by NGOs, Scapêche's response strategies was mostly to **challenge** arguments that DSBT could not be sustainable while promoting its good practices in the media⁷⁰. Scapêche and the sector in Lorient went even further than the fishing sectors in Concarneau and Boulogne as it is the only group of constituents which used **attack** tactics against pressuring constituents (verbal—in the media—and legal; see strategy events 14, 15, 17, 19). In addition Scapêche benefited from the help of at least one journalist from a local media outlet in defending their cause (interview with Scapêche respondents), and indeed this journalist's articles came up fourteen times between 2011 and 2014 in my Lexis Nexis results consistently providing support for the Lorient fishing sector and against NGO pressures. In fact the activities of Scapêche were always vehemently defended by the local fishing sector, politicians and media (see strategy events D, 10, 11, 15, 19, 20 (including Grey box 2), 21, I, 26 and L) which can be explained by the ship-owner's economic importance in the region. Indeed in 2010 (around the time when the controversy was growing in France) Scapêche's activity contributed 20% of the fish volume sold on Lorient's market, of which 40% was composed of deep-sea species⁷¹. Scapêche had developed a pronounced fishing strategy for the exploitation of quotas on deep-sea species and would be direly financially unstable should DSBT have been banned (interview with Scapêche respondents). In view of these figures, the local fishing sector and politicians all recognized the importance of defending Scapêche against institutional pressures that would seriously threaten the company and therefore affect employment of fishers and in the rest of the supply chain (interviews with Lorient industry respondents; see also strategy event 21).

During the 'Escalation and peak' period of the controversy (4) NGOs started to specifically focus on Scapêche. This can be explained firstly because—in comparison to Euronor and Dhellemmes—Scapêche had continued to pursue DSBT as a main component of its fishing strategy (i.e. *size* in terms of larger volumes of deep-sea fish catches and number of DSBT vessels), and secondly due to its association with Intermarché as a visible brand for consumers to identify and target (interview with Bloom respondent; see also Bloom, 2011, p55). Throughout this period of intense pressures Scapêche remained relatively autonomous in managing its activities with regards to its shareholders (interview with Scapêche respondents), meaning that Les Mousquetaires seldom intervened in the controversy or gave any instructions to Scapêche on how to deal with NGOs' pressures (interview with Scapêche respondents). However Les Mousquetaires had the same weakness as other retailers in that they were very sensitive to trends in consumer opinions as these can seriously affect their

⁷⁰ See for example : Agence France Presse 22 October 2006 Les pêcheurs d'espèces de grands fonds tempètent contre la baisse des quotas

Le Figaro 5 October 2009 Alerte sur la pêche dans les grands fonds marins; Greenpeace appelle les grandes surfaces européennes à ne plus commercialiser les espèces menacées.

Le Télégramme 17 September 2010 Grands fonds. Scapêche salue la sagesse de la commission

Le Monde 27 December 2011 REPORTAGE; Grands fonds : les chaluts de la discorde

Le Télégramme 17 September 2013 Scapêche. « Ils veulent notre peau »

Ouest-France 21 November 2014 Le nouvel Héliotrope pêchera à la ligne !

⁷¹ Le Télégramme 17 September 2010 Grands fonds. Scapêche salue la sagesse de la commission

business (see Pressures on retailers), and the association with Scapêche as “the bad guys”⁷² became problematic (see in particular pressure event 22). At the ‘Peak’ of the controversy just before the vote for a ban on DSBT, most retailers had made concessions by pledging to stop selling deep-sea fish and Les Mousquetaires dreaded further actions against them specifically from being the last retailer to swim against the current (strategy event 25). The group therefore asked Scapêche to also make concessions to appease NGOs and the public (interview with Scapêche respondents), which it eventually did.

The decision to reverse their strategy was not easy since their engagements (i.e. to focus on other species and stop fishing below 800 meters of depth; see strategy events 25 and M) would necessarily reduce the ship-owner’s volumes of catch; for example Blue Ling could no longer be targeted for part of the year due to this species’ annual vertical migration beyond this limit⁷³ and the switch of one vessel to long-lining was also an **economically uncertain** venture (interview with Scapêche respondents; see also strategy event 21 and Grey box 3 under that event). Moreover it also surprised industry constituents who saw Scapêche’s decision to give in to NGOs’ pressures as a mistake⁷⁴. However Scapêche was financially **dependent** upon Les Mousquetaires as its sole shareholder and therefore had to comply with its directives to appease NGO pressures (interview with Scapêche respondents).

The strategy extended as Scapêche expressed wishes to increase the transparency of its activities and even partner with NGOs so long as trust that information would not be used against them could be established (interview with Scapêche respondents; strategy event M). This arrangement would probably benefit Scapêche as a ship-owner practicing DSBT as truly independent NGOs can positively communicate about their practices to appease constituents’ concerns and thus increase its **legitimacy**.

In order to stave off losses from lower deep-sea fish volumes and reduce pressures, Scapêche pursued a diversification strategy notably by purchasing vessels from Dhellemmes (strategy event K). The vessels were bought along with their quotas on species such as Monkfish and Hake which the ship-owner wanted to exploit⁷⁵. Although the ships also had quotas on Blue Ling and Grenadier, Scapêche assured that these would not be exploited in line with their commitments, and the fishing opportunities could eventually be traded with other countries at the next round of quota negotiations (interview with F. Dulon)⁷⁶. Some of Scapêche’s vessels would also progressively be sold to purchase new boats with the ambition of downsizing and renewing its fleet⁷⁵.

⁷² In the (purposefully self-deprecating) words of Scapêche’s director in : Le Télégramme 1 October 2009 Pêche de grands fonds. Les ONG partent au combat

⁷³ The species migrates and stays between 1200-1800 meters of depth between December and April of each year (interview with Scapêche respondents). One article also reports losses on Roundnose Grenadier.

See : Le Marin 9 March 2015 Grands fonds : la Scapêche a des pertes sensibles sur le grenadier de roche

⁷⁴ Ouest-France 7 February 2014 Les pêcheurs claquent la porte du Sénat

⁷⁵ Le Télégramme 23 September 2014 Scapêche. « Nous sommes optimistes »

⁷⁶ At the time of the interview in (March 2015), therefore 2016 for the Blue Ling and 2017-2018 for Black Scabbardfish and Roundnose Grenadier

4.4) Part three: The changing extent of DSBT activity

In conclusion, factors and institutional pressures have both contributed to push DSBT ship-owners to progressively reduce the extent of their DSBT activity, some of which were perceived by all three companies while others were more specific to each case. The most recurrent factors to explain the reduction of the overall extent of the activity seem to be the constraining effect of consistently decreasing quotas in reducing volumes of catch and the overall cost of the activity of DSBT also affecting its extent over time. The purchase and maintenance of fishing vessels and equipment for any form of fishing is indeed very expensive and not very financially rewarding due to dynamics of the market and the limits that quotas create (interview with T. Douard), and it seems to be even more so for fuel-intensive fishing activities such as DSBT. Normative pressures from the European Commission and NGOs raising awareness of the cost of fishing activities borne by society made the issue of subsidies very controversial (see pressure events 8 and 21), and the rising oil prices in combination with the uncertainty of obtaining subsidies in the future (as suggested by F. Dulon during an interview) have forced the fishing sector to increasingly take this burden upon itself. In order to stay afloat, French ship-owners have tried to migrate to less financially demanding/more rewarding fishing methods and fisheries, and this was done at the expense of DSBT activity (see Part two: individual cases of ship-owners). The economic prospects of DSBT are also compromised by the withdrawal of large retailing chains from the market for deep-sea species (see event 23 and Pressures on retailers).

On a different note, one marine observer pointed out from his discussions with fishing crews that the sector expects it will be difficult to recruit new sailors on DSBT vessels in view of the particularly difficult lifestyle and working conditions specific to this activity (frequent extreme weather and seafaring conditions, intense working schedule, on top of staying at sea for most of the year). This compromises the future turnover of fishing crews and is addressed at least in the case of Euronor by acquiring MSC labels (strategy event G), but also possibly by Scapêche in their attempt to label their activities (strategy event E).

The combined effect of NGOs campaigns, politicians' appeals, public and scientists' petitions, etc. (i.e. normative pressures) also had two important effects. The first is indirect in that it encouraged legislators towards further regulation. Indeed the DSBT sector has been characterized by very high and almost constant regulatory uncertainty. Even after the repeated rejection of moratoriums and of European/French bans (see events 4, 6, 7, 13, 25 and 27), prospects of further regulation have not yet been ruled out particularly with the expected reading in the European Council of the reform of the deep-sea fisheries regulation (EC Regulation 2347/2002). The upcoming implementation of the landing obligation (EC Regulation 1380/2013) would also force DSBT vessels to land their bycatch, which in their case amounts on average to 20% (Ifremer, 2014), a non-negligible figure for DSBT ship-owners (interview with an on-board marine observer).

Secondly, increased public awareness and very intense pressures from NGOs became highly stigmatizing for the fishing sector and took a toll on their reputation and affected the nature of responses. During interviews industry respondents expressed that they could not help but take NGO

attacks personally, and the effect of pressures and especially those targeting individuals led the industry both towards fierce responses but also towards making efforts in the direction expected (i.e. reducing DSBT activity, improving selectivity, protecting VMEs, etc.). Although the fishing sector is undoubtedly oriented towards social and economic prosperity, there are signs that it also recognizes and takes into account the ecological limits of deep-sea ecosystems due to the intrinsic link between all three facets.

4.5) Part four: Counterfactual

It is interesting to ponder over what the industry would have done were it not for the effect of institutional pressures in order to imagine a counterfactual case where all pressures are removed and the industry would have had to deal with the management of deep-sea fisheries on its own.

It is almost certain in view of the industry's defiant attitude that quotas were one of the main (if not the only) source of such drastic reduction of the fishing effort. Without the effect of scientists' advice which jumpstarted the formulation of EC Regulation 2347/2002, competition between French, Scottish and Irish fleets would have possibly led to a 'tragedy of the commons' in the deep-sea fisheries of the North East Atlantic; unless the different national fleets had anticipated it and come together to address the issue together. It is probable that fishers had perceived the diminution of catches since the beginning of the activity and sought to act upon it when they asked for a regulation of the activity. That is if French fishers considered the depletion of these fisheries as a possible outcome of the situation. Certainly this did not represent an economically desirable option. However it is also possible that French fishers simply wanted to get rid of the competition and knew that the principle of relative stability would balance the outcome of quota negotiations in their favor from the first year of regulation. The involvement of scientists in assessing stocks and raising the alarm however also improved their practices by facilitating research and development of technologies and advising on what would be 'reasonable' in terms of exploitation rates.

The importance of environmental NGOs in raising awareness among the public and advocating for more caution in the legislation should also not be understated and might have also hastened the regulation process and the industry's efforts to improve their practices to respond to attacks on their legitimacy and to pressures for a ban.

The reduction of DSBT activity however also was caused by rising oil prices and other factors which affected ship-owners' financial stability. In that sense and in the hypothetical case where there would be no institutional pressures, DSBT activity may have also decreased due to socio-economic factors.

VI - Discussion

1) Answering the research questions

This research was set out to find out what strategies the fishing industry in France employed between 2000 and 2014 in a context of controversy where institutional pressures to reduce or ban the practice of DSBT were very strong, animating the media and sparking intense policy debates. It explained these strategies by looking at the factors that come into play in affecting FIOs' decision-making, and assessed the overall impact of the pressures, factors and industry strategies on the evolutive extent of DSBT activity in terms of ship-owner's fleet size, landings of deep-sea fish and geographical footprint over time. In doing so, this study sought to answer the following main research question:

To what extent has DSBT activity changed between 2000 and 2014 in relation to institutional pressures to reduce or ban it, the industry's strategies in response to these pressures, and the factors that allow to explain them?

The empirical findings are chapter specific and were presented in the Case Study Background and the Results and Analysis chapters. In this section I shall synthesize these findings and how they answered each question and sub-question.

1. How has the extent of DSBT activity changed over the period 2000 to 2014?

Landings data collected from ICES sources shows that French ship-owners have in the past few years landed more than four times less the volume of deep-sea fish that they used to land in 2000 (Table 7). The number of DSBT vessels has also significantly reduced from about 49 ships in 2000 to about ten today (interview with P. Lorance; see also Table 9). Finally the spatial footprint of DSBT in the North East Atlantic is also indicating a reduction (see Figure 12 and Figure 12). Notably the activity no longer extends to the high seas since a couple of years now (interview with P. Lorance). These trends all indicate an important diminution of the extent of DSBT activity over the defined period.

2. What types of institutional pressures to reduce or ban DSBT has the fishing industry faced over this period?

Regulative types of institutional pressures changed over time in their intensity, from a period of very few constraints on DSBT activity (2000-2002) to successive periods of increasing regulative efforts. These efforts aimed to reduce the extent of the activity by means of catch limits (quotas) which were consistently trimmed until 2012 (see Table 7). The regulatory framework (particularly Council Regulation 1639/2001 and EC Regulation 2347/2002) has forced the setting up of scientific observation programs of the activity on the one hand to track the evolution of the activity for its improvement and created monitoring measures (e.g. satellite positioning of vessels at sea using VMS) and sanctions on the other to prevent fraud. Other policy-making processes also assessed the option of putting an end to DSBT activity by means of moratoriums or a bans, but in the end all converged towards an increased regulation of the activity, particularly in 2013 with the adoption by

the European Parliament of the reform of EC Regulation 2347/2002 with amendments. This reform is still pending approval from the European Council as of today.

Normative types of pressures also evolved over time and certainly influenced regulation and industry strategies. They started with scientists raising concerns in the early 2000s and dramatically increased around the middle of the decade as environmental NGOs campaigned to put an end to DSBT. These NGOs extended their efforts in France particularly where the industry was the target of campaigns mobilizing consumers and the political constituency. Normative pressures reached a height in the 2011-2013 period in anticipation of the European Parliament's vote on the abovementioned reform and continued afterwards.

Cultural-cognitive pressures could also be identified to a lesser extent, but increased as ship-owners changed their practices towards a diversification of fishing activities, leading to the rise of new practices which could reduce fuel consumption and certification programs that would make them more competitive.

3. What strategies has the fishing industry employed in response to institutional pressures aiming to reduce or ban DSBT over this period, and how can they be explained?

Regulative and normative pressures to reduce the DSBT activity overall were complied with throughout the period: fishers sought to create partnerships with scientists to respond to growing concerns, took marine observers on board of their ships, complied (more often than not) with set quotas; all due to the constraint that the measures imposed and the level of monitoring for these fisheries but also to the ecological uncertainty of their activity and their desire to maintain a good public image in an increasingly fustigated sector.

However they challenged measures which aimed at preventing the exercise of their activity at large or in certain zones—including moratoriums, bans and fisheries closures—and did protest against consecutive quota reductions based on their own knowledge and assessments. Their efforts also extended towards influencing policy decisions such as these and negotiating with legislators, also by involving local politicians to do this work for them to defend their economic interests and those of their region.

Fierce efforts were made to protect the legitimacy of DSBT ship-owners and the industry at large against environmental NGOs' campaigns and on the basis of their own values and practices. Over the fifteen year period the industry developed a communication strategy to disseminate information countering arguments that DSBT cannot be sustainable, formed a coalition with politicians and local constituents, and initiated certification schemes for their fisheries to validate their practices.

Facing more pressures than the other two ship-owners, Scapêche in the later part of the period (late 2013) also attempted to form new relationships with NGOs by opening up to exchanges of information. Dhellemmes and Euronor for their part tried to avoid responding to pressures while taking measures to reorient their fishing strategy. All three ship-owners faced similar conditions with the rising cost of fuel and the decreasing demand in deep-sea species from retailers which limited the prospects of DSBT as a viable activity at the time and for the future.

Overall it is beyond doubt that institutional pressures to reduce or ban DSBT and some economic factors were recognized by the industry and ship-owners. The latter directly sought to adapt their practices in consequence, which translated into a reduction of the DSBT activity. These conclusions are supported in the data by statements from industry actors in the news and during interviews and by respondents close to the fishing sector.

2) Theoretical implications

In relation to the theory, these findings show that FIOs were receptive to institutional pressures if conformity implied an improvement of their legitimacy (H1) and efficiency (H2). Conformity occurred more often if changes were consistent with fishers current practices and with their values (H6); if they did not involve significant investments (H2); if the proposed institutional models were known to be successful (H9); or if constituents geographically proximate were doing it already (H12).

Highly constraining measures (H7), the potential risk incurred from not complying (H8), the multiplicity of pressuring constituents (H4) and the degree of dependence upon them (H5) also fostered conformity to institutional pressures although FIOs would try to influence pressuring constituents' expectations or seek to obtain concessions.

Consistent with Goodstein (1994), I found that the larger and therefore more visible FIOs (e.g. Scapêche and retailer Intermarché) were particularly subject to scrutiny and therefore pressure (H3). These more intense pressure eventually tipped their strategy over from resistance to conformity.

Uncertainty related to the economics (H10b) and legislation (H10a) of DSBT led to a diversification of fishing strategies and of strategies to address institutional pressures, consistent with the findings of Hamprecht et al. (2011). Ecological uncertainty in terms of the sustainability of exploiting deep-sea species was also both challenged when it was voiced by pressuring constituents but overall led to conformity since ship-owners linked health of ecosystems with economic prosperity, thus also denoting diversified responses (H10c).

Finally, structuration manifested in the density of the network of industry associations and the creation of a coalition (H11), but also the industry's strong attachment to the values and practices of fishermen were factors that led to resistance to pressures (H13).

Overall Oliver's (1991) theoretical framework proved useful to guide the analysis and provide hypotheses relevant to the case.

One issue I found was in the operationalization of compromise and manipulation tactics and in which one can be read as the other based on different constituents' interpretation. In that sense I concur with Clemens and Douglas's (2004, p1211) remark in saying that participation in the policy-making process can be interpreted either as "attempt to change either the content of the pressures or the institutional sources themselves" (i.e. manipulation, a recurrent narrative in NGOs' arguments see Grey box 3) or from the point of view of the firm "an attempt to participate in the institutional process in a productive manner" (i.e. compromise).

My analysis of this case study also suggests an interesting set of strategies which can be attached to some of the factors. Indeed the context of the mediatized controversy led the fishing industry to form stronger bonds (structuration) and devise better communication strategies, a recurrent theme in such contexts as is that of the formation of a coalition united against the pressures, and could thus be better implemented in Oliver's (1991) framework.

3) Policy recommendations and further research

As Ifremer expert and ICES member Pascal Lorance said during an interview, fisheries science in France is focuses too much on studying fish and not enough on understanding social processes that surround fisheries and their management. I propose that there is great potential to apply this framework to understand the response of fishing industry organizations in the rapidly changing institutional setting of European fisheries governance and in order to devise policies that are tailored to the reality of their practices, that avoid conflicts between stakeholders, and anticipate resistance strategies while fostering acquiescence among industry constituents.

This research tells us that strong monitoring and constraining measures are sometimes challenged but can be effective in attaining their goal (e.g. reducing the extent of DSBT activity), and that although the fishing sector is attached to maintaining its autonomy it is opening up to management models that include legislators, scientists and NGOs so long as they are involved in the policy process. In order to ensure that fishers better accept new measures but also that unintended consequences are avoided (i.e. direct and indirect effects on local communities and in fishers' practices, e.g. the report of the fishing effort when closing a fishery), policy-makers should consider the specific socio-economic setting of the fishery in which policy is to be implemented, as well as that sector's cultural attachments and values. In doing so the traditional knowledge of fishers should be taken into account to ensure consistency between the reality of practices and policy objectives. This means encouraging the participation of fishers in the decision-making process for sustainable fisheries management (e.g. in the establishment of marine protected areas).

In the future it is possible that other nations will start exploiting deep-sea fisheries of the North East Atlantic as French DSBT ship-owners are not meeting their quotas and these might be reassigned (interview with F. Dulong). In this scenario it is necessary that institutional pressures continue to compel and oblige fishers to take appropriate and ecologically responsible measures in their activities. In that sense the work of NGOs and industry associations should also continue to encourage responsible fishing practices. Naturally these efforts must be accompanied by the continuous improvement of knowledge on marine ecosystems and to develop fishing technologies with the least impact on the environment and fish populations. In doing so I suggest that the scientific debate be balanced by making all data accessible to encourage critical and constructive research.

4) Study limitations

This research was not able to review the full scope of events, pressures and strategies in order to provide the most comprehensive account of what may have led the DSBT industry to change the way it practices fishing. In that sense the effect of pressures internal to the industry (e.g. industry standards set by associations) could for example constitute another set of influences. An analysis of the initiatives promoted by industry associations for the improvement of fishing practices would have further indicated the degree to which the industry is aware of ecological issues and how it tries to address them. However the scope of the case being limited to DSBT it was also relevant to simply address efforts of individual ship-owners.

References

- Assemblée Nationale. (2014-a). Amendement N° 536A - Projet de loi N° 2234 de finances pour 2015. Retrieved June 15, 2015, from <http://www.nosdeputes.fr/14/amendement/2234/536A>
- Assemblée Nationale. (2014-b). Amendement N° CD615 - Projet de loi N° 1847 relatif à la biodiversité. Retrieved June 15, 2015, from <http://www.nosdeputes.fr/14/amendement/1847/CD615>
- Bagieu, P. (2013, November 18). Take five minutes, and sign this, friend. Retrieved June 15, 2015, from <http://www.penelope-jolicoeur.com/2013/11/take-5-minutes-and-sign-this.html>
- Bansal, P., & Roth, K. (2000). Why Companies Go Green: A Model of Ecological Responsiveness. *The Academy of Management Journal*, 43(4), 717–736.
- Barnes, C., & McFadden, K. W. (2008). Marine ecosystem approaches to management: challenges and lessons in the United States. *Marine Policy*, 32(3), 387–392.
- Blake, J., & Davis, K. (1964). Norms, Values, and Sanctions. In *Handbook of Modern Sociology*. (R. Faris).
- Bloom. (2011). Le profil écologique et socio-économique des pêches profondes. Retrieved June 15, 2015, from http://bloomassociation.org/download/Profil_ecologique_et_socio-economique_des%20peches_profondes.pdf
- Bloom. (2013-a). Analyse des comptes de la Scapêche. Retrieved June 15, 2015, from http://www.bloomassociation.org/wp-content/uploads/2013/05/Comptes_Scapêche_FR.pdf
- Bloom. (2013-b). Pêches profondes françaises - Cas d'étude. Presentation slides for the European Fisheries Committee hearing of February 19, 2013. Retrieved June 15, 2015, from http://www.bloomassociation.org/wp-content/uploads/2013/09/Parlement_UE_Audition_-peches_profondes_19Fev2013.pdf
- Bloom. (2013-c). Têtes de gondole et queues de poisson – À quelle enseigne se fier pour acheter son poisson? Retrieved June 15, 2015, from http://www.bloomassociation.org/wp-content/uploads/2013/06/Classement_BLOOM_2013_des_supermarches1.pdf
- Bloom. (n.d.-a). 100% des français financent une pêche destructrice. Retrieved June 15, 2015, from <http://www.bloomassociation.org/100-des-francais-finacent-la-peche-destructrice-2/>
- Bloom. (n.d.-b). En France. Retrieved June 15, 2015, from <http://www.bloomassociation.org/en-france/>
- Bloom. (n.d.-c). Une pêche financée par nos impôts. Retrieved June 15, 2015, from <http://www.bloomassociation.org/une-peche-financee-par-nos-impots/>
- Bulman, C. M., & Koslow, J. A. (1992). Diet and food consumption of a deep-sea fish, orange roughy *Hoplostethus atlanticus* (Pisces: Trachichthyidae), off southeastern Australia. *Marine Ecology Progress Series*, 82, 115–129.
- Bureau Véritas. (2014). Pêche durable ou responsable. Retrieved June 15, 2015, from http://www.bureauveritas.fr/wps/wcm/connect/e0507c8049bad038bef6ff8be3abdbf6/FP182-PecheResponsable_0414_FR.pdf?MOD=AJPERES&CACHEID=e0507c8049bad038bef6ff8be3abdbf6
- Campos, A., Fonseca, P., Henriques, V., & Parente, J. (2013). Reducing by-catch in Portuguese trawl fisheries with a view on a future discard-ban at EU level? a technological approach. In *Developments in Maritime Transportation and Exploitation of Sea Resources* (pp. 1069–1074). CRC Press. Retrieved June 15, 2015, from <http://www.crcnetbase.com/doi/abs/10.1201/b15813-135>
- Castier, A., & Bouilly, T. (2011). *Huis clos en mer d'Écosse*. France Télévisions – France 3 Bretagne. Retrieved June 15, 2015, from <http://www.pecheursdumonde.org/huis-clos-en-mer-d-ecosse,288.html>
- Chiffres et bilans - Informations économiques - Pêche et aquaculture - FranceAgriMer. (n.d.). Retrieved May 21, 2015, from [http://www.franceagrimer.fr/filiere-peche-et-aquaculture/Informations-economiques/Chiffres-et-bilans?SearchText=&filter\[\]=subattr mots_cles_id si:%223044%22&activeFacets\[subattr mots_cles_id si :Mots-cl%C3%A9s\]=3044](http://www.franceagrimer.fr/filiere-peche-et-aquaculture/Informations-economiques/Chiffres-et-bilans?SearchText=&filter[]=subattr mots_cles_id si:%223044%22&activeFacets[subattr mots_cles_id si :Mots-cl%C3%A9s]=3044)
- Clemens, B., & Douglas, T. J. (2007). Understanding strategic responses to institutional pressures. *Journal of Business Research*, 58(9), 1205–1213.

- Cofrepêche, Ifremer, & Scapêche. (2014). *Reduction of Gear Impact and Discards in Deep Sea Fisheries (Contract MARE/2011/07 – Studies on the common fisheries policy Lot 1)*. (p. 202).
- Comité National des Pêches Maritimes et des Élevages Marins (CNPMEM). (2012). *Rapports d'activités du CNPMEM 2012*. Retrieved June 15, 2015, from http://www.comite-peches.fr/wp-content/uploads/Rapport_2012_Vsite.pdf
- Comité National des Pêches Maritimes et des Élevages Marins (CNPMEM). (2015). Les Organisations de Producteurs. Retrieved June 15, 2015, from <http://www.comite-peches.fr/organisation-professionnelle/les-organisations-de-producteurs-op/>
- Cornelis-Vrolijk. (n.d.). About us. Retrieved June 15, 2015, from <http://www.cornelisvrolijk.eu/about-us>
- Cornou, A.-S., & Biseau, A. (2014). Analyse des captures du métier “Chalutiers à espèces profondes en Ouest Ecosse.” Retrieved June 15, 2015, from <http://archimer.ifremer.fr/doc/00198/30936/29313.pdf>
- Cour des Comptes. (2010). *Rapport sur les aides de l'Etat à la pêche*. Retrieved June 15, 2015, from <http://tempsreel.nouvelobs.com/economie/20130702.OBS6191/info-obs-le-rapport-secret-sur-la-peche-francaise.html#peche>
- Cury, P. M., Shin, Y.-J., Planque, B., Durant, J. M., Fromentin, J.-M., Kramer-Schadt, S., ... Grimm, V. (2008). Ecosystem oceanography for global change in fisheries. *Trends in Ecology & Evolution*, 23(6), 338–346. <http://doi.org/10.1016/j.tree.2008.02.005>
- Datamarket. (2015). Brent Crude Oil Prices. Retrieved June 15, 2015, from <https://datamarket.com/data/set/23ds/crude-oil-prices#!ds=23ds!2keo=1&display=line&s=8gr&f=rolling:50>
- Deep Sea Conservation Coalition (DSCC). (2005). *Economics and Equity - The deep Seas Parted* (DSCC Policy Paper). Retrieved June 15, 2015, from http://www.savethehighseas.org/publicdocs/DSCC_Economics_US.pdf
- Devlin, S., & Esteban, A. (2013). Deep trouble. New Economic Foundation. Retrieved June 15, 2015, from http://b3cdn.net/nefoundation/334f56defb13aae39a_ctm6i2kty.PDF.
- Druel, E., Ricard, P., & Martinez, C. (2012). Governance of marine biodiversity in ABNJ at the regional level: filling the gaps and strengthening the framework for action. *Biodiversity*, (4).
- Ducos, L. (2014). *INTOX Enquête sur les lobbies de la pêche industrielle* [Film]. Retrieved June 15, 2015, from <http://www.pecheursdumonde.org/huis-clos-en-mer-d-ecosse,288.html>
- Engau C., Hoffmann V.H. (2009). Effects of Regulatory Uncertainty on Corporate Strategy - An Analysis of Firm Responses to Uncertainty about Post-Kyoto Policy. *Environmental Science & Policy*, 12, 766–777.
- Engau C., Hoffmann V.H. (2010). Corporate response strategies to regulatory uncertainty: Evidence from uncertainty about post-Kyoto regulation. *Environmental Science & Policy*, 44, 53–80.
- Euronor. (2012). Retrieved June 15, 2015, from http://www.ami62.fr/euronor/Euronor/index_011.htm
- Europa. (2015). Organisation of the sector. Retrieved June 15, 2015, from http://ec.europa.eu/fisheries/cfp/market/producer_organisations/index_en.htm
- European Association of Fish Producers Organisation, COGECA, & Association of National Organisations of Fishery Enterprises. (2012). EU/FISHERIES: Major concerns in the European catching sector regarding the Commission's intention to adopt a proposal gradually banning bottom trawling. Retrieved June 15, 2015, from <http://eapo.accounts.divinenet.be/UserFiles/EAPO%20joint%20press%20release%20-%20bottom%20trawling%20%28EN%29.pdf>
- European Association of Fish Producers Organisation (EAPO). (2015). Publications. Retrieved June 15, 2015, from <http://www.eapo.com/index.php?page=publications>
- European Commission. (2007). Fishery Statistics – Data 1990-2006. Retrieved June 15, 2015, from <http://ec.europa.eu/eurostat/en/web/products-pocketbooks/-/KS-DW-07-001>
- European Commission. (2009). GREEN PAPER – Reform of the Common Fisheries Policy. Retrieved June 15, 2015, from <http://www.cfp-reformwatch.eu/pdf/cfp-green-paper.pdf>

- European Commission. Commission Regulation (EC) No 762/2004 of 23 April 2004 adapting certain fish quotas for 2004 pursuant to Council Regulation (EC) No 847/96 introducing additional conditions for year-to-year management of TACs and quotas.
- European Commission. Commission Regulation (EC) No. 1639/2001 establishing the minimum and extended Community programmes for the collection of data in the fisheries sector and laying down detailed rules for the application of Council Regulation (EC) No. 1543/2000.
- European Commission. (2012). Proposal No 2012/0179(COD) for a regulation of the European Parliament and of the Council establishing specific conditions to fishing for deep-sea stocks in the North-East Atlantic and provisions for fishing in international waters of the North-East Atlantic and repealing Regulation (EC) No 2347/2002.
- European Commission. Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.
- European Commission. (2015). TACs and quotas. Retrieved June 15, 2015, from http://ec.europa.eu/fisheries/cfp/fishing_rules/tacs/index_en.htm
- European Council. Council Regulation (EC) No 602/2004 of 22 March 2004 amending Regulation (EC) No 850/98 as regards the protection of deepwater coral reefs from the effects of trawling in an area north west of Scotland.
- European Council. Council Regulation (EC) No 734/2008 of 15 July 2008 on the protection of vulnerable marine ecosystems in the high seas from the adverse impacts of bottom fishing gears.
- European Council. Council Regulation (EC) No 2347/2002 of 16 December 2002 establishing specific access requirements and associated conditions applicable to fishing for deep-sea stocks.
- European Parliament. (n.d.). 2012/0179(COD) | ParlTrack. Retrieved May 23, 2015, from <http://parltrack.euwiki.org/dossier/2012/0179%28COD%29#am-251-PE-514.805>
- European Parliament, & European Council. Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.
- European Parliament, & European Council. Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.
- Europêche. (2015). EUROPÊCHE RESPONSE TO THE EUROPEAN COMMISSION'S CONSULTATION ON A NEW FRAMEWORK FOR TECHNICAL MEASURES IN THE REFORMED COMMON FISHERIES POLICY. Retrieved June 15, 2015, from http://ec.europa.eu/dgs/maritimeaffairs_fisheries/consultations/technical-measures/contributions/documents/europeche_en.pdf
- Fauconnet, L., Badts, V., Biseau, A., Diméet, J., Dintheer, C., Dubé, B., ... Tétard, A. (2011). Observations à bord des navires de pêche - Bilan de l'échantillonnage 2010.
- Fishbase. (2015). Fishbase. Retrieved June 15, 2015, from <http://www.fishbase.org/>
- Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive Governance of Social-Ecological Systems. *Annual Review of Environment and Resources*, 30(1), 441–473. <http://doi.org/10.1146/annurev.energy.30.050504.144511>
- Food and Agriculture Organization. (1992). Marine fisheries and the law of the sea: a decade of change. Special chapter (revised). In *The State of Food and Agriculture 1992* (p. 66). Rome.
- Food and Agriculture Organization. (2015). Statistics. Retrieved June 15, 2015, from <http://www.fao.org/statistics/en/>
- FranceAgrimer. (2010). Données statistiques 2009 - Données de ventes déclarées en halles à marée. Retrieved June 15, 2015, from <http://www.franceagrimer.fr/filiere-peche-et-aquaculture/Informations-economiques/Chiffres-et-bilans>
- FranceAgrimer. (2014). Données statistiques 2013 - Données de ventes déclarées en halles à marée. Retrieved June 15, 2015, from <http://www.franceagrimer.fr/filiere-peche-et-aquaculture/Informations-economiques/Chiffres-et-bilans>

- France 3 Bretagne. (2011). Lorient: réaction de la Scapêche après l'action de Greenpeace. Retrieved June 15, 2015, from <https://www.youtube.com/watch?v=NYXrFWaAiRk>.
- Gaglyuk, T., Hanf, J., & Steinbauer, C. (2009). Managing supply chains successfully: an empirical testing of success of supply chain networks in the German fish sector. Presented at the 113th EAAE seminar, Chania, Crete, Greece.
- Gerring, J. (2004). What is a Case Study and What Is It Good for? *The American Political Science Review*, 98(2), 341–354.
- Gianni, M. (2004). *High Seas Bottom Trawl Fisheries and their Impacts on the Biodiversity of Vulnerable Deep-Sea Ecosystems: Options for International Action*. World Wildlife Fund, Natural Resources Defense Council, and International Union for Conservation of Nature. Retrieved June 15, 2015, from https://cmsdata.iucn.org/downloads/hs_bottomtrawling_execsumm.pdf
- Giron, Y. (2012). Blue Charity Business. Retrieved June 15, 2015, from http://www.peche-dev.org/IMG/pdf/121107_blue_charity_abstract_en-2.pdf
- Gjerde, K. M. (2006). Ecosystems and Biodiversity in Deep Waters and High Seas. United Nations Environment Programme. Retrieved June 15, 2015, from http://www.unep.org/pdf/EcosystemBiodiversity_DeepWaters_20060616.pdf
- Goodfishbadfish. (n.d.). Goodfishbadfish. Retrieved June 15, 2015, from <http://goodfishbadfish.com.au/>
- Goodstein, J. D. (1994). Institutional Pressures and Strategic Responsiveness: Employer Involvement in Work-Family Issues. *The Academy of Management Journal*, 37(2), 350–382.
- Greenpeace. (2011). Until the very last fish? The absurd model of deep sea fisheries. *Ocean Inquirer*, (2). Retrieved June 15, 2015, from http://www.greenpeace.org/sweden/Global/sweden/hav/dokument/2011/ocean_inquirer_2.pdf
- Guse, F. (2013). *Full speed towards a sustainable future - The story of the electric car in Germany: an institutional approach* (Master's thesis). VU Amsterdam.
- Hamprecht, J., Sprengel, D. C., & Hoffmann, V. (2011). How Regulatory Uncertainty Impedes the Reduction of Greenhouse Gas Emissions. In *Cross-Sector Leadership for the Green Economy*. New York: Palgrave MacMillan: Marcus, A., Shrivastava, P., Sharma, S., & Pogutz, S.
- Harling, K. (2002). *An Overview of Case Study*. Annual meeting of the American Agricultural Economics Association, Long Beach, California. Retrieved June 15, 2015, from https://www.farmfoundation.org/news/articlefiles/1028-1_harling.pdf
- [HTML] from nih.gov. (n.d.). Retrieved June 15, 2015, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2906846/>
- Ifremer. (2014). Coordonnées de toutes les implantations Ifremer. Retrieved June 15, 2015, from <http://wwz.ifremer.fr/L-institut/Implantations/Toutes-les-implantations>
- Ifremer. (2011). *Les travaux d'Ifremer sur la sélectivité*. Retrieved June 15, 2015, from <http://wwz.ifremer.fr/peche/Le-role-de-l-Ifremer/Recherche/Les-thematiques/TECOS/Selectivite>
- Ifremer. (2012). Pêches profondes dans les eaux européennes : expertise et travaux menés par l'Ifremer. Retrieved June 15, 2015, from <http://wwz.ifremer.fr/peche/content/download/71009/929328/file/Le%20point%20sur%20les%20p%C3%AAces%20profondes%20dans%20les%20eaux%20europ%C3%A9ennes.pdf>
- Intermarché. (n.d.). Votre magasin. Retrieved June 15, 2015, from <https://www.intermarche.com/home/magasins/accueil/morbihan/allaire-07345.html>
- International Council for the Exploration of the Sea. (2011). Historical Nominal Catches 1950-2010. Retrieved June 15, 2015, from <http://www.ices.dk/marine-data/Documents/CatchStats/HistoricalLandings1950-2010.zip>
- International Council for the Exploration of the Sea. (n.d.-a). WGDEC. Retrieved June 15, 2015, from <http://ices.dk/community/groups/Pages/WGDEC.aspx>
- International Council for the Exploration of the Sea. (n.d.-b). WGDEEP. Retrieved June 15, 2015, from <http://ices.dk/community/groups/Pages/WGDEEP.aspx>

- International Council for the Exploration of the Sea. (n.d.-c). Who we are. Retrieved June 15, 2015, from <http://www.ices.dk/explore-us/who-we-are/Pages/Who-we-are.aspx>
- International Council for the Exploration of the Sea. (n.d.-e). ICES-Fishmap Saithe. Retrieved June 15, 2015, from <http://www.ices.dk/explore-us/projects/EU-RFP/EU%20Repository/ICES%20FishMap/ICES%20FishMap%20species%20factsheet-Saithe.pdf>
- Irish Fisheries Board. (2015). Irish Fisheries Board. Retrieved June 15, 2015, from <http://www.bim.ie/>
- Jennings, P. D., & Zandbergen, P. A. (1995). Ecologically Sustainable Organizations: An Institutional Approach. *The Academy of Management Review*, 20(4), 1015–1052.
- Kelleher, K. (2005). Discards in the World's Marine Fisheries. Food and Agriculture Administration. Retrieved June 15, 2015, from <http://www.fao.org/3/a-y5936e.pdf>
- Korkikian, J. (2010). *Dans un Monde à Part* [Video]. M6. Retrieved June 15, 2015, from <https://www.youtube.com/watch?v=JkCF1S2jKek>
- Lagares, E. C., & Ordaz, F. G. (2014). Fisheries structural policy in the European Union: A critical analysis of a subsidised sector. *Ocean & Coastal Management*, 102, Part A, 200–211. <http://doi.org/10.1016/j.ocecoaman.2014.10.001>
- Langely, A. (1999). Strategies for theorizing from process data. *The Academy of Management Review*, 24(4), 691–710.
- Lexis Nexis. (2015). Retrieved June 15, 2015, from <http://academic.lexisnexis.nl/>
- March, J. G., & Olsen, J. P. (1989). *Rediscovering Institutions: The Organizational Basis of Politics*. New York: Free Press.
- Marinebio. (2015). The Deep Sea. Retrieved June 15, 2015, from <http://marinebio.org/oceans/deep/>
- Markus, T. (2010). Towards sustainable fisheries subsidies: Entering a new round of reform under the Common Fisheries Policy. *Marine Policy*, 34(6), 1117–1124. <http://doi.org/10.1016/j.marpol.2010.03.011>
- Mesnil, B. (2008). Public-Aided Crises in the French Fishing Sector. *Oceans and Coastal Management*, 51(10), 689–700.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology*, 83(2), 30–33.
- Monfort, M.-C., Baelde, P., Leveil, C., Vallet, E., & Lamour, L. (2013). Guide des espèces - à l'usage des professionnels. Retrieved June 15, 2015, from <http://www.guidedesespeces.org/fr>
- National Research Council. (2002). Effects of Trawling and Dredging on Seafloor Habitat. Retrieved June 15, 2015, from http://download.nap.edu/cart/download.cgi?&record_id=10323
- Nelleman, C., Hain, S., & Alder, J. (2008). In Dead Water. United Nations Environment Programme, GRID-Arendal, Norway. Retrieved June 15, 2015, from http://www.unep.org/pdf/InDeadWater_LR.pdf
- No author. (2010). Avenir des Pêches Profondes. Retrieved June 15, 2015, from <http://www.developpement-durable.gouv.fr/IMG/pdf/G1.pdf>
- Norse, E. A., Brooke, S., Cheung, W. W. L., Clark, M. R., Ekeland, I., Froese, R., ... Watson, R. (2012). Sustainability of deep-sea fisheries. *Marine Policy*, 36(2), 307–320. <http://doi.org/10.1016/j.marpol.2011.06.008>
- Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, 16, 145–179.
- Palanques, A., Puig, P., Masqué, P., Martín, J., & Sánchez-Gómez, A. (2014). Impact of Bottom Trawling on Deep-Sea Sediment Properties along the Flanks of a Submarine Canyon. *PLoS ONE*, 9(8), e104536. <http://doi.org/10.1371/journal.pone.0104536>
- Pêcheurs de Bretagne. (2013). Qui sommes-nous? Retrieved June 15, 2015, from <http://www.pecheursdebretagne.eu/>
- PEW Environment group. (2012). Out of the Abyss: Transforming EU Rules to Protect the Deep Sea. Retrieved June 15, 2015, from <http://www.savethehighseas.org/publicdocs/deep-Out-of-the-Abyss.pdf>
- Pfeffer, J., & Salancik, G. (1978). Social Control of Organizations. In *The External Control of Organizations* (Harper & Row, pp. 39–61).

- Pham, C. K., Diogo, H., Menezes, G., Porteiro, F., Braga-Henriques, A., Vandeperre, F., Morato, T. (2014). Deep-water longline fishing has reduced impact on Vulnerable Marine Ecosystems. *Scientific Reports*, 4(4837), 1–6.
- Rabesandratana, T. (2013). Industry lobbying derails trawling ban in Europe. *Science*, 343(6175), 1077.
- Salomon, M., & Holm-Müller, K. (2013). Towards a sustainable fisheries policy in Europe. *Fish and Fisheries*, 14(4), 625–638.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students* (Vol. 5). Harlow: Pearson.
- Schwandt, T. A. (2007). *The Sage Dictionary of Qualitative Inquiry* (3rd ed.). Thousand Oaks, California: Sage.
- Scottish Government. (2015). Planning Scotland's Seas. Retrieved June 15, 2015, from <http://www.gov.scot/Topics/marine/marine-consultation>
- Scottish Government. (2014). Nature Conservation MPA Network Map. Retrieved June 15, 2015, from <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/MPAMap>
- Scott, R. W. (2001). Crafting an Analytic Framework I: The Three Pillars of Institutions. In *Institutions and Organizations* (2nd Ed.). Sage Publication.
- Sea to Sea. (2013). *Lancement de BLUE FISH, association européenne de promotion de la pêche durable et responsable* [Video]. Retrieved June 15, 2015, from http://www.dailymotion.com/video/xzcn87_lancement-de-blue-fish-association-europeenne-d
- Selznick, P. (1949). *TVA and the grass roots; a study in the sociology of formal organization*. Berkeley, California: California Press.
- Sénat. (2015). Vidéo. Retrieved June 15, 2015, from <http://videos.senat.fr/video/index.html>
- S., D. R., J. -, Cervino, S., & Villasante, . (2012). The common fisheries policy: An enforcement problem. *Marine Policy*, 36(6), 1309–1314.
- Snapshot. (n.d.). Retrieved June 15, 2015, from <http://www.pnas.org/content/107/21/9485.short>
- Tolbert, P., & Zucker, L. (1996). The Institutionalization of Institutional Theory. *Articles and Chapters*. Retrieved June 15, 2015, from <http://digitalcommons.ilr.cornell.edu/articles/423>
- Union des Armateurs a la Pêche de France. (n.d.). Union des Armateurs a la Pêche de France. Retrieved June 15, 2015, from http://cluster-maritime-francais.fr/membres_pdf/UNION%20DES%20ARMATEURS%20A%20LA%20PECHE%20DE%20FRANCE%20FR.pdf
- United Nations Environment Programme. (2004). Cold-water coral reefs: out of sight - no longer out of mind. Retrieved June 15, 2015, from <http://www.unep.org/Documents/Multilingual/Default.asp?DocumentID=399&ArticleID=4541&l=en>
- United Nations General Assembly. Resolution 59/25 Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments (2004).
- United Nations General Assembly. Resolution 61/105 Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments (2006).
- Van Hoof, L. (2015). Fisheries management, the ecosystem approach, regionalisation and the elephants in the room. *Marine Policy*, 60, 20–26. <http://doi.org/10.1016/j.marpol.2015.05.011>
- Verschuren, P. & Doorewaard, H. (2010). *Designing a Research Project*. Utrecht: Lemma.
- Villasante, S., Morato, T., Rodriguez-Gonzalez, D., Antelo, M., Österblom, H., Watling, L., ... Macho, G. (2012). Sustainability of deep-sea fish species under the European Union Common Fisheries Policy. *Ocean & Coastal Management*, 70, 31–37. <http://doi.org/10.1016/j.ocecoaman.2012.07.033>
- Wallace, S. (2012). David Suzuki Foundation works with B.C. bottom trawl industry to reduce habitat impacts. Retrieved June 15, 2015, from <http://www.davidsuzuki.org/blogs/healthy-oceans-blog/2012/03/david-suzuki-foundation-works-with-bc-bottom-trawl-industry-to-reduce-habitat-im/>

- Watling, L., Norse, E. A. (1998). Disturbance of the Seabed by Mobile Fishing Gear: A Comparison to Forest Clearcutting. *Conservation Biology*, 12(6), 1180–1197.
- Wikipedia. (2015). Louis Le Pensec. Retrieved June 15, 2015, from https://fr.wikipedia.org/wiki/Louis_Le_Pensec
- Working Group on Biology and Assessment of Deep-sea (ICES-WGDEEP). (2015). *Report of the Working Group on Biology and Assessment of Deep-sea Fisheries Resources (WGDEEP)*. Copenhagen, Denmark: ICES. Retrieved June 15, 2015, from http://ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2015/WGDEEP/wgdeep_2015.pdf
- Worm, B., Barbier, E. B., Beaumont, N., Duffy, J. E., Folke, C., Halpern, B. S., ... Watson, R. (2006). Impacts of Biodiversity Loss on Ocean Ecosystem Services. *Science*, 314(5800), 787–790. <http://doi.org/10.1126/science.1132294>
- Yin, R. K. (2003). *Case Study Research - Design and Methods*. Thousand Oaks: Sage.
- Zhou, S., Smith, A. D., Punt, A. E., Richardson, A. J., Gibbs, M., Fulton, E. A., ... Sainsbury, K. (2010). Ecosystem-based fisheries management requires a change to the selective fishing philosophy. *Proceedings of the National Academy of Sciences*, 107(21), 9485–9489.

Annexes

Annex 1 Additional information on methods

1) List of respondents

Table 12 List of respondents.

NAME OF THE RESPONDENT	ORGANIZATION(S) WITH THEIR LOCATION, AND POSITION(S) OF THE RESPONDENT	DATE OF THE INTERVIEW
BAVAY, REYNALD	Audélor (Lorient), planning director.	March 26, 2015.
BESNARD, JEAN	Moulin Lorient Marée (Lorient), mareyeur.	March 26, 2015.
BISEAU, ALAIN	Ifremer (Lorient), fisheries expert. Member of the ICES.	March 25, 2015.
DOUARD, TRISTAN	Deputy mayor at Lorient city hall for economic development, agriculture and fisheries. Previous positions: Proma (producer organization, Lorient), general secretary. Union des Armateurs à la Pêche de France, representative. Scapêche (Lorient), general director.	March 20, 2015.
DULON, FABIEN	Scapêche (Lorient), general director.	March 18 and 27, 2015.
GUILLONEAU, VICTOIRE	Bloom (Paris), project manager.	March 5, 2015.
-	Dhellemmes (Concarneau), fleet captain in Concarneau ('capitaine d'armement').	March 24, 2015.
LARNAUD, PASCAL	Ifremer (Lorient), expert on fishing technologies in Lorient.	March 25, 2015.
LE SANN, ALAIN	Collectif Pêche et Développement (Lorient), president. Festival Pêcheurs du Monde (Lorient), president.	March 17 and 22.
LORANCE, PASCAL	Ifremer (Nantes), deep-sea fisheries expert in Nantes. Member of the ICES and WGDEEP.	April 1, 2015.
ROCHET, MARIE-JOËLLE	Ifremer (Nantes), expert coordinator of the on-board marine observation program OBSMER.	April 1, 2015.
FAGEAU, ROMAIN	Scapêche (Nantes), project manager.	March 27, 2015.
MONFORT, MARIE-CHRISTINE	Marketing Seafood (Paris), economist and consultant.	March 11, 2015.
ROCHE, THOMAS	Public servant at the Ministry of Ecology and Sustainable Development (Paris).	March 5, 2015.

Other anonymous respondents:

The number of persons interviewed in the given position is in parentheses.

Collectif Pêche et Développement (Lorient), active member (1).

Comité Régional des Pêches Maritimes et des Élevages Marins (CRPMEM) Nord Pas de Calais / Picardie (Boulogne-sur-Mer), project manager (1).

Marine Harvest (fish processing plant, Boulogne-sur-Mer), manager (1).

On-board marine observers for Ifremer's OBSMER program (3).

Ifremer (Boulogne-sur-Mer), PhD students and interns (3).

2) Questions addressed to respondents during interviews

Factual questions

What is the purpose of your organization?

What is your position in this organization?

How is your organization financed?

Have you worked with DSBT ship-owners?

Apart from Scapêche, Euronor and Dhellemmes, what are the other French ship-owners that practice DSBT?

Institutional pressures and strategies

When did pressures against DSBT start?

Was (constituent) exerting pressure against DSBT—or influence—on (FIO)?

How did (FIO) perceive this event when it happened?

What was (FIO)'s response to it?

What are the elements of the legal framework regulating French DSBT activity?

What/who favored the regulation of DSBT, and why?

What is your position regarding DSBT?

How have you or your organization pressured ship-owners?

Explanatory factors

Why did (constituent) exert pressure on (FIO)?

Why did (ship-owner) adopt this strategy?

How did (ship-owner) perceive the risk of (constituent's pressure)?

Is DSBT more interesting than other fishing methods? Why/how/which ones? (economic, technical and environmental aspects)

Why does (ship-owner) not switch to other fishing methods?

What was the influence of other ship-owners' practices?

To what extent do you think that (ship-owner) is environmentally conscious?

What do you think is the state of (deep-sea species) stocks in the North East Atlantic?

What do you think is the impact of DSBT on fish stocks, deep-sea ecosystems, corals, etc.?

What is the financial situation of (ship-owner)?

Did (ship-owner) perceive subsidies?

How does the cost of oil impact the DSBT economy?

How autonomous is (ship-owner) from its shareholders?

What is (constituent)'s relationship with or—opinion about—(other constituent), and how has it changed? (artisanal fishers, mareyeurs, retailers, ship-owners, politicians, scientists, etc.)

What do you think of this (statement from another constituent)?

In what way do fishers and politicians depend upon each other's support?

How does the fish supply chain work?

What is the extent of monitoring measures and the risk of sanctions?

To what extent do you think these measures are effective/ship-owners comply with legislation on DSBT?

3) Example of an email sent to a ship-owner (respondent)

The following email is translated from French and was sent to the general email address of a ship-owner with the aim of speaking to one of its leaders.

Dear Sir or Madam,

I am currently working on a research project for which the topic is the evolution of the deep-sea fishing sector in France. This work constitutes my master's thesis for the sustainable development study program at Utrecht University in the Netherlands. I am interested in having a discussion with professionals of the fishing sector and therefore with the leaders of (*ship-owner*) in order to have their point of view on the topic and know more about how the company has developed its fishing activity over the last fifteen years. Although there is some information available on the internet and in news archives, it would be even more interesting to meet people from the industry directly.

I will call you at the number indicated on your website so that we can perhaps arrange a meeting in person or speak on the phone. Please do not hesitate to contact me at this email address or by phone at (*number*), I remain at your disposal for any questions concerning my work.

Sincerely,

Samy Porteron

Student at Utrecht University, the Netherlands.

More information about this specific attempt:

Following this email the company was called three or four times over the span of a few weeks, however it did not lead to further contact with the respondent due to being too busy or away. In other emails and phone conversations (also with this company), I usually stated that the interview would last 30 to 45 minutes according to the respondent's availability. The situation is similar to when I tried to contact other ship-owning firm leaders whose staff let me know that they were not interested in participating in the research or simply could not be reached directly.

4) News sources from Lexis Nexis

Table 13 Frequency of relevant articles identified from each news source in the Lexis Nexis search.

Name of the source	Type	Number of relevant articles
Agence France Presse	National	83
Aujourd'hui en France	National	6
Bulletin Quotidien	National	2
E-news Journal-des-communes.fr	Online (local news)	1
Environnement Magazine	National	2
EurActiv.fr	Online European	3
EuroNews - Version Française	Online European	2
Europe Agro	Online European	1
Europe Environnement	Online European	2
Europolitique	European	29
Europolitique Agriculture (Français)	European	3
Europolitique Environnement (Français)	European	4
La Correspondance économique	National	2
La Croix	National	2
La Gazette des Communes, des Départements, des Régions	Regional	1
La Montagne	Regional	1
La Nouvelle République du Centre Ouest	Regional (Center-West of France)	3
La Tribune	National	5
La Tribune.fr	Online national	1
La Tribune de Geneve	Foreign (Switzerland)	3
La Voix du Nord	Regional (North)	13
Le Figaro	National	10
Le Figaro Économie	Economic national	3
Le Figaro Magazine	National	1
Le Figaro Newsflash - News	National	5
Le Figaro Online	Online national	5

Le Monde	National	27
LeMonde.fr	Online national	16
Le Parisien	Regional (Ile-de-France)	5
Le Point	National	3
LePoint.fr	Online national	9
Le Télégramme	Regional (Brittany)	91
L'Echo Républicain	National	1
Les Echos	National	14
L'Est Républicain	Regional (Eastern France)	11
L'Express	National	4
LExpress.fr	Online national	6
L'Humanité	National	5
L'INDEPENDANT	National	7
Marianne	National	3
MIDI LIBRE	Regional (Languedoc-Roussillon and Aveyron regions)	5
News Press	Press release source	23
Nice Matin	Regional (Alpes-Maritimes region)	1
Ouest-France	Regional (Brittany, Pays-de-la-Loire and Normandy regions)	96
Paris-Normandie	Regional (Normandy and Paris regions)	4
PR Newswire Europe (French)	Press release source	1
Rue89	Online national	3
Sud Ouest	Regional (South-Western France)	14
Sud Ouest Dimanche	Regional (South-Western France)	3

5) Descriptions of operationalized factors

Cause

Size

Size is measured from the number of DSBT ships that the ship-owner owns at different points in time as an indicator of its visibility in the context of controversy. This information is gathered from news sources, during interviews, and in scientific or industry documents.

Legitimacy and efficiency/competitiveness

Legitimacy and efficiency to be gained from a strategy is assessed from direct accounts from professionals and by considering factors affecting their activities that can explain their decisions. This means that news sources, interviews and other data sources are used to understand the factors and dynamics that affect ship-owners' relative efficiency and legitimacy. As an illustrative example, by comparing indicators such as oil prices and access to subsidies with indicators of institutional pressure and the situation of a ship-owner's DSBT activity (e.g. number of DSBT vessels, extent of the DSBT footprint), we can understand how ship-owners have responded to this combination of factors and with what goal in mind (increasing legitimacy with regards to pressures or increasing efficiency due to extraneous economic variables). Interviews with experts and professionals naturally facilitate and can confirm this analysis.

Constituents

Multiplicity

From all the data it is possible to qualitatively assess who are the pressuring constituents for each event or action, what is the motivation for these pressures, and how these converge or clash. In combination with dependence, looking at multiplicity helps explaining an FIO's strategies to access to—or resist—either of its constituents' demands.

Dependence

Dependence is measured by looking at the available "alternative sources for obtaining capital or resources" (Oliver, 1991, p172). To assess how dependence affects a ship-owner's decisions, I look at which organizations it depends on the most for legitimacy and efficiency and what pressures this organization is exerting on the FIO. Those constituents are generally retailers, consumers, national and European governments, and its shareholders, therefore I look at retailer's decision to sell deep-sea fish or not, access to state subsidies, and shareholders' directives for ship-owners in managing their DSBT activity.

Content

Consistency

The data provides information about the FIO's practices, values and goals; including whether they agree with the constituents' pressures and how these might clash.

Constraint

The data allows to qualitatively assess the potential loss of autonomy the ship-owner risks in acquiescing constituents' pressures based on the content of these pressures and how these will empirically affect the actors' freedom of action or decision-making.

Control

Coercion

By looking at coercive pressures indicators including the legislative framework, the degree of monitoring, and potential sanctions (fine, threats of criminal proceedings), we can qualitatively assess the risk endured from resistance strategies.

Diffusion

Diffusion is indicated by the presence of other ship-owners that employ or have adopted alternative methods of deep-sea fishing and their comparative success with regards to DSBT. Statements from ship-owners that indicate that they wish to align with others' practices is the preferred method of assessment.

Context

Uncertainty

Regulatory uncertainty is assessed based on what is reported in the news as being debated in international policy-making instances (e.g. the European Commission or Parliament, the United Nations General Assembly). Legislation affecting ship-owners' activities are indeed regularly discussed, with influential persons making proposals or debates being organized (see Timelines).

Uncertainty regarding the economic prospects for DSBT is shaped by a complex set of factors which affect ship-owners' efficiency such as the cost of fuel for ships (see Figure 21) or the demand for deep-sea species in the supply chain. It is assessed qualitatively based on statements made by FIOs regarding the stability of the economic environment of the DSBT industry.

Ecological uncertainty is assessed from FIOs' statements of their perception of their impact on ecosystems and stocks.

Structuration

The general tendency for the fishing sector to be structured is detected from reviewing the data: statements in the news and interviews, and in FIO documents. It is assessed by noticing the presence of coalitions and industry associations, the formulation of concerted strategies and the recognition

common goals within the industry. Evidence of structuration is presented in the description and analysis of the case and in Description of FIOs and . Furthermore, I present findings from a non-systematic study of individuals' mobility between different organizations to show that leaders can sometimes hold two current or consecutive positions (see Figure 23). Research in the field also helps find out the extent of informal relationships between individuals from the sector.

Geographical proximity

Geographical proximity is assessed from noting the location of FIOs with a demonstrated link with the DSBT industry.

Internal culture

The internal culture of FIOs is assessed by noting statements in the data that indicate attachment to the values and symbols proper to the fishing industry and to the specific organization.

Annex 2 Additional contextual information.

This section serves to define what is meant by the terms ‘deep-sea’, ‘deep-sea species’ and ‘deep-sea bottom-trawling’ in this thesis.

1) What is the deep-sea?

In the most common definition the deep-sea is said to start below 200 meters under sea level, and includes the waters overlying the continental slopes, rises, abyssal plains and trenches (see diagram below). The limit is based on the consideration that photosynthesis no longer takes place below this depth (Marinebio, 2015). Living conditions in the deep-sea are toughened due to close-to-zero temperatures, very high barometric pressure and the scarcity of food (Marinebio, 2015).

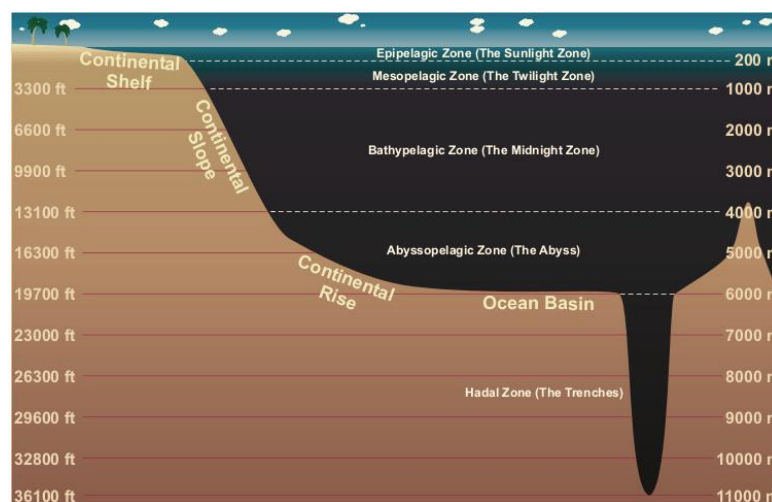


Figure 14 Layers of the ocean. [US National Oceanographic and Atmospheric Administration, \(2014\)](#).

2) What are deep-sea species?

Deep-sea species are characterized by their adaptation to this harsh environment which for some translates into slow growth, low reproduction rate, and high longevity (Lorance 2007). There is a very important biodiversity of organisms in the deep-sea. For this thesis, I consider the four main fish species most targeted by French DSBT vessels, namely the Roundnose Grenadier, the Blue Ling, the Black Scabbardfish and the Orange Roughy⁷⁷. The first three species constituted 73% of all catches by DSBT vessels (out of a total of 98 species) and 89% of the landings in 2011 (Ifremer, 2014). The Orange Roughy is an interesting case as it used to be an important target species due to its market value until 2010, when quotas were cut. For each of these species I give a short description of their biological features only to provide context for the reader since their names are often mentioned in the Analysis.

⁷⁷ The name of these species may be shortened to Grenadier, Ling and Scabbardfish in this paper, without ever referring to other types of Grenadier or Ling which are different species.

Roundnose Grenadier (Coryphaenoides Rupestris)



Figure 15 Roundnose Grenadier. [Wikipedia, 2013.](#)

The Roundnose Grenadier can live up to 60 years old, it evolves at depths between 400 and 2000 meters and reaches sexual maturity at 50cm of length or 14 years old (Montfort *et al.*, 2013, p50).

Blue Ling (Molva Dypterygia)



Figure 16 Blue Ling. [Fisheries.no, n.d.](#)

The Blue Ling lives up to 20 years old (Fishbase, n.d.), it evolves at depths between 150 and 1500 meters and reaches sexual maturity at 80cm of length (Monfort *et al.*, 2013, p66).

Black Scabbardfish (Aphanopus Carbo)

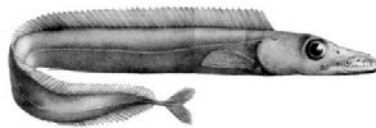


Figure 17 Black Scabbardfish. [Wikipedia, 2015.](#)

The Black Scabbardfish can live up to 15 years old (Ifremer, 2013, *Pêches Profondes dans les Eaux Européennes*), it evolves between 200 and 1600 meters of depth on or near underwater volcanoes on the continental slope (Montfort *et al.*, 2013, p88) and reaches sexual maturity at 80cm long (Montfort *et al.*, 2013, p88).

Orange Roughy (Hoplotethus Atlanticus)



Figure 18 Orange Roughy. [Irish Sea Fisheries Board, 2015.](#)

The Orange Roughy can live up to 160 years old, it evolves between 800 and 1800 meters of depth on seamounts, where corals are particularly abundant (Montfort *et al.*, 2013, p44). It and reaches sexual maturity at 30cm or 20 years old (Bulman & Koslow, 1992). It reproduces every 17 to 21 years which makes it very vulnerable to overfishing (Montfort *et al.*, 2013, p44).

3) What is deep-sea bottom-trawling?

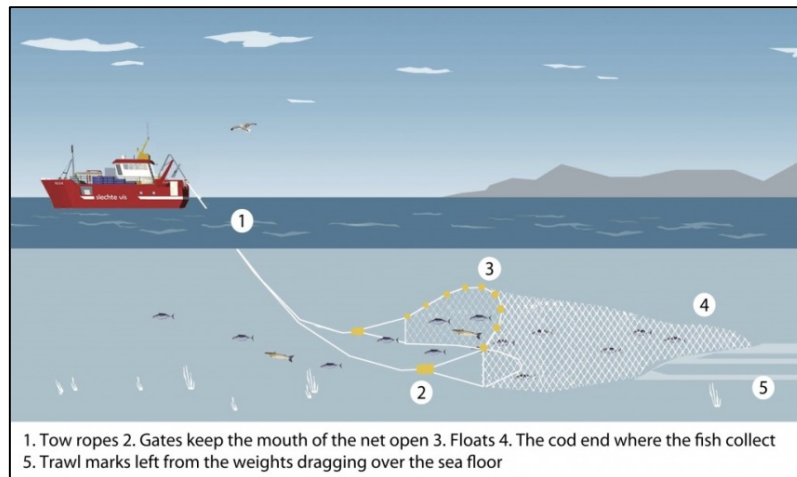


Figure 19 Diagram of a bottom-trawl. [Goodfishbadfish, \(n.d.\)](#).

Bottom-trawls are a type of fishing gear where nets are weighted down to be dragged on the seafloor, where the fish lies. Deep-sea bottom-trawling is a technique where deep-sea species are caught using bottom-trawling gears dragged at depths between 200 and 2000 meters (interview with Ifremer respondents). It can be contrasted with deep-sea long-lining, for which a description is given below. Note that ship-owners in this case study use a diversity of gears and never only use bottom-trawls, but also that French trawlers never only target deep-sea species during the year (Ifremer, 2014). In order to target specific species, fishers on a same vessel deploy their fishing gears on known areas (continental shelf, slopes, trenches, seamounts...) at specific depths and during a given season, where and when the fish is known to aggregate (interviews with Scapêche representatives).

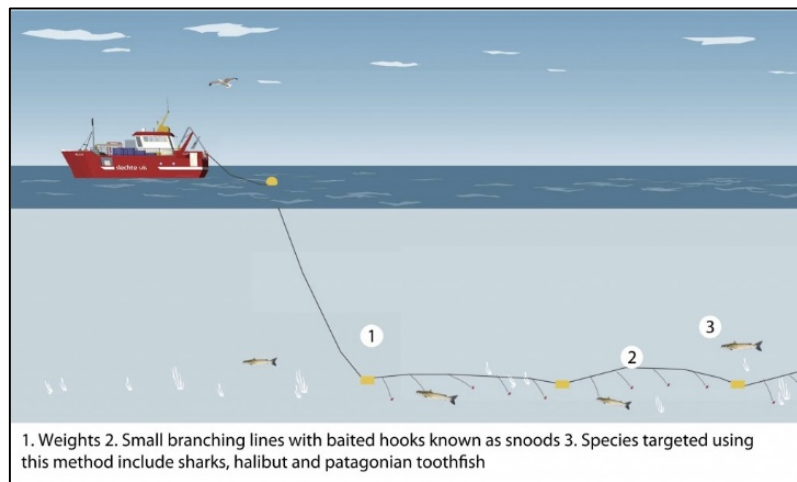


Figure 20 Diagram of a long-line gear. [Goodfishbadfish \(2015\)](#).

Long-line fishing involves the use of a line composed of hundreds or thousands of hooks lying on the seafloor to which bait is attached.

4) Issues of the controversy: what are the environmental impacts of DSBT?

The impacts of bottom-trawling gears on deep-sea ecosystems (flora and fauna) are the main issue of the French and international controversy surrounding this practice and are generally recognized by scientists as being potentially very important. While an in-depth review of all the possible effects of bottom-trawling on deep-sea ecosystems is not appropriate here, I propose a short summary of the main issues identified in the literature and pertaining as much as possible to North East Atlantic deep-sea fisheries⁷⁸, complemented by information collected during interviews.

The issue with estimating the impacts of DSBT is naturally the depth at which the damage occurs, which makes it difficult to assess. It is understood that deep-sea ecosystems are particularly sensitive to disturbances due to their very low productivity: large corals hundreds of years old as well as sponges can be torn from the seafloor in just one haul and may not reappear for potentially longer than a human lifetime due to the harsh conditions for their development as well as their biological features (Wallace, 2007). These impacts can be measured by various means, such as on-board marine observers noting the species caught with each haul. However each individual pieces of fauna together form habitats for other species, and their disappearance have unmeasurable effects on the entire ecosystem.

It is established that trawling on seamounts is particularly damaging as these ecosystems are generally covered in such fauna (Norse *et al.*, 2012) and the activity can turn entire ecosystems into deep-sea 'deserts' similarly to deforestation (Watling & Norse, 1998). Seamounts are where Orange Roughy populations can be found and are generally fished (Lorance, 2007), and bycatch of corals in this fishery have been reportedly very high in some regions (Norse *et al.*, 2012). Over time, fishers in the North East Atlantic had developed a specific catch technique where trawls were lowered unto a shoal of Orange Roughy and lifted again with as little contact with the seafloor as possible in order to avoid entangling their nets on coral reefs (interview with Tristan Douard).

Sedimentary bottoms are another type of seafloor affected by DSBT, however the impact is considered to be less important (NRC, 2002). These ecosystems are composed of light sediments (muds) inhabited by small organisms and where fauna is more dispersed, with some areas of greater abundance (Lorance, 2007). The main impact of bottom-trawling gears on these ecosystems is the change in the structure of the seafloor (due to trawl marks), the resuspension of sediments in the water creating 'clouds' and increasing turbidity of the water, and the bycatch of corals and sponges (Lorance, 2007; Palanques, *et al.*, 2014). These impacts typically change the structure of the ecosystems in several ways that are difficult to estimate but include the reduction of biodiversity in terms of the complexity of habitats, reduced biomass and reduced diversity of species (with the proliferation of opportunistic species; Palanques *et al.*, 2014).

⁷⁸ I suggest the reader to refer to other sources for more information on these fisheries elsewhere.

The effect of the intensity of the fishing effort and of the practice of discarding on fish populations is also a regular topic of debate. The quantities of targeted and to some extent of non-targeted species (i.e. bycatch) are monitored and currently constitute the only means to assess stocks of deep-sea species in the North East Atlantic by the Ifremer and ICES (see Scientific). Many experts and NGOs consider catch statistics as a poor indicator of a population, and for a number of European stocks the data is still very incomplete. In the case of French deep-sea fisheries, partnerships with professionals have allowed scientists to make more precise assessments.

Due to the fragility of certain species to overfishing, all experts consider that deep-sea species can only sustain very low levels of exploitation (interview with Ifremer respondents; intervention of Philippe Cury during *Pêche profonde : l'encadrer ou l'interdire ?*, 11 March 2015). This is particularly true for the Orange Roughy and the Roundnose Grenadier due to their slow growth and reproductive cycle (Lorance, 2007; see also What are deep-sea species?). The problem also lies in the amount of discards from this fishery, which was in the order of 20% of the total weight of catches by French DSBT vessels in 2011-2012 (Ifremer, 2014, p6), and for which little is known regarding the discarded species' ecological role. Discarded deep-sea species most often die by the time they are discarded due to the rapid change in barometric pressure when the net is lifted to the surface.

Experts and workers in the fishing sector (professionals and on-board marine observers) emphasize that the use made of these gears can lead to (qualitatively) different impacts. These mainly depend on the type of ecosystem that is being trawled (as explained above), but also the frequency of trawling in a same zone (Lorance, 2007). Some technological improvements can be implemented to reduce these impacts particularly in reducing friction of the equipment on the seafloor (e.g. the 'jumper' door which bounces on obstacles rather than hitting it; interview with Pascal Larnaud) and modifying mesh sizes and structure of the nets to minimize bycatch (interview with Pascal Larnaud; see also Cofrepêche, Ifremer & Scapêche, 2014). One of the emerging principles is the ecosystems approach, in which complex ecological systems and elements (populations, food webs and habitats) are integrated into models and can help manage the impact of human activities (Cury *et al.*, 2008). This approach has raised the interest of policy-makers and seems a desirable management approach, but it is difficult to implement due to its complexity (van Hoof, 2015).

5) Tables and figures

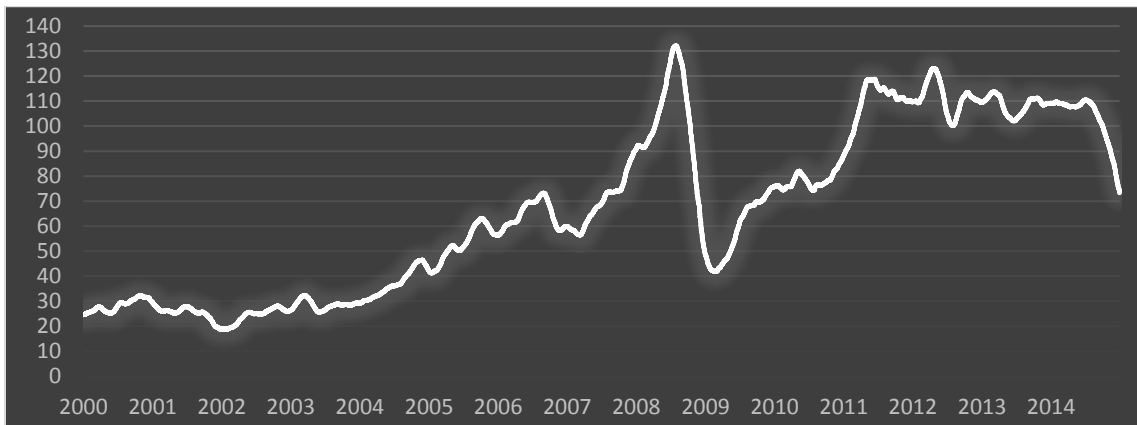


Figure 21 Brent crude oil prices in US dollars per barrel between January 2000 and December 2014. Source: Datamarket (2015).

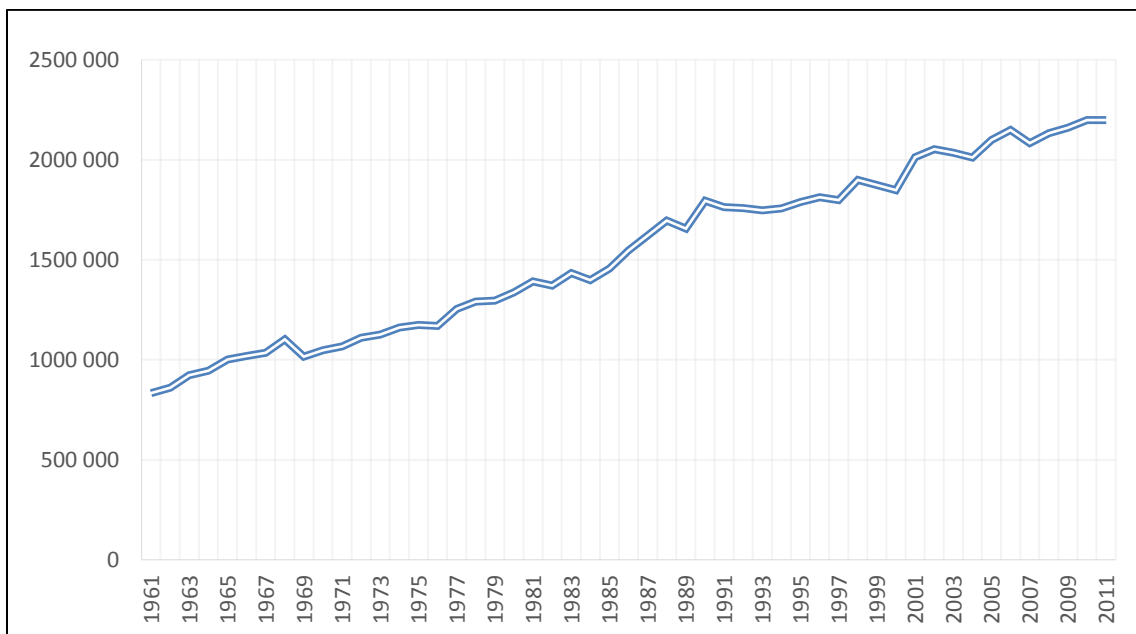


Figure 22 Fish and seafood supply quantity (in tonnes) available for consumption in France between 1961 and 2011. Source: FAO Statistics.

6) Description of FIOs

Here I describe a few of the actor organizations that were found to be particularly involved in the governance of deep-sea fisheries and the representation of the industry. The choice of these organizations is based on their salience in the media and in other documents.

For each type of organization, a short descriptive paragraph of their role and mandate is given followed by the list of relevant organizations and a few lines explaining how these were involved with ship-owners and the governance of deep-sea fisheries. Their linkages are presented in Figure 8 in The network of fishing industry organizations.

6.1) Ship-owners associations

These organizations represent the interests of ship-owners in decision-making bodies.

Union des Armateurs à la Pêche de France - UAPF

There is only one such organization in France which represents all French fishing ship-owners. It is self-described as representing and promoting the interests of French ship-owners to public bodies European decision-makers, regional and international fisheries managing organizations, and to other national and European professional organizations (such as regional advisory councils; UAPF, n.d.). It also acts as a facilitator between ship-owners and scientific research organizations.

The data indicates that the UAPF has been largely involved in the defense of DSBT ship-owners and was represented in several public debates.

6.2) Fisheries and aquaculture committees (national, county and local levels)

Presented by level of importance (from national to county), these committees generally work to represent the interests of fishing and aquaculture professionals. The lower level-committees are members of their higher level counterparts.

Comité National des Pêches Maritimes et des Élevages Marins - CNPMEM

The CNPMEM represents all fishing organizations and actors of the fishing and aquaculture sectors in local, national and European politics (CNPMEM, 2012). As such the CNPMEM is a very important FIO. It has been invited to participate in several national public debates on DSBT (e.g. the Mission Pêche Profonde of the Grenelle de la Mer and Senate public debate of February 2nd, 2014). It is regularly present in the media and publishing communiqués commenting on European fisheries politics (quota negotiations, policy on deep-sea fishing) but also on NGO attacks to defend deep-sea fishing.

Comité Régional des Pêches Maritimes et des Élevages Marins de Bretagne – CRPMEM Bretagne

The CRPMEM Bretagne works at the level of the region of Brittany. It also has been present in the media defending the DSBT industry.

Comité Régional des Pêches Maritimes et des Élevages Marins du Nord Pas de Calais / Picardie – CRPMEM Nord Pas de Calais / Picardie

This committee works at the level of the regions of Nord Pas de Calais and Picardie. Boulogne-sur-Mer (where Euronor is located) is part of the Nord Pas de Calais region. Little can be found about its activities regarding DSBT.

Comité Départemental des Pêches Maritimes et des Élevages Marins du Morbihan

This is the fisheries and aquaculture committee at the lowest level for the Morbihan county located in Brittany. For some time, its president was the same as that of the Committee for the Brittany region and thus spoke in the name of both organizations in defending DSBT (see Figure 23).

6.3) Producer organizations

The European Commission's website perhaps best describes the role of producer organizations: "they are in charge of the day-to-day management of fisheries and play an essential role in running the Common Fisheries Policy and the Common Organization of the Markets as they:

- guide producers towards sustainable fishing and aquaculture, in particular by collectively managing the activities of their members
- help them match supplies with market demands, and
- support them in creating added value." (Europa, 2015)

Important roles for French POs include the allocation of national fish quotas to individual producers, the coordination of measures to limit bycatch or to increase product traceability, and the prevention of illegal, unreported and unregulated fishing (CNPMM, 2015).

European Association of Fish Producers Organizations - EAPO

The EAPO acts as a supranational producer organizations association federating each individual PO to facilitate relationships and coordinate their actions in the context of the common European market. It also actively works to "influence the rules and regulations affecting fisheries targeting a sustainable production through socio-economic viability with respect for the environment." (EAPO, 2015). Its list of publications indeed includes 'responses', position papers and press releases commenting on the propositions and decisions of the Commission and Parliament (EAPO, 2015). The EAPO also took position against the proposition of a ban on DSBT in (EAPO, COGECA, ANOFE, 2012).

Association Nationale des Organisations de Producteurs

The ANOP gathers French fish and aquaculture producers as well as processing and distribution sectors to coordinate improvement measures for their economic activities.

Pêcheurs de Bretagne

Pêcheurs de Bretagne is an association of producer organizations for the Brittany region. As such, it has worked with DSBT ship-owners, particularly in communicating catch data to scientists. It was born out of the fusion of three other POs (Pêcheurs de Bretagne, 2013).

6.4) Regional Advisory Councils

RACs give policy advice for the management of fisheries to European policy-makers. They bridge local actors and practices with European decision-making in formulating adapted policies by allowing stakeholders to make recommendations (Europa, 2015). They are the result of an attempt to foster a new form of fisheries governance in Europe, making decision-making more interactive.

North Western Waters Regional Advisory Council (Dublin)

The NWWRAC includes organizations representing fishers active in North Western Scotland waters, i.e. actors of the DSBT industry.

6.5) Lobby groups

Association of National Organizations of Fishing Enterprises in the European Union – Europêche

Europêche “aims to improve the competitiveness of EU fishing enterprises; the development of responsible and sustainable fishing activity; the promotion of training, health and safety at sea and fight against illegal fishing” (Europêche, 2015). It publishes its ‘positions and letters’ on its website which give the position of the fishing sector to policy-making events⁷⁹. In an interview with a Scapêche leader, one of its members was mentioned among the main lobbyists in Brussels.

Blue Fish

Blue Fish is an association created by the Lorient fishing sector for all European fishing professionals to have a voice in policy-making. It was very active in lobbying in Brussels in 2013 in anticipation of the reform of the deep-sea fishing regulation (EC 2347/2003). Its list of members could not be found, explaining the absence of links. Due to the mobility of its main representatives, there is little doubt to assume that this association is well integrated in the network of FIOs.

⁷⁹ <http://chil.me/europeche/position-letters>

6.6) Individual mobility within the French fishing sector

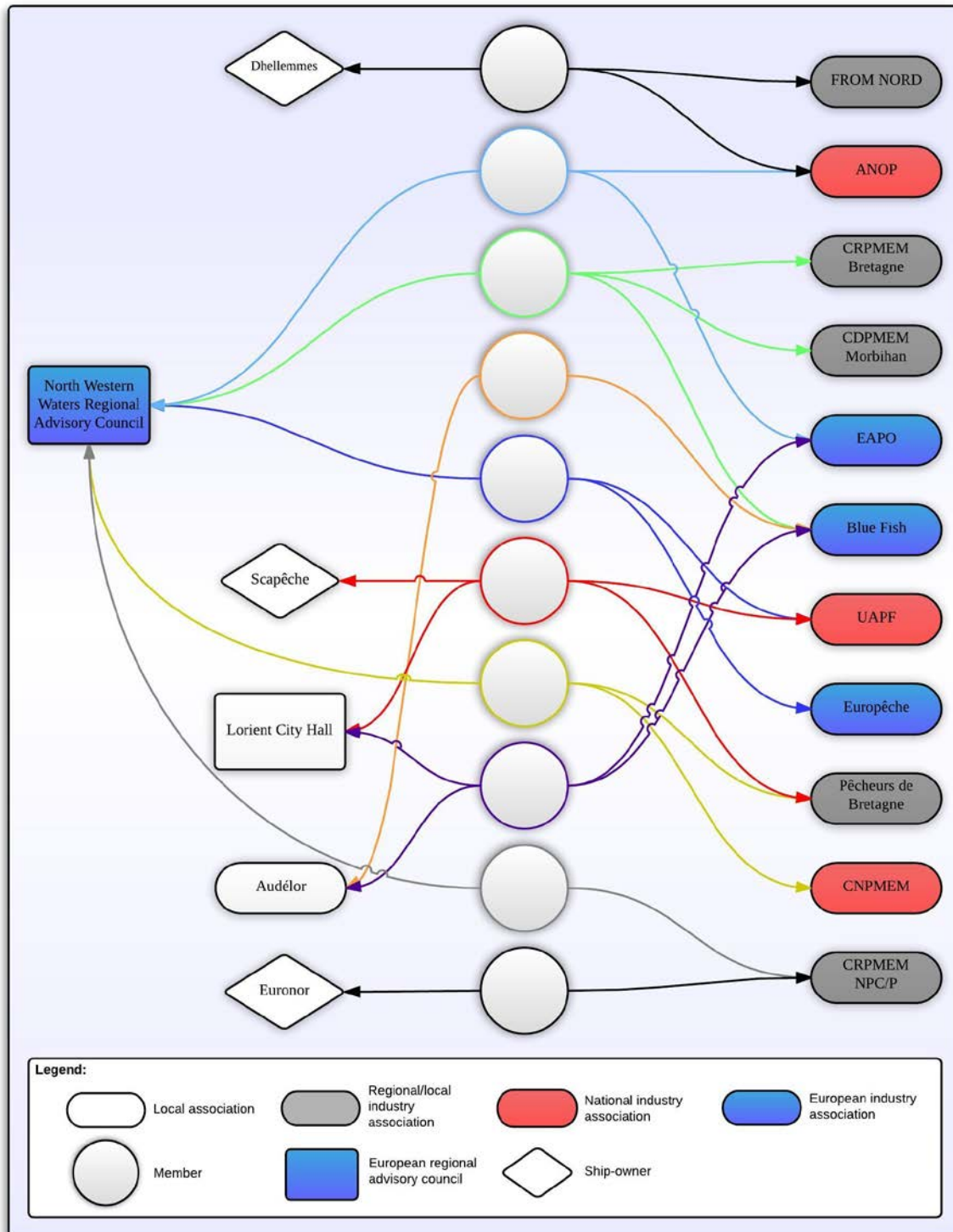


Figure 23 Network diagram showing the mobility of individuals in the fishing sector.

Here is an example of ten persons who cumulated or successively occupied positions in key organizations. Colors for circles representing persons and colored arrows are only a visual help to interpret the diagram. This diagram was created from various documents (FIO reports, organizations' list of members, etc.), news articles and interview data. It simply serves to illustrate the mobility of actors in the fishing sector and therefore its structuration.

7) Scientific organizations

International Council for the Exploration of the Sea (ICES)

Based in Copenhagen (Denmark) and established in 1902, the ICES is another advisory organization whose expertise contributes to the formulation of European fisheries policy for sustainable management of coasts and the ocean. Its advice are regularly published and accessible to the public, and are therefore followed closely by all fisheries stakeholders due to their official importance for European decision-making⁸⁰.

Most importantly for this case study, the ICES' Working Group on the Biology and Assessment of Deep-sea Fisheries Resources (WGDEEP) is the group which does research and formulates recommendations for quotas on deep-sea species (ICES, n.d., *WGDEEP*). Another important ICES body of experts is the Working Group on Deep-water Ecology (WGDEC), which makes proposals for new MPAs and bottom-fisheries closures to pertinent RFMOs (the NEAFC and the OSPAR for the North East Atlantic; ICES, n.d., *WGDEC*).

The data used for these advice is collected and processed by experts from all Member States⁸¹. In France, experts processing data for the WGDEEP and the WGDEC come from the Ifremer (ICES, n.d., *WGDEEP*).

Institut Français de Recherche pour l'Exploitation de la Mer⁸² (Ifremer)

The Ifremer has a special status as an EPIC⁸³ under the tutelage of the French Ministries in charge of all activities related to the exploitation of the sea (fisheries, but also including aquaculture, renewable energy, mining, etc.). Its headquarters is located in the Paris region but it has 'centres' and 'stations' in 18 other cities of France including Lorient, Concarneau and Boulogne-sur-Mer (Ifremer, 2014, *Implantations Ifremer*), where ship-owners Scapêche, Dhellemmes and Euronor are located respectively. Ifremer experts working on deep-sea fisheries and ecosystems are present in different locations of the institute.

Its general mandate is the economically and ecologically sustainable exploitation of all marine resources. As such it also closely tends to the activities of French fishers to do research and formulate advice on fisheries management and monitoring, management of fish stocks, development of fishing technologies, reduction of the impacts of fishing gears, ecosystems ecology, etc. It is publicly funded but also increasingly receives funds from FIOs and local organizations for specific research projects (interviews with two Ifremer experts).

⁸⁰ In practice, ICES advice for quotas often vastly differ from the outcome of negotiations between the Commission and national fisheries ministers (Ifremer, 2012).

⁸¹ ICES is in fact a network of about 4000 scientists from 20 countries (ICES, n.d., *Who we are*).

⁸² French Research Institute for the Exploitation of the Sea.

⁸³ EPIC means 'établissement public à caractère industriel et commercial' and can be translated in English as 'public establishment of industrial and commercial character'. See (Wikipedia, 2011, *EPIC*).

Annex 3 July 2009-July 2010: The Deep-Sea Fisheries Mission

The Deep-sea Fisheries Mission of the Grenelle de la Mer is a group that was created to debate over the sustainability of deep-sea fisheries. Representatives from stakeholder groups were invited to discuss and contribute, including professionals (ship-owners, fish wholesalers, fishers, consultants), fishing industry associations (UAPF, CNPMM, UMF, CFDT, CGT), French and international environmental NGOs (IUCN, WWF, Greenpeace, Nicolas Hulot Foundation), French and foreign scientists (ICES, Ifremer, MNHN, IRD, MEEDDM), international governmental organisations (FAO, European Commission, EFCA), the Marine Stewardship Council, and politicians at the local, national and European levels, as well as other persons representing other organizations or groups.

It reviewed the biology and ecology of deep-sea ecosystems, the impacts of fishing in these zones, the social and economic sustainability of these fisheries, and gave conclusions and recommendations for French and European policy-makers. Although it was meant to end in December 2009, the Mission lasted from July 2009 until July 2010 when the final report was published, with 14 meetings between September 2009 and July 2010 (Avenir des Pêches Profondes, 2010).

The Mission had set three possible scenarios for policy-making recommendations reflecting the respective expectations of NGOs, industry, and their compromise:

- 1) Deep-sea fishing (and especially BT) in the North East Atlantic as practiced by French fishers is not ecologically nor socially and economically sustainable and should be banned (Avenir des Pêches Profondes, 2010, p82).
- 2) DSF is sufficiently regulated, and it is economically and socially important to local economies; therefore business can pursue 'as usual' and even expand within EEZs (p96).
- 3) DSF can continue but should have a stronger legal framework based on 11 recommendations (p97).
 - a. Improve and share scientific knowledge about DS ecosystems.
 - b. Establish more MPAs and freeze/reduce the footprint and impact of DSF.
 - c. Improve fishing practices.
 - d. Reduce the impact of fishing gears.
 - e. Improve the management framework (integrated management, interactive governance, impact assessments).
 - f. Improve social security for French Southern and Antarctic Lands fishers.
 - g. Reduce the differences between employment conditions of fishers at the international and European level.
 - h. Certify deep-sea fisheries to encourage best practices.
 - i. Educate and raise fishers' awareness to environmental challenges.
 - j. Strengthen monitoring of DSF.
 - k. Help professionals convert to other fishing methods and finance ship scrapping programs.
 - l. Develop awareness programs and marketing in favor of sustainable fishing for consumers, in particular to reduce consumption of deep-sea species.

Annex 4 Description of events

Introduction

In order to facilitate the distinction of different types of commentaries important to the analysis, I inserted colored boxes in the text (grey, green or blue). All the boxes may logically follow the previous paragraphs or introduce a different topic. Grey boxes contain a commentary that extends beyond the year or period of the chronological order of the timeline. They might also contain additional information, explain the suite of consequences of a particular event, or draw conclusions for the analysis of the case. Green boxes contain supplementary information useful to understand the wider context or that the reader might simply find interesting. Blue boxes systematically contain a short interpretation of landings and quotas (Table 7). Their analysis links these numbers with the context such as quota negotiations and allow to assess the level of compliance of ship-owners in terms of the difference between landed deep-sea fish and allocated quotas (in tonnes), and compares these figures over time.

1) 2000-2003: Early regulation

1. 2000-2003: Scientific involvement in the regulation of DSBT.

Landings had been in decline since the beginning of the DSBT in the North East Atlantic in the mid-1980's and early 1990's (ICES, 2011), and scientists from the ICES, STECF and Ifremer in the news repeatedly stated the need to regulate the fishing effort due to being too intense⁸⁴. Their advice converged in saying quotas should be imposed on deep-sea species. In 2001, the European Commission imposed the collection of data by scientists for the entire fisheries sector (EC Regulation 1639/2001).

1. 2001: Partnerships between the industry and scientists

After scientists started raising concerns and following EC Regulation 1639/2001, the DSBT industry in Lorient addressed the institute in 2001 to create a partnership with the Ifremer (the OBSMER program⁸⁵) that would facilitate the exchange of information and develop monitoring programs for the improvement of trawl gears and the analysis of catch data for modeling the evolution of deep-sea fish stocks (interviews with Scapêche and Ifremer respondents; see also *Avenir des Pêches Profondes*, 2010). The partnership extended to Euronor in Boulogne more informally (*ibid.*).

⁸⁴ Europolitique 8 July 2000 PECHE: POUR DES MESURES DE PROTECTION DES ESPECES D'EAU PROFONDE .
La Tribune 28 August 2000 LES PECHEURS DE BOULOGNE REFUSENT LES QUOTAS SUR LES POISSONS DE GRANDS FONDS

Le Monde 30 January 2002 Poissons des abysses; Quelques recettes pour accommoder la chair blanche et délicate de l'empereur ou des autres habitués des grandes profondeurs

Le Télégramme 18 December 2003 Des poissons de plus de 100 ans dans nos assiettes

⁸⁵ <http://wwz.ifremer.fr/peche/Les-grands-defis/Les-partenariats/Avec-les-professionnels/Obsmer>

A Scapêche informant did mention that some fishers showed reluctance in sharing their log-books containing information about their fishing activity (e.g. fishing zones, volumes and contents of the catch, etc.). Access was difficult particularly for data prior to 1999: some books were “thrown away” in an attempt to **conceal** past information. Logbooks were also usually kept for the fisher’s own records, therefore fishers **defied** this measure imposed upon them by the European Commission and ship-owners.

Grey box 1: Insights from the Ifremer on-board observer program (OBSMER) regarding compliance.

Three informants involved in the OBSMER program all mentioned the relatively compliant attitude of DSBT fishers from both Scapêche and Euronor in taking in on-board observers and with regards to reporting their fishing activities, especially when compared to other ship-owners targeting different fisheries who could at times even be aggressive or refuse observers on their ship. The difference is due to higher requirements for deep-sea fisheries (from EC Regulation 2347/2002) and the older and more frequent cooperation between Ifremer and DSBT ship-owners (interview with Ifremer’s OBSMER coordinator). Consequently in 2012 and 2013 respectively, 19 and 9% of all DSBT fishing trips in the North East Atlantic were done with marine observers compared to 1-2% on average for

2. 2000-2003: The Commission’s regulations on deep-sea fishing and the creation of quotas

In July 2000, EU Fisheries commissioner Franz Fischler presented his project for a regulation of the deep-sea fishing effort and to create a regime of access similar to that existing for other fisheries, following scientific advice of the ICES and STECF⁸⁶. The final text (EC Regulations 2347/2002) came into force in January 2003.

2. 2000-2003: Responses to the Commission’s regulations on deep-sea fishing and the creation of quotas

In Boulogne-sur-Mer the leader of the regional committee and a leader of Nord Pêcheries (which later became Euronor) **challenged** the first quota figures for deep-sea species and questioned the quality of scientists’ stocks assessments, arguing that the industry’s management of the resource was sound⁸⁷. In Brittany the regional committee also had a similar reaction in challenging the low quota figures while at the same time agreeing with scientists’ estimates that deep-sea stocks were diminishing⁸⁸. In fact news sources and my interviews with industry respondents indicate that the actors in Boulogne and Lorient had requested or at least supported a quota system for deep-sea species⁸⁹.

⁸⁶ Europolitique 8 July 2000 PECHE: POUR DES MESURES DE PROTECTION DES ESPECES D'EAU PROFONDE .

⁸⁷ La Tribune 28 August 2000 LES PÊCHEURS DE BOULOGNE REFUSENT LES QUOTAS SUR LES POISSONS DE GRANDS FONDS

⁸⁸ La Tribune 14 December 2000 LES PÊCHEURS SONT INQUIETS FACE AUX PROJETS DE BRUXELLES

⁸⁹ La Tribune 13 January 2005 LES PÊCHEURS FRANÇAIS DÉNONCENT "L'EUROPE DES POISSONS".

Blue box 1 : The creation of quotas seems to have had an immediate effect: landings in 2003 dropped by 16,3% (2 698 tonnes) that year compared to 2002, and by 33% (6 782 tonnes) since 2000. However landings remained above newly set quotas by 26,2%.

A. 2003: Dhellemmes' diversification of its fleet

In 2003 Dhellemmes initiated a diversification of its fleet from bottom-trawls to the danish seine (Bloom, 2011, p92⁹⁰) as explained in 2008 by its director as a way to reduce efficiency strains due to rising fuel costs⁹¹.

2) 2004-2008: Growing concerns

3. 2004: Creation of the Deep-Sea Conservation Coalition and scientists' petition

In 2004, environmental NGOs from different parts of the world concerned with the protection of deep-sea ecosystems created the Deep-Sea Conservation Coalition (DSCC) which campaigned for a ban on DSBT at the UNGA⁹². From that year on, the coalition regularly appeared in the media to comment on news related to DSBT and to advocate for a ban⁹³. Additionally a group of 1 136 scientists signed a petition for the same cause⁹⁴.

3. 2004: Responses to the creation of the DSCC

At the time the industry did not respond publicly to these pressures from the environmental NGO sector.

4. 2004-2005: UNGA Resolution 59/25 and European Commission's regulations for the protection of VMEs

In 2004 and 2005, policy-makers heard the call⁹⁵ to protect the deep-sea and adopted a few legislative measures to prevent the impact of DSBT on vulnerable ecosystems. It started with the closure of DSBT fisheries on the Darwin Mounds near Scotland in March 2004 (EC 602/2004), and continued in October with a proposal for the protection of corals in the waters surrounding the

⁹⁰ Citing Le Marin 25 June 2010 Une flotte redimensionnée

⁹¹ Le Télégramme 29 September 2008 « Senne danoise. 12 M pour transformer trois Dhellemmes

⁹² Europe Agro 23 July 2004 ENVIRONNEMENT MARIN: OCEANA APPELLE À INTERDIRE LE CHALUTAGE DE FOND AUX QUATRE COINS DU MONDE .

⁹³ See for example : Agence France Presse 30 November 2005 Pillage des grands fonds marins: l'Onu passe son tour

Agence France Presse 22 September 2006 Pêche en mer profonde: l'ONU pourrait décider d'arrêter le massacre

Agence France Presse 10 May 2011 La pêche en eau profonde: peu de bateaux Mais un impact écologique majeur

Le Monde 21 July 2012 Pêche profonde : Bruxelles tient tête à la France

Le Monde 12 December 2013 Le Parlement européen Maintient le chalutage en eaux profondes

⁹⁴ La Croix 17 February 2004 Appel contre les chaluts de fond

⁹⁵ The UNEP had published a report in favor of the protection of deep-sea corals in June 2004. See : Agence France Presse 4 June 2004 Appel en faveur des coraux d'eau froide pour la Journée de l'environnement

Madeira, Canary and Açores Islands (eventually adopted in September 2005). The UNGA also debated over a possible moratorium on all bottom-trawling activity below 400 m of depth in the high seas, but eventually rejected this option and adopted Resolution 59/25 in November encouraging states to prevent DSBT on VMEs in international waters.

4. 2004-2005: Responses to UNGA Resolution 59/25 and European Commission's regulations for the protection of VMEs

A Brittany producer organization stated their opposition to the idea of a moratorium on DSBT due to its socio-economic impacts on fishers (**challenge**)⁹⁶.

In Boulogne, one news source reports that fishers protested in December against the closures surrounding the Spanish and Portuguese islands by blocking the port (see also Strategy B)⁹⁷, a **challenging** strategy.

B. Late 2004: Responses to the reduction of quotas on deep-sea species for 2005-2006

In 2004 the proposed reduction of quotas was successfully minimized after negotiations with French (and other) Fisheries Ministers, yet still made the industry discontent with the general declining of quotas who communicated in the media and blocked the port in Boulogne (See also Response 4)⁹⁸. A representative of ship-owner SBA Le Garrec (merged with Nord Pêcheries to create Euronor in 2006; see Strategy C) was quoted saying: "we are in favor of a legislative framework but measures should be technical, taken in a reasoned and rational—rather than political—manner", adding that European institutions "do not take into account the socio-economic effect of the measures it adopts"⁹⁸. In Lorient, Scapêche also reacted to lower quotas by cancelling its order for a new vessel⁹⁸.

2005-2006:

5. December 2005: Scientists advise a closure of the Orange Roughy fishery

By December 2005, ICES experts recommended a full closure of the Orange Roughy fishery due to the extreme fragility of the species⁹⁹ and indeed the next year (for the year 2007) the Commission started to reduce this quota progressively down to nil by 2010 (see Table 7).

5. December 2005: Responses to scientists' advice to close the Orange Roughy fishery

The industry essentially **acquiesced** the Commission's proposal in December to reduce the quota on the species progressively down to zero (interview with Scapêche respondents; see also).

⁹⁶ Le Monde 28 October 2005 L'ONU débat d'un moratoire sur la pêche profonde;

⁹⁷ EuroNews 20 December 2004 Pêche. Blocus des pêcheurs français à Boulogne-sur-Mer

⁹⁸ La Tribune 13 January 2005. LES PÊCHEURS FRANÇAIS DÉNONCENT "L'EUROPE DES POISSONS".

⁹⁹ Agence France Presse 30 November 2005 Pillage des grands fonds marins: l'Onu passe son tour

Blue box 2: The year 2005 signals a drastic reduction in landings of deep-sea species (-3 000 tonnes), reducing the gap between landings and allocated quotas (9 319 tonnes landed for 9 857 tonnes allowed: a 9,5% difference compared to 12,6% or 1 376 tonnes the previous year). Catches of Orange Roughy were particularly lower (281 tonnes compared to 511 the previous year) and also with regards to their quota (972 tonnes), demonstrating the industry's compliance with the measures. The combined difference between landings and quotas for the Blue Ling and Black Scabbardfish still amounted to a surplus of about 900 tonnes.

C. 2006: Creation of Euronor

In January 2006, Nord Pêcheries and SBA Le Garrec in Boulogne fused to create Euronor as a direct consequence of the financial instability of both companies and with regards to increasing fuel costs¹⁰⁰. The merge allowed for a lightening of the payroll by discharging a few employees, but also gave the group increased access to global markets together with a better combined offer of seafood products thanks to new fishing opportunities¹⁰⁰.

In September, one leader of the company gave an interview in the press stating that they were researching how to improve their bottom-trawling gears to reduce fuel consumption¹⁰⁰. Euronor also reportedly adopted another strategy that year by targeting deep-sea species less systematically and increase its efforts on the Saithe fishery, for which ship-owner had recovered quotas¹⁰¹.

6. September 2006: European policy regarding DSBT

In September 2006 the European Commission had been called upon by NGOs to ban DSBT¹⁰², however its official position was instead stated in favor of moratoriums on zones suspected to contain VMEs (i.e. by means of establishing marine protected areas and temporary fisheries closures) while at the same time containing the expansion of DSBT activity using the TACs and quotas system¹⁰³. Indeed that month quota proposals suggested up to 30% reductions for some deep-sea species¹⁰⁴. Additionally the Commission proposed to freeze the footprint of deep-sea fishing to areas already impacted, without yet adopting this measure¹⁰⁵.

7. December 2006: UNGA Resolution 61/105

In December 2006 the UNGA again ended up discarding the idea of a ban on DSBT and adopted Resolution 61/105 enticing States to assess the impact of DSBT in existing fishing zones and prove it was not harmful, effectively reversing the burden of proof. The European Commission did not seek to

¹⁰⁰ Les Echos 12 September 2006 Euronor fait revivre le dernier carré des armateurs à la pêche boulonnais

¹⁰¹ Le Marin 28 December 2006.

¹⁰² Agence France Presse 3 March 2006 La pêche illégale, une ponction "irréversible" sur les grands fonds

¹⁰³ Le Figaro 23 September 2006 Pêche en mer profonde : l'Europe contre l'interdiction

¹⁰⁴ Ouest-France 16 September 2006 Les poissons d'eau profonde touchent le fond

¹⁰⁵ Agence France Presse 22 September 2006 Pillage des grands fonds marins : l'UE pour un moratoire "au cas par cas"

coercively enforce the measures contained in Resolution 61/105 but simply issued a communication the following year instructing States on how to implement them (Avenir des Pêches Profondes, 2010, p68).

6 & 7. September and December 2006: Responses to European policy regarding DSBT and UNGA Resolution 61/105

No specific strategies could be identified in response to European policy decisions and UNGA meetings. However European measures to reduce quotas and fishing effort for deep-sea fisheries instilled the same type of responses than previous quota reductions, with FIOs individually communicating about their good practices (**expressing compliance**) and **challenging** the Commission's and ICES scientists' assessments¹⁰⁶.

Concerning the potential freezing of the DSBT footprint, interviews with industry respondents tend to indicate that ship-owners had little concerns about this measure and articles in the press do not state the position of fishers at the time.

D. Late 2006: Quota negotiations for 2007-2008

Despite compliance with quotas during 2005, quota negotiations at the end of the year 2006 and for 2007-2008 still had their conflicts as fishers **challenged** again the Commission's intended cuts on deep-sea sharks and Blue Ling quotas as unjust¹⁰⁷.

In Lorient, experts from the regional producer organization **challenged** ICES scientists' assessments of certain stocks, arguing that deep-sea fish catches showed abundance rather than diminution¹⁰⁸ and reportedly sent their catch data and their own conclusions to European legislators (**influence**)¹⁰⁹.

A Scapêche employee also commented that, contrary to what legislators and NGOs believed, ship-owners had a long-term vision: the resource was already soundly managed and corals were preserved from the trawling activity¹⁰⁷. Dhellemmes' director further argued that they were already making efforts to improve their practices by increasing the mesh size of their nets to avoid catching younger fish¹¹⁰.

A small group of representatives of the industry in Lorient travelled to Brussels to speak with members of the Parliament's Fisheries Committee¹¹¹, while then-Fisheries Minister spoke against quota reductions during the Council of Ministers¹¹².

¹⁰⁶ La Croix 23 December 2005 La France arrache des concessions sur les quotas. Pêche. Paris a obtenu hier à Bruxelles une reprise partielle de la pêche à l'anchois.

Paris-Normandie 23 December 2005 Quotas de pêche pour 2006.

Le Télégramme 19 January 2006 Robert Bouguéon (Guilvinec) mise sur la sélectivité.

¹⁰⁷ Agence France Presse 22 October 2006 Les pêcheurs d'espèces de grands fonds tempêtent contre la baisse des quotas

¹⁰⁸ Les pêcheurs ont leurs experts Le Télégramme 20 November 2006

¹⁰⁹ Grands Fonds : La filière lorientaise pour une gestion « co-responsable ». Le Marin. 6 October 2006

¹¹⁰ Pêche de grands fonds. Tempête sur Bruxelles Le Télégramme 25 October 2006

¹¹¹ Grands Fonds : La filière lorientaise pour une gestion « co-responsable ». Le Marin. 6 October 2006

The year 2007 yielded very few articles related to DSBT activity (fourteen articles). The intervention of one Ifremer scientist restated the impact of DSBT on marine ecosystems as the European Parliament's Fisheries Committee tried to fill knowledge gaps regarding European deep-sea fishing activities in order to move forward with the legislation¹¹³. No strategies could be recorded for that entire year.

Blue box 3 Quota negotiations in 2007

Relative silence with regards to this year's deep-sea species quota negotiations is due to the fact that quotas for 2008 stayed the same as 2007 and had been set the year before (two-year plan), except for the Blue Ling. Ship-owners fished below their quotas that year on three of the four deep-sea species. Blue Ling was the only species for which quotas were again exceeded by about 1300 tonnes.

8. 2007-2008: High fuel costs and the dissolution of the French direct aids scheme (FPAP)

Fuel costs for fishing vessels skyrocketed as oil prices more than doubled between March 2007 and the summer of 2008 (see Figure 21). As France had repeatedly infringed on European Community legislation which forbade direct aids for fishers, the Commission forced French ship-owners to reimburse fuel subsidies to their State in May¹¹⁴. Consequently the French Fund against risks for fishers (Fonds de Prévention des Aléas de la Pêche) created in April 2004 (which had ceased to attribute aids by early 2007) was dissolved in February 2008 (Bloom, n.d., *une pêche financée par nos impôts*). The FPAP had provided the fishing sector with tens of millions of euros worth of subsidies to face fuel cost increases between 2004 and 2006 (*ibid.*).

8. 2007-2008: Responses to high fuel costs and the dissolution of the French direct aids scheme (FPAP)

In 2008 fishers all around France blocked ports, went on strike and vandalized the shops of fishmongers and retailers in protest to the pressure of globalized competition, rising fuel costs and to

¹¹² NÉGOCIATIONS À BRUXELLES; La France s'oppose à une réduction de la pêche en eaux profondes Le Monde 22 November 2006

¹¹³ Europolitique 27 November 2007 PÊCHE : DÉFICIT EN DONNÉES FIABLES POUR LES STOCKS EN EAUX PROFONDES.

¹¹⁴ See: EurActiv.fr 4 September 2012 Les eaux troubles de la pêche profonde Payments were made in 2010 (Bloom, n.d., *une pêche financée par nos impôts*).

obtain more subsidies¹¹⁵. Their representatives reportedly met with Fisheries Minister Michel Barnier to ask for compensation, which they obtained in January 2008¹¹⁶.

Additionally, ship-owners knew they had to pay back the subsidies they had obtained and did so with the help of their shareholders in the case of Euronor (see event G). Overall these economic strains seriously affected ship-owners' fishing activity over the period 2008 to 2009 as they were forced to scrap a few vessels, for which they were able to obtain some compensation from the State (Scapêche scrapped two ships and Euronor one; Bloom, 2011, p58-59)¹¹⁷.

Blue box 4 Landings for 2008-2009.

Landings of deep-sea species for 2008 and 2009 continued to go down by almost 2000 tonnes compared to 2007. Although data regarding catches of other species were not taken into account for this research, it is possible that the reduction in deep-sea fish landings was compensated by a transfer of the fishing effort onto other species. If the economic strains perhaps did not reduce ship-owners' overall fishing activity, it still led them to reduce their DSBT activity and thus probably due to the high cost of fuel for DSBT vessels.

9. July 2008: EC Regulation 734/2008

In July 2008, EC Regulation 734/2008 entered into force effectively replicating the measures of Regulation 2347/2002 to non-European waters (obligation to embark on-board marine observers, system of deep-sea fishing permits, etc.).

9. July 2008: Responses to EC Regulation 734/2008

The new legislation did not seem to make waves in the fishing sector as no strategies were recorded.

10. Late 2008: Quota negotiations for 2009-2010

Quota negotiations in 2008 were toughened by Commissioner Borg's proposal to reduce TACs on Black Scabbardfish, Grenadier and Blue Ling by 17 to 30% over the next two years, with an additional measure was to protect Blue Ling spawning grounds¹¹⁸.

10. Late 2008: Responses to Quota negotiations for 2009-2010

One Lorient industry representative's response to the new quotas can be found in the news arguing in favor of DSBT ship-owners' good practices (embarking observers and using larger meshed nets)¹¹⁹, therefore **challenging** the further reductions of quotas and testifying of ship-owners' **compliance**.

¹¹⁵ Agence France Presse 23 May 2008 Pêcheurs: nouvelles manifestations de colère, Barnier veut "rassurer" Le Point 5 June 2008 Le naufrage de la pêche

¹¹⁶ Le Monde 21 May 2008 SOCIAL Les marins pâtissent de coûts d'exploitation trop élevés et d'une concurrence mondiale exacerbée; La crise du gazole révèle les failles de la pêche française.

¹¹⁷ Although data is missing, Table 9 also indicates this decrease.

¹¹⁸ Ouest-France 20 December 2008 Un accord européen sur les quotas de pêche

¹¹⁹ Ouest-France 1 October 2008 Une réduction de la pêche en eau profonde ?

The protection of the Blue Ling's spawning area reportedly would hinder the movement of Lorient and Boulogne fishers¹¹⁸, however no strategies were recorded in response to this measure.

E. April 2008: The 'Responsible Fishing' label

In April Scapêche obtained a 'Responsible Fishing' label for its deep-sea fisheries¹²⁰. The ship-owner itself helped develop this label as part of a collaboration between FIOs, and commented that the label would testify of its practices in terms of reducing carbon emissions (by transporting fish from Scotland to Lorient by truck rather than by boat), for sparing deep-water corals, respecting quotas and fish size limits, as well as recognizing its collaboration with scientists¹²⁰. The label was thus certainly an attempt to raise the Mousquetaires group's **legitimacy** with regards to fishing practices.



Figure 24 On the left: 'Responsible Fishing' logo. On the right: MSC logo.

The criteria for this label were devised by Scapêche but never disclosed despite NGOs' demands, indicating that the label might have been designed to facilitate Scapêche's accreditation¹²¹. See also event 18.

3) 2009-2010: The Mission on Deep-Sea Fisheries

11. September 2009: The position of the French government at the upcoming UNGA during the Mission

Three months into the Mission, its rapporteur (an ex-Fisheries Minister) resigned after environmental NGO Bloom's founder was chosen to represent France on the topic of deep-sea fishing at the upcoming UNGA meeting of October 2009¹²². The activist was known for her fierce opposition to the DSBT industry and was expected to lobby for a UN moratorium, therefore the resigning rapporteur was convinced that the Mission was a lost cause in trying to give a fair trial to deep-sea fishing¹²³.

11. September 2009: Responses to the position of the French government at the upcoming UNGA during the Mission

The reaction of the industry to the Mission's rapporteur's resignation was immediate and largely covered in the media in a vast communication campaign: representatives of associations and ship-

¹²⁰ Ouest-France 23 April 2008 Poisson responsable chez les Mousquetaires.

¹²¹ The accrediting company indicates in a brochure that the criteria are indeed defined by the requesting firm. See Bureau Veritas (2014).

¹²² Le Figaro 1 September 2009 Grenelle de la mer : Le Pensec (PS) démissionne

¹²³ Agence France Presse 31 August 2009 Grenelle de la Mer: Le Pensec démissionne de la mission Pêches profondes

owners gave interviews¹²⁴, released statements, and sent two letters to President Sarkozy¹²⁵ as well as to the Prime Minister and the Minister of Ecology overseeing the Mission¹²⁶.

Their arguments mainly **challenged** the purpose and objectivity of the Mission for not taking into account the economic importance of deep-sea fisheries for local economies¹²⁷ and the sector in Lorient was described as being particularly “united” against pressures¹²⁸: the local fishing committee, Scapêche, local mareyeurs, the city’s mayor and a few members of the French National Assembly “spoke with one voice” against a possible moratorium¹²⁸. Evidence that this was a concerted strategy can be found in the national fishing committee’s annual report of activities for 2009, where these issues are addressed and targets are set that included “developing an aggressive communication plan”, formulated with the hired services of a strategic communication agency (CNPMM, 2010, p42; see also Green box 1).

Green box 2 Noting similarity in discourses of actors from a same coalition.

The language and arguments employed by industry actors in the media at the time seemed to concur, for example the qualification of the Mission’s purpose as being purely “political marketing” can be found in three different press articles used alternately by a Scapêche leader¹²⁹, two local politicians¹²⁸ and a journalist in a local newspaper¹³⁰.

In addition, fishing industry representatives all quitted the Mission in solidarity with the resigning rapporteur and gave an ‘ultimatum’ to the French Prime Minister waiting for his reaction until they would accept to back to the negotiation table (**defiance**)¹³¹. These efforts were certainly all targeted at **influencing** the process to re-establish a stable situation in the policy-process and for the industry.

The issue of the potential impact of a moratorium on fisheries-related jobs also became central in the fight to defend the sector and led to various estimates on the number of direct and indirect jobs¹³². Although the numbers vary greatly, those emanating from actors in favor of a continuation of DSBT were often much higher in order to raise awareness among constituents of the importance of the issue.

¹²⁴ Le Télégramme 1 September 2009 Pêches profondes. Le Pensec claque la porte

Agence France Presse 2 September 2009 Mission pêches profondes: l'armement d'Intermarché s'inquiète

¹²⁵ Agence France Presse 3 September 2009 Pêche profonde: le comité des pêches de Bretagne écrit à Sarkozy

¹²⁶ Le Télégramme 3 September 2009 Comité national des pêches. Un ultimatum au Premier ministre

¹²⁷ Le Télégramme 5 September 2009 Pêche. La position de la CFDT

¹²⁸ Le Télégramme 3 September 2009 Pêches profondes. L'union sacrée de la filière

¹²⁹ Agence France Presse 2 September 2009 Mission pêches profondes: l'armement d'Intermarché s'inquiète.

¹³⁰ Le Télégramme 1 September 2009 Pêches profondes. Le Pensec claque la porte

¹³¹ Agence France Presse 2 September 2009 Grenelle de la Mer: les pêcheurs quittent la mission "Espèces profondes"

¹³² Le Télégramme 3 September 2009 Pêches profondes. L'union sacrée de la filière.

Ouest-France 3 September 2009 La pêche profonde au bord du gouffre

Green box 3 Explaining differences in proposed employment figures.

The industry actually feared a ban on all bottom-trawling gears (i.e. not only those targeting deep-sea species) as a domino effect of a ban on DSBT (interview with industry respondents)¹³³. By extension the number of vessels and jobs that could be impacted from such a measure would have been much higher as bottom-trawling is in fact the most economically important fishing technique in France (FranceAgrimer, 2010). Interestingly these numbers were often the ones advanced by the industry in the media and to policy-makers¹³⁴ and caused confusion on the part of journalists who did not make the distinction¹³⁵. Whether this was intentional or not could have implications on the nature of this strategy as **manipulation**, see also strategy event 15.

12. October 2009: NGO campaigns after the UNGA meeting

President Sarkozy's speech at the UNGA in October did not indicate France's support for a moratorium, and the immediate reaction of environmental NGOs was to initiate a campaign calling upon retailers to stop marketing deep-sea species¹³⁶. That month the Mission had a new rapporteur and was able to proceed with the debates¹³⁷. Normative pressure against DSBT continued to rise as several newspapers published articles regarding the vulnerability of deep-water corals exposed to deep-sea fishing¹³⁸.

12. October 2009: Responses to NGO campaigns after the UNGA meeting

The clarification of France's official position rejecting the idea of a moratorium appeased tensions in the industry and refocused the attention on the outcome of the Mission itself, a process which the industry favored as it would give the chance to advance their own arguments and that of Ifremer scientists whose assessments then indicated that stocks were replenishing at least for some species (e.g. the Blue Ling)¹³⁹.

FIO representatives also responded in the media to NGOs' campaigns. In an article, Scapêche's director is reported speaking in favor of increased conservation measures as demanded by Greenpeace but argues that the company only exploits small areas of the Atlantic Ocean "in comparison to Spanish vessels" (**challenge**)¹⁴⁰.

¹³³ The technique is the same, except that deep-sea trawlers drag their nets at much greater depths and can affect much more vulnerable ecosystems. See Annex 2 - What is deep-sea bottom-trawling?.

¹³⁴ See for example Le Télégramme 4 September 2009 Pêche. Professionnels et élus écrivent à François Fillon
Also : Le Télégramme 9 July 2011 Pêche. «Toute une activité économique va être sacrifiée»

¹³⁵ Le Télégramme 4 September 2009 Pêche. Professionnels et élus écrivent à François Fillon

¹³⁶ Le Télégramme 1 October 2009 Pêche de grands fonds. Les ONG partent au combat

¹³⁷ Agence France Presse 20 October 2009 Installation mercredi de la nouvelle mission sur les pêches profondes

¹³⁸ Agence France Presse 20 November 2009 Des coraux à protéger croissent dans les eaux froides du Golfe de Gascogne

Le Monde 21 November 2009 Biodiversité; Les coraux des mers froides en péril

Ouest-France 21 November 2009 Triple menace pour les coraux d'eau froide

¹³⁹ Ouest-France 3 September 2009 La pêche profonde au bord du gouffre

¹⁴⁰ Le Figaro 5 October 2009 Alerte sur la pêche dans les grands fonds marins; Greenpeace appelle les grandes surfaces européennes à ne plus commercialiser les espèces menacées.

F. December 2009: Industry representatives meet with the Fisheries Minister

In December, a Brittany industry representative and one of the most outspoken defender of the deep-sea fishing industry reportedly met with members of the National Assembly and from the regions of Vendée and Brittany to state the importance of defending the deep-sea fishing industry¹⁴¹. The rallied politicians were then able to set up a meeting between industry representatives and Fisheries Minister Bruno Le Maire in an attempt to “strengthen ties between marine fishermen and their minister”¹⁴². The strategy was probably done in hope that the Minister could **influence** the decision-making process of the Mission.

Blue box 5 Landings in 2009 and quotas for 2010.

Landings in 2009 continued to decline and stayed below allowable catch figures by more than 1600 tonnes (see table). Quotas set in December for the year 2010 once again diminished for deep-sea species, and were even fully cut for the Orange Roughy, which catches had reached an all-time low. The industry reacted faintly (only one article) and with resignation (**acquiescence**), hoping for more optimistic scientific assessments and expecting with greater concern the conclusions of the Mission¹⁴³.

2010:

13. July 2010: Conclusions of the Mission

The Mission’s conclusions came with the publication of its report in July 2010 (i.e. *Avenir des Pêches Profondes*, 2010) and with the rapporteur’s own statement in September¹⁴⁴ which concluded in favor of allowing DSBT to continue, but recommended the adoption of a number of measures to improve the activity (i.e. scenario 3; see Annex 3).

NGOs (who had voted for scenario 1; see Annex 3) called the report a ‘fraud’ for not condemning DSBT more strongly and due to the position of the report’s author as an expert working closely with the DSBT industry¹⁴⁵.

13. July 2010: Conclusions of the Mission

Industry representatives overall approved of the report’s recommended measures, and obtained key concessions from the Mission’s president that “this economic activity could not be stopped at once” due to its local importance in Lorient and Boulogne¹⁴⁶. This outcome reduced **uncertainty** for the

¹⁴¹ Le Télégramme 4 December 2009 Le ministre Bruno Le Maire bientôt à Lorient

¹⁴² *Ibid.*, paraphrasing an FIO’s press release.

¹⁴³ Ouest-France January 2010 Moins de quotas pour les grands fonds

¹⁴⁴ Le Télégramme 17 September 2010 Grands fonds. Scapêche salue la sagesse de la commission

¹⁴⁵ Agence France Presse 9 July 2010 Pêches profondes: les ONG dénoncent "une imposture", un "échec cuisant"

¹⁴⁶ Le Monde 18 September 2010 En dépit de l'opposition des ONG, la France soutient la pêche en eaux profondes

industry who were keen on **acquiescing** the proposed measures since they were **consistent** with their own expectations and existing practices¹⁴⁴.

G. 2010-2012: The purchase of Euronor and its changing fishing strategy.

In December 2010 Euronor was purchased by British ship-owner UK Fisheries who accepted to help the French ship-owner reimburse perceived subsidies (see Event 8)¹⁴⁷.

In March 2010 Euronor obtained MSC certifications for its Saithe fishery and in 2012 for Hake and arctic Cod fisheries¹⁴⁸.

Blue box 6 Landings in 2010 and quotas for 2011-2012.

Quotas on deep-sea species set in December 2010 and for 2011 and 2012 were again reduced for both the Black Scabbardfish and the Roundnose Grenadier; the Orange Roughy fishery having been closed. Quotas on Blue Ling were the only ones to be increased. Landings increased slightly from 2009 (+4% or 270 tonnes) but remained overall below quotas by about 540 tonnes.

4) 2011-December 10, 2013: Escalation and peak of the controversy

2011:

14. May-June 2011: Bloom's and Greenpeace's campaigns

In spring 2011 Bloom initiated a campaign against deep-sea fish being served in school cafeterias, appealing to the idea that children were unknowingly “accomplices” of “overfishing, the extinction of species and the destruction of the marine environment” (Bloom, 2011)¹⁴⁹. Greenpeace activists for their part protested in front of large retailer shops (mostly Mousquetaires' Intermarché) in 22 French cities to inform consumers of the impacts of DSBT and against Mousquetaires' direct involvement in the fishery¹⁵⁰.

NGOs also began to hammer the argument that DSBT only profited a handful of industrial companies and had a negative net economic impact on the rest of society (Bloom, 2011). This was supported in NGOs' publications citing the European Commission's Green Paper of 2009 which stated that “it has been estimated that the cost of fishing to the public budgets exceeds the total value of the catches. In simple terms, this means that European citizens almost pay for their fish twice: once at the shop and once again through their taxes.” (European Commission, 2009, p7; cited in Greenpeace, 2011, p12).

¹⁴⁷ La Voix du Nord 20 January 2012 2011 : une année de transition pour Euronor, seul armement industriel de Boulogne

¹⁴⁸ La Voix du Nord 2 June 2012 Les bateaux d'Euronor reconnus pour leur pêche durable du cabillaud et de l'églefin

¹⁴⁹ Agence France Presse 10 May 2011 "Des poissons menacés au menu des écoles": une ONG tire la sonnette d'alarme

¹⁵⁰ L'INDEPENDANT 5 June 2011 Greenpeace, poisson pilote du grenadier et du flétan mis en péril

14. May-June 2011: Bloom's school cafeterias campaign and Greenpeace's protests at retailer's shops

The campaigns were widely relayed in the media (17 articles between May and June in my Lexis Nexis search) and forced the industry to react by the end of June and during the month of July, first by letting Scapêche's director try and defuse NGOs' arguments (**challenge, influence**) which he called "unfair" and "fallacious" (perhaps arguably a form of verbal **attack**), arguing that their information on the harm caused by DSBT was based on evidence of practices dating from the 1990's and early 2000's¹⁵¹.

15. July 2011: Maria Damanaki's position on DSBT

In July EU Fisheries Commissioner Maria Damanaki was expected to publish her report announcing the 2013-2020 plan for the reform of the CFP which could introduce the proposal of a ban on DSBT in Europe¹⁵². This event was highly anticipated as the Commissioner was known for her pro-environmentalist stance and her crackdown on destructive fishing practices.

15. July 2011: Responses to Maria Damanaki's position on DSBT

Several elected officials including the mayor of Lorient and the Fisheries Minister (also mayor of Boulogne) used their position to address the Commissioner and the members of the Fisheries Ministers Council of the European Union **attacking** environmental NGOs' lobbying practices and denouncing their "(manipulation of) public opinion", all the while supporting DSBT in its economic and ecological sustainability in view of scientific evidence¹⁵³.

One industry representative further vehemently **attacked** Damanaki's proposal by questioning whether the commissioner was even "apt to occupy her functions", the article adding that "bottom-trawls dedicated to this type of fishing represent 75% of France's fleet" in an attempt to mobilize the entire fishing sector and politicians not only in France but in Europe in general (again the argument presumes a ban on all bottom-trawling gears and suggests **manipulative** tactics considering the actual scope of the proposal, see Green box 3)¹⁵⁴.

The same representative is also quoted in an article appealing to President Sarkozy's intervention to influence decisions in Brussels and also to mobilize officials and the DSBT industry in Spain, also potentially affected by Damanaki's measures¹⁵². This appeal aimed to create a larger coalition of European fishing industries to pressure and **influence** the Fisheries Commissioner.

¹⁵¹ Le Télégramme 29 June 2011 Pêche de grands fonds. Le débat reste houleux.

¹⁵² Ouest-France 9 July 2011 « Seul Sarkozy peut peser sur Bruxelles »

¹⁵³ Ouest-France 7 July 2011 Front uni pour sauver la pêche des grands fonds

¹⁵⁴ Le Télégramme 9 July 2011 Pêche. « Toute une activité économique va être sacrifiée »

16. September 2011: Bloom's first petition for a ban on DSBT

In September 2011 Claire Nouvian (Bloom) opened an online petition calling for a ban on DSBT addressed to UNGA members before the next meeting on the 15 and 16th of the month¹⁵⁵. The petition did not lead to new measures but reached 250 000 signatures just the day before the meeting (*normative pressure*)¹⁵⁶. No specific strategy could be identified in response to this event, however the industry was already responding to other NGO actions around that time (see strategy events above and below).

17. October-November 2011: Greenpeace's campaigns against ship-owners and retailers

In October, Greenpeace drew the media's attention again by going at sea and trying to symbolically slow down two of Scapêche's trawlers¹⁵⁷ as well as by entering Intermarché stores to speak with consumers and employees about deep-sea fishing¹⁵⁸.

In November again Greenpeace attempted to stop a trawler at sea, this time belonging to Dhellemmes. The NGO released a statement arguing that the vessel had been constructed with the help European subsidies and therefore that public funds were "contributing to emptying the oceans instead of being used to develop fishing that is selective, local and generating (more) jobs"¹⁵⁹.

17. October-November 2011: Responses to Greenpeace's campaigns against ship-owners and retailers

In response to Greenpeace's action at sea Scapêche not only **communicated** in local newspapers¹⁶⁰ and regional television¹⁶¹ **challenging** these arguments, but also announced that it would initiate a lawsuit for trying to dangerously stop a vessel in its course (**attack**)¹⁶².

On the contrary, Dhellemmes' director's response seemed more plain arguing that their activity was not illegal and that Greenpeace was ignoring fishers' efforts towards responsible fishing, adding that the ship's crew's primary concerns were not to respond to the provocation but to make sure that no one would get hurt¹⁶³. Because Dhellemmes had rarely been the direct target of NGOs' pressures yet in view of the extraordinary nature of the stunt, it seems that the ship-owner still decided to respond

¹⁵⁵ Le Monde 16 September 2011 OCÉANS; Appel contre la pêche en eaux profondes

¹⁵⁶ Agence France Presse 14 September 2011 Une pétition contre le chalutage en grand fond avant une réunion à l'ONU.

¹⁵⁷ Le Télégramme 28 October 2011 Pêche. Greenpeace freine un chalutier de la Scapêche.

¹⁵⁸ L'Est Républicain 30 October 2011 Troubles en eau profonde; « On voulait les soutenir s'il se passait quelque chose »

¹⁵⁹ Le Télégramme 17 November 2011 Greenpeace. Une action en mer contre un chalutier concarnois

¹⁶⁰ Le Télégramme 28 October 2011 Pêche. Greenpeace freine un chalutier de la Scapêche.

¹⁶¹ See [France 3 Bretagne \(2011\)](#).

¹⁶² Agence France Presse 10 November 2011 Chalutage profond: la Scapêche étudie une plainte contre Greenpeace

¹⁶³ Le Télégramme 17 November 2011 Greenpeace. Une action en mer contre un chalutier concarnois.

publicly with arguments **dismissing** (and/or **challenging**) the basis on which Greenpeace took its actions.

Green box 4 Deep-sea bottom-trawling on screens.

In 2010 and 2011 came out two documentary films which followed DSBT fishers on a fishing trip¹⁶⁴. While the first took place on board of a Scapêche trawler and the second on a Euronor trawler, both films depicted the hardships of the life of an industrial fishing crew and addressed to some (limited) extent the accusations that the profession sustained. They enticed the viewer to empathize with the men's lives and perhaps served the ship-owners in influencing public opinion by providing a medium to know more about fishermen and inspire respect for their work.

2012:

18. May-June 2012: Bloom's lawsuit against Intermarché

Following an ad campaign by Les Mousquetaires' at the end of 2011, Bloom initiated a lawsuit for false advertising in May 2012 on the basis that DSBT could not be labelled as 'responsible fishing' and due to the lack of transparency in establishing the criteria for the label that the ad promoted¹⁶⁵ (see strategy E). The next month the French Jury for Advertising Deontology ruled that the ad should not be renewed, stating that it was misleading in promoting Les Mousquetaires as "playing a determinant role in sustainable fishing and marine resources conservation", also calling the recent accreditation an 'auto-label'¹⁶⁶.

18. May-June 2012: Responses to Bloom's lawsuit against Intermarché

After the opening of Bloom's lawsuit, the retailing group stated its opposition to the motive of the accusation in a press release, underlining the validity of its approach and "loyalty" of its communication, as well as its "legitimacy" as a "distributor invested in maritime fishing in France for many years"¹⁶⁷.

19. July 2012: Maria Damanaki publishes her reform proposal

In July 2012, Maria Damanaki published her proposal reform of EC Regulation 2347/2003 containing a clause that would effectively ban DSBT by not renewing the vessels' fishing permits two years after implementation by Parliament¹⁶⁸. The reform also contained a number of other measures aimed at regulating the activity regardless of a ban (European Commission, 2012).

¹⁶⁴ See [Korkikian \(2010\)](#) and [Castier & Bouilly \(2011\)](#).

¹⁶⁵ [Le Monde 3 June 2012](#) Au rayon poissonnerie, pêche responsable et publicité mensongère

¹⁶⁶ [Agence France Presse 21 June 2012](#) Pêche responsable: Les Mousquetaires épinglés par l'Autorité sur la publicité

¹⁶⁷ [Ouest-France 31 May 2012](#) Pêche : une plainte contre Intermarché

¹⁶⁸ [Agence France Presse 12 July 2012](#) UE: un projet d'interdiction du chalutage profond bloqué par Barnier

19. July 2012: Responses to Maria Damanaki publishing her reform proposal

The strategies recorded in response to Damanaki's proposal are broad, ranging from **defiance, attack, negotiation and lobbying**, but also the **expression of compliance**.

The industry in Lorient argued that the Commissioner's proposal was not rooted in science and ignored recent favorable deep-sea stocks assessments from the ICES, but also an Ifremer position paper issued last February (Ifremer, 2012) suggesting that DSBT had become sustainable since its regulation in 2003 and that a ban "would not be necessary" (**challenge**)¹⁶⁹. A Scapêche leader however also restated his **acquiescence** regarding the need for regulation, particularly by protecting VMEs and freezing the footprint (**expressing compliance**)¹⁷⁰. On one occasion a Lorient industry association representative took a more aggressive stance, claiming that the Commissioner ought to resign (**attack**)¹⁷¹. On his part the French Fisheries Minister (and mayor of Boulogne) met with Damanaki to outline the economic impact of such a measure should it be implemented (**lobbying, negotiation**)¹⁷². Several other local elected officials (22 Socialists from Pas-de-Calais region, i.e. Boulogne's region) and a few MEPs close to the local political milieu in Lorient) also voiced their disapproval of the proposal (**challenge**)¹⁷³. Finally, the proposal was delayed from submission to the Parliament for just a few days by the European Commissioner for Internal Market and Service (Michel Barnier, a French ex-Fisheries Minister) calling for greater consideration of its potential "economic, social and human" impacts (**challenge, influence**)¹⁷².

20. October 2012: Quotas for 2013-2014

In October, the Commission proposed the quotas for 2013-2014 following advice from the ICES and CSTEP, however Bloom contested the figures raising the fact that one member of the CSTEP and ex-Ifremer expert had recently been hired by Scapêche, therefore calling it a conflict of interests and a essentially signaling a co-optation strategy on the part of the industry¹⁷⁴.

20. October 2012: Responses to quotas for 2013-2014

The figures showed optimism regarding the state of the resources, and industry association representatives did not miss pointing out the contradiction with the improvement of stocks and the recently proposed ban¹⁷⁵. The scientist accused of conflicting interests responded directly that his expertise was solely the improvement of fishing technologies, and therefore that he had no part in

¹⁶⁹ Agence France Presse 20 July 2012 Colère en Bretagne contre l'UE qui veut interdire les chaluts en eau profonde

Le Télégramme 20 July 2012 Pêche. Fortes menaces sur le chalutage en eaux profondes

¹⁷⁰ EurActiv.fr 4 September 2012 Les eaux troubles de la pêche profonde

¹⁷¹ Ouest-France 18 July 2012 La pêche française visée par Bruxelles

¹⁷² Le Monde 19 July 2012 La France s'oppose à l'interdiction de la pêche en eaux profondes

¹⁷³ Agence France Presse 31 July 2012 Des élus du Pas-de-Calais condamnent l'interdiction de chalutage en eaux profondes

¹⁷⁴ Le Monde 30 November 2012 Conflit d'intérêts à Bruxelles sur la pêche profonde

¹⁷⁵ Le Télégramme 30 November 2012 Pêche de grands fonds. Bruxelles relève les quotas. A similar statement was made by a colleague of his during my interviews.

formulating recommendations for quotas¹⁷⁵. In view of the uncertain circumstances surrounding the issue, I was unable to conclude whether this was indeed a co-optation strategy from the industry to try and influence scientific advice on quotas.

Grey box 1 Discrediting NGOs.

In October 2012 an association in Lorient published a report on the funding of environmental NGOs (i.e. Giron, 2012). In essence this draws links between environmental NGOs such as Pew (who occasionally financed Bloom) and the oil industry. The report itself was published by someone with (to my knowledge) no direct link with DSBT industry associations or ship-owners but however still part of the social circles of the Lorient fishing sector and close to other persons favorable to DSBT (interviews with respondents in Lorient). It is therefore not possible to say that this report was sponsored by the industry as an influence tactic, but only to notice how it was used, and indeed the argument that Bloom had been acting to ban DSBT to allow an extractive industry to conduct deep-sea prospecting began to spread and became the main explanation for some to understand NGOs' vehement battle against DSBT. This conjecture was evoked (with more or less assurance of its validity) several times during my interviews and could be read in some news articles emanating from politicians and industry association representatives.

Blue box 7 Quotas for 2011-2012.

In 2011 and 2012, landings and quotas reached an all-time low compared to what the figures were in the early 2000's when landings were highest¹⁷⁶. Total landings for the 3 deep-sea species were only 23% the total weight of 2000 (4680 tonnes on average for the two years compared to 20593 tonnes in 2000) while quotas were down 52% of what they were in 2003 (5650 tonnes on average compared to 10946 tonnes in 2003). The difference between landings and quotas for those years also show that on average the landings were 17% lower than allocated quotas (970 tonnes on average), showing **compliance** of ship-owners with regulation and adaptation to the new institutional setting.

2013:

21. 2013: NGO pressures regarding the economics of the DSBT

That year, NGOs aimed again at disproving the economic rationale for maintaining this type of fishing and to support a ban (see also May-June 2011: Bloom's and Greenpeace's campaign). The actions described below reflect these arguments.

In February, Bloom published on its website its detailed analysis of DSBT ship-owners' finances (Dhellemmes, Scapêche and Euronor) between 2004 and 2011 which indicated the vast amounts of subsidies each had received as well as their dire financial situation¹⁷⁷.

¹⁷⁶ In the period of the case study.

¹⁷⁷ See Bloom (2013-b).

Also: Bloom (2013-a).

In July, NGOs found additional support for their claims in two documents. The first is a reproofing report from the French Court of Auditors (Cour des Comptes) reviewing the subsidization of the fishing industry for the period 2000-2009 (over which period the State had spent 500 million euros for fuel aids and the building/scrapping of vessels)¹⁷⁸. The second emanated from the New Economic Foundation (a British think-tank) which spoke of DSBT as causing “significant environmental damage and (failing) to make a positive economic return” (New Economic Foundation, 2013, p1). The context of economic crisis tightening public spending made these reports even more relevant, and these arguments were used against the industry and for a ban several times in the media¹⁷⁹ (*normative pressure*).

At that time, NGOs had also made the point that DSBT could be replaced with other techniques such as long-lining which required more workforce and therefore would create more jobs, was less fuel-demanding and more selective¹⁸⁰, a solution which the European Commission also supported¹⁸¹.

21. 2013: Responses to NGO pressures regarding the economics of the DSBT

The industry and supportive political figures addressed the various arguments of NGOs **challenging** their claims and trying to **influence** public opinion.

While Euronor and Dhellemmes generally were absent in commenting in response to NGOs, Scapêche repeated in the media (and during my interviews) that subsidies had been cut after the Commission took measures against France and ship-owners (see event 8. 2007-2008: Responses to high fuel costs and the dissolution of the French direct aids scheme (FPAP)) and that their finances were ‘positive’ since 2009¹⁸² (or 2010 according to another, earlier article¹⁸³) (**challenge**).

In support of the argument that DSBT was an essential local economic activity, Lorient’s metropolitan organization (Lorient Agglomération) received in February the results from a study it had ordered to settle the number of jobs related to deep-sea fishing in Lorient¹⁸⁴. Those figures were used to **challenge** NGOs who had come up with different numbers¹⁸⁴.

Finally, in response to NGOs and the Commissions’ pressures to adopt long-lining instead of trawling the industry made a number of arguments at different times, detailed in Grey Grey box 2 below.

¹⁷⁸ NEWS Press 9 July 2013 La Cour des Comptes dévoile comment nos impôts financent la surpêche

¹⁷⁹ See for example : Ouest-France 15 February 2013 La Scapêche, la cible privilégiée de Bloom
Agence France Presse 25 November 2013 Une pétition contre le chalutage en eaux profondes
Le Figaro Newsflash – News 25 November 2013 Le chalutage en eaux profondes interdit?

¹⁸⁰ Ouest-France 3 July 2012 Embellie pour la pêche profonde.

Ouest-France 24 May 2013 Dans le marin : Claire Nouvian et les grands fonds

¹⁸¹ Ouest-France 18 June 2013 Manger du poisson de grands fonds, c'est pêcher ?

¹⁸² Ouest-France 5 February 2013 La Scapêche, la cible privilégiée de Bloom

¹⁸³ EurActiv.fr 4 September 2012 Les eaux troubles de la pêche profonde

¹⁸⁴ Ouest-France 19 March 2013 Grands fonds : Bloom relativise l'impact social

Grey box 2 The industry's reluctance to switch to other deep-sea fishing methods (long-lining).

Industry representatives have several times in the media¹⁸⁵ disparaged NGOs' arguments in favor of a switch to long-lining. The following account of their arguments comes from my interviews with Scapêche respondents.

Although the technique has a lower impact on the seafloor, Scapêche considers it overall less competitive and efficient for the ship-owner than trawl gears. Long-lining does not allow the catch of some traditional deep-sea species, and it requires large quantities of fish bait to catch the target species. It also causes significant bycatch of sharks and endangered animals. Finally, the conversion of a fleet from trawl to line gears requires investments and technical adaptation, as well as training of fishers. All in all in the present business model of these ship-owners, a wider switch to lower impact gears necessarily means that lower productivity and financial income would impact either the fishers' salaries or the price of fish.

However Scapêche in fall 2014 did accept to experiment with long-line fishing, in the North East Atlantic (something the company already was doing in the Indian Ocean for other species)¹⁸⁶. See strategy event 25.25. December 2013: The European Parliament's vote for the ban on DSBT.

H. 2013-2014: Scapêche participates in the designation of MPAs in Scotland's seas.

In 2013 the Scottish governmental authority for marine affairs (Marine Scotland) engaged in the consultation process for the program 'Planning Scotland's seas' (Scottish Government, 2015). Due to the presence of Scapêche in the Scottish EEZ, the company reported during an interview that it had participated in the program and stated its acceptance of such measures to protect VMEs (**compliance**). The consultation process allowed Scapêche to indicate how its fishing activity could conflict with the designated MPAs. The participatory process was therefore particularly interesting for Scapêche who was able to communicate its needs.

¹⁸⁵ See for example Le Figaro Online 21 November 2013 Les acteurs de la pêche en eaux profondes répondent à la BD.

¹⁸⁶ Ouest-France 24 January 2014 La Scapêche se lance à la pêche à la ligne!

I. 2013: Creation of an industry lobby association in Brussels and the reform's amending process



Figure 25 Still from the filmed press conference organized at the European Parliament for the creation of association Blue Fish (i.e. Sea to Sea, 2013).

In March 2013 lobby association Blue Fish was founded¹⁸⁷. It aimed to weigh in on issues such as of the impending ban on DSBT and others related to the reform of the CFP (**influence/negotiate**)¹⁸⁸. The goal was also to gather fishers' associations from all over Europe around these issues, with its most active members being representatives of French associations in Brittany and Boulogne, spearheaded by a central actor of the Lorient fishing sector and sponsored by French elected officials (see Figure 25)¹⁸⁹. The reinforced lobbying presence of the industry effectively **influenced** the decision-making process at the Fisheries Committee with the delaying of the vote on the proposal (October to November and finally December 10) in order to allow a compromise on the ban to be found¹⁹⁰. The Fisheries Committee (who had the competence to accept, refuse or amend the text) organized a first public hearing to give a chance to stakeholders to express their views¹⁹¹. FIOs (including Pêcheurs de Bretagne, CNPME, From Nord, Euronor, UAPF and Europêche; see Description of FIOs in Annex 2) however considered the hearing to have been biased with too much speaking time given to NGOs, and therefore requested a second one (**influence/negotiate**)¹⁹². This second hearing animated by industry representatives took place two months later in June and was reportedly convincing enough to counterbalance environmental NGOs' arguments for some of the Committee's members¹⁹³.

The amending process of Commissioner Damanaki's reform was also marked by the work of a coalition of MPs from several countries where DSBT was important (mainly French (Brittany), Spanish, Portuguese, and the UK) systematically neutralizing the language of the proposal normatively defining DSBT's effects (e.g. 'destructive impact' would simply become 'impact'), and

¹⁸⁷ Ouest-France 19 June 2013 Blue Fish en ordre de bataille à Bruxelles

¹⁸⁸ Le Télégramme 29 September 2012 Brèves de conseil

¹⁸⁹ The source of this information is the content of said press conference (Sea to Sea, 2013).

¹⁹⁰ Europolitique 20 September 2013 PÊCHE EN EAUX PROFONDES : L'INTERDICTION DES CHALUTS DE FOND DIVISE LA COMMISSION PECH

¹⁹¹ Ouest-France 18 June 2013 Manger du poisson de grands fonds, c'est pêcher ?

¹⁹² Europolitique 25 March 2013 PÊCHE EN EAUX PROFONDES : LE TORCHON BRÛLE ENTRE LES COMMISSIONS PECH ET ENVI

¹⁹³ Ouest-France 19 June 2013 Blue Fish en ordre de bataille à Bruxelles

reducing the coerciveness of the measures, including with an amendment deleting the article of the reform containing the ban (see European Parliament, n.d.). The result was a compromise on the ban containing a clause for the revision of the impacts of DSBT on ecosystems and a new round of decisions four years after implementation of the text¹⁹⁴. It was lauded by the mayor of Lorient who stated in the press: “We avoided the guillotine (...). This new approach demonstrates that the underground work initiated by elected officials and professionals of the (fishing) sector, notably within association Blue Fish, is starting to pay off”¹⁹⁴. Scapêche also reacted in the same article expressing satisfaction but also **acquiescing** the urge to increase collaboration with scientists, with only some concerns regarding the interpretation of some of the text’s technical details.

Grey box 3 Exposing the industry’s lobbying tactics.

Particularly in 2013, environmental NGOs increasingly exposed the lobbying at play by the French fishing industry. While local news media in Brittany spoke without shame of the industry’s lobbying/negotiation activities in Brussels¹⁹⁵, environmentalists framed them as corrupting the policy-making process and naming and shaming involved elected officials¹⁹⁶. These exposures led the industry and politicians to minimize the scale of their lobbying in comparison to that of environmental NGOs (**challenge**)¹⁹⁷.

22. Mid- to late 2013: Petitions to ban DSBT gain momentum.

Two petitions were launched in June. The first was signed by 250 scientists in favor of a ban on DSBT¹⁹⁸. The second was started by Bloom calling upon President François Hollande to help end DSBT¹⁹⁹. This second one only really picked up after a webcomic was put online by a French artist and blogger in November which illustrated the issue and summarized Bloom’s critiques particularly regarding Scapêche and Les Mousquetaires (see Bagieu, 2013)²⁰⁰. The petition and gathered 600 000 signatures within weeks of the comic’s publication²⁰¹.

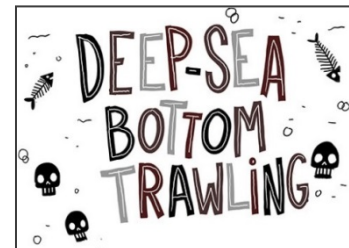


Figure 26 Illustration retrieved from the comic strip (Bagieu, 2013).

22. Mid- to late 2013: Responses to petitions to ban DSBT

The comic had such an impact on the public that the industry directly addressed its content in the media saying that it oversimplified the issue (both during my interviews with different respondents and in the news²⁰²) in attempt to **challenge** it and reverse public opinion (**influence**).

¹⁹⁴ Le Télégramme 6 November 2013 Pêche profonde. Les acteurs soulagés

¹⁹⁵ See for example « L'Europe a ses avantages » Le Télégramme 21 December 2005

¹⁹⁶ See for example Ducos (2014). <https://www.youtube.com/watch?v=nGo69qWRBmc>

¹⁹⁷ L'Express.fr 17 February 2014 Pêche en eaux profondes: menaces, coups bas et trahison à Bruxelles

¹⁹⁸ Agence France Presse 17 June 2013 Plus de 250 chercheurs s'engagent contre le chalutage profond

¹⁹⁹ The article has disappeared but is relayed in: LePoint.fr 9 June 2013 Pêche abusive : un Petit Poucet veut faire la peau aux Mousquetaires. For the petition, see <http://petition.bloomassociation.org/>.

²⁰⁰ In English : <http://www.penelope-jolicoeur.com/2013/11/prends-cinq-minutes-et-signe-copain-.html> .

²⁰¹ MIDI LIBRE 27 November 2013 ENVIRONNEMENT

23. June 2013: Bloom's ranking of retailers

That petition was complemented by another document published by Bloom ranking retailers based on their engagements in reducing the marketing of deep-sea species in their stores, hitting the nail again on retailers to pressure them to strengthen their engagements (see Bloom, 2013-c). The pressure was further increased with a member of the National Assembly's open letter to the retailers and making similar demands²⁰³.

23. 2013: Retailers' responses to pressures to stop marketing deep-sea fish

Around the time of the European Parliament's vote for a ban (December 10, 2013) several large retailers (Casino, Carrefour, Systeme U and Auchan) responded publicly by announcing (or restating) their decision to stop marketing deep-sea species (**compliance**)²⁰⁴.

24. November 2013: A politician demands that Scapêche recognizes pre-2000 damages.

In November a Green Party member from Lorient spoke out saying that Ifremer's data seemed to indicate that deep-sea fishing was sustainable, and then demanded that Scapêche "recognize the overfishing that occurred between 1990 and 2000"²⁰⁵.

24. November 2013: Scapêche's response.

Scapêche **acquiesced** to the politician's demand without reluctance²⁰⁵.

25. December 2013: The European Parliament's vote for the ban on DSBT.

December 10, European MPs casted their votes and rejected the amendment containing the ban on DSBT by a close majority of just 16 votes²⁰⁶. Just one week after the vote, twenty Members of Parliament reportedly changed their vote thus balancing in favor of the ban. Parliament procedure however did not recognize the new configuration²⁰⁶.

25. December 2013: The European Parliament's vote for the ban on DSBT.

The industry and its representatives expressed relief in response to the rejection of the banning amendment, with Scapêche stating that this was a stabilizing event in planning and predicting the future development of their operations²⁰⁷, but also that "(they) had understood the concern of the

²⁰² See for example Le Figaro Online 21 November 2013 Les acteurs de la pêche en eaux profondes répondent à la BD.

Also : Rue89 28 November 2013 Les poissons des eaux profondes : avant elle, vous ne saviez pas

²⁰³ Agence France Presse 23 December 2013 Chalutage profond : un député UDI interpelle les grandes enseignes

²⁰⁴ Agence France Presse 31 January 2014 La lutte contre la pêche profonde gagne du terrain

²⁰⁵ Ouest-France 8 November 2013 Cette pêche est-elle durable ou pas ?

²⁰⁶ EuroNews 10 December 2013 La pêche en eaux profondes pourra continuer

See also : LeMonde.fr 16 December 2013 Chalutage profond : l'interdiction rejetée par erreur au Parlement européen ?

²⁰⁷ Agence France Presse 10 December 2013 Pêche profonde: la Scapêche (Intermarché) se félicite du vote du Parlement

public (opinion)”²⁰⁸ and would “take all measures possible to no longer systematically target deep-sea species”²⁰⁹ (**expressing compliance**). Scapêche’s concrete efforts to show good will and to improve its legitimacy extended towards a ‘diversification’ of its fishing activity²⁰⁸: first by letting its trawlers increasingly target Saithe and Monkfish rather than deep-sea species²⁰⁸ and by converting one of its old trawlers into a long-liner (**compromise** to **appease** constituents’ pressure)²¹⁰. This switch to long-lining was inspired by Norwegian and Spanish long-line fishing techniques and with the help of experienced sailors²¹⁰. It therefore denotes an **imitation** strategy whereby the French ship-owner found impetus in the fishing models of other European ship-owners (see Grey Grey box 2).

Reportedly the MPs who recast their vote this time in favor of the ban had indeed made a ‘mistake’, possibly due to the trickiness of the procedure whereby the amendment needed to be rejected in order to implement the ban. Some however also felt ‘duped’ by a Socialist Party MP and supporter of the industry²¹¹ who gave voting advice to her colleagues, possibly indicating this MP’s manipulative tactic to change the outcome of the vote²¹².

Blue box 8 Quotas and landings 2013 and 2013-2015.

Landings in 2013 stagnated, only being slightly higher than the previous two years. French quotas on the three deep-sea species²¹³ for 2013, 2014 and 2015 were drastically increased from 5 477 in 2012 to 8 000-10 000 tonnes, exceeding 2003 levels for the Blue Ling and the Black Scabbardfish while being lower by almost 1 000 tonnes for the Grenadier. Scapêche (being almost the only remaining French DSBT ship-owner left²¹⁴) during an interview with me stated it would not attain these quotas in 2015 and indeed for 2013 the gap had already increased with 4819 tonnes landed for a quota of 7 993 tonnes.

5) (December 10, 2013)-2014: After the European Parliament’s vote

J. February 2014: Industry representatives exit a debate on fisheries at the French Senate.

In February, two important industry representatives left the room of a debate between stakeholders about making fisheries sustainable (**avoiding** debates) after a speech stating that they refused to discuss with NGOs “whose profession is to destroy commercial fishing” scientists “whom no fisher has ever met”²¹⁵.

²⁰⁸ Ouest-France 11 December 2013 La Scapêche limitera la pêche des grands fonds

²⁰⁹ Les Echos 11 December 2013 L'Europe Maintient la pêche en eaux profondes

²¹⁰ Ouest-France 21 November 2014 Le nouvel Hélio trope pêchera à la ligne !

²¹¹ This Member of Parliament is also ‘sponsor’ of lobby association Blue Fish. See strategy event I.

²¹² See : LePoint.fr 17 December 2013 Pêche profonde : une eurodéputée socialiste s'estime "piégée" par son groupe. The MP on her part hotly reacted saying her colleagues’ reaction was ‘hypocrisy’ and that the procedure was clear and agreed upon.

²¹³ Reminder: the TAC on the fourth species, Orange Roughy, had been cut since 2010.

²¹⁴ Dhellemmes no longer having DSBT vessels and Euronor only one. See Table 9.

²¹⁵ Ouest-France 7 February 2014 Les pêcheurs claquent la porte du Sénat

26. Mid- to late 2014: NGOs try to mobilize the Minister of Ecology against DSBT

In July 2014 NGOs started lobbying Minister of Ecology Ségolène Royale for her to weigh in on a ban on DSBT²¹⁶. In a surprising move, the Minister later stated on social media in October that “it is clear that deep-sea bottom-trawling must end”²¹⁷. Again later and anticipating further actions from the Minister, NGOs organized protests during a gathering of fishing industry associations in Paris²¹⁸. However the Minister’s position took a 180 degree turn in November after she met with industry representatives²¹⁹.

26. Mid- to late 2014: Responses to NGOs trying to mobilize the Minister of Ecology

Industry association representatives mobilized to organize a meeting with the Minister of Ecology together with Lorient Ifremer scientists and ship-owners (including Scapêche) in November²²⁰. The meeting effectively turned around the Minister’s position who reportedly stated that the industry’s initiatives in terms of sustainability had in fact been ‘exemplary’²²¹.

K. June 2014: Scapêche purchases Dhellemmes’ last DSBT vessels.

In June 2014 Dhellemmes put an end to its DSBT activity when it sold its last two remaining DSBT vessels to Scapêche, in **compliance** with the directives of its Dutch shareholder’s (Cornelis-Vrolijk) “new projects” and “strategy”²²².

On the side of Scapêche, the purchase of these trawlers was explained in the news by its representatives²²³ and during my interviews as a means to increase their fishing effort on other species.

L. July 2014: A Brittany politician and European MP supportive becomes rapporteur of the reform on deep-sea fisheries.

In July a Lorient-based European Member of Parliament and one of the most prominent defender of the industry was named rapporteur of the proposal reform of EC Regulation 2347/2003 (i.e. European Commission, 2012) thus in charge of bringing the text for debate at the European

²¹⁶ Le Télégramme 17 July 2014 Pêche. Le comité régional veut rencontrer Royal
Agence France Presse 19 November 2014 Comment concilier économie et écologie? La pêche de demain en discussion

²¹⁷ “il faut arreter le chalutage en eau profonde, c’est clair”. See the tweet here :
<https://twitter.com/RoyalSegolene/status/524301764351123456>

²¹⁸ Agence France Presse 19 November 2014 Comment concilier économie et écologie? La pêche de demain en discussion

²¹⁹ As reported by an industry association representative in the following article: Ouest-France 23 November 2014 Dialogue renoué entre pêcheurs et ministre

²²⁰ Ouest-France 1 November 2014 Ségolène Royal attendue pour parler pêche

²²¹ As reported by an industry association representative in the following article: Ouest-France 23 November 2014 Dialogue renoué entre pêcheurs et ministre

²²² Agence France Presse 19 June 2014 La Scapêche achète 4 chalutiers à un armement de Concarneau (Dhellemmes)

²²³ Le Télégramme 23 September 2014 Scapêche. « Nous sommes optimistes »

Council²²⁴. Perhaps not coincidentally, the text was delayed and still has not been discussed as of the time of finishing this thesis (July 2015) possibly suggesting influence tactics²²⁵.

27. July 2014: Green Party members of the National Assembly make proposals aiming to end DSBT

In July a coalition of Green Party members brought forward the proposal of a ban on DSBT in France at the National Assembly (Assemblée Nationale, 2014-b), and another in November aiming to delete fuel tax exemptions for DSBT vessels (Assemblée Nationale, 2014-a). Both proposals were however rejected during vote. No strategies were recorded in relation to these events.

M. 2014: Scapêche opens up to NGOs

In January, Scapêche announced that it would stop fishing below 800 meters of depth by early 2015, additionally stating that over the next five years it would consider stopping the systematic catch of deep-sea species²²⁶. This measure was the result of a **compromise** agreed upon between Scapêche, Bloom and the WWF²²⁷. Scapêche also received the visit of WWF experts (interview with Scapêche respondents) and started a partnership with an NGO to study caught specimens of deep-sea sharks²²⁸. Scapêche's director further added during my interviews that he hoped to set up a co-management model similar to Western Canadian DSBT ship-owners' in partnering up with NGOs to monitor their activities (**imitation** of other institutional models)²²⁹.

²²⁴ Ouest-France 25 July 2014 Pêche profonde : Isabelle Thomas rapporteur

²²⁵ Although I tried to contact Mrs. Thomas, my requests did not lead to an interview. The following news article however makes the same suggestion: Sud Ouest 31 December 2014 Lobby en sous-marin.

²²⁶ Ouest-France 1 February 2014 Scapêche et écolos signent un accord

²²⁷ NEWS Press 31 January 2014 Les ONG saluent l'engagement de la flotte d'Intermarché

²²⁸ See also Le Télégramme 23 September 2014 Scapêche. « Nous sommes optimistes »

²²⁹ The Canadian partnership aims at monitoring the activity and collectively decide on measures to reduce its impacts. See Wallace (2012).

Annex 5 Normative pressure in the news

The following graphs and tables show the number of articles found via Lexis Nexis and which contain statements that DSBT activity should decrease or stop (in order to have sustainable deep-sea fisheries). There were in total 199 articles out of the 546 retained where statements were counted as a manifestation of normative pressure (see *Operationalization of variables: Normative Pressure* for how I assessed normative pressure from news articles).

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
No. of articles signaling normative pressure	3	1	1	2	15	5	9	1	10	9	3	35	19	73	13
Total for each period	2000-2003: 7				2004-2008: 40					2009-2010: 12		2011-2013: 127			2014 : 13

Table 14 Number of news articles from the Lexis Nexis search and recorded signaling normative pressure to reduce DSBT for each year between 2000 and 2014.

Peaks in

Figure 27 below can generally be associated with specific events that were covered in the news. For example, in the middle of 2000 I counted a couple of articles consistent with the reporting of Fisheries Commissioner Franz Fischler's proposal to regulate DSBT on the grounds that deep-sea fisheries are overexploited (see pressure event 2 in Annex 4). The highest peak (December 2013) corresponds to news coverage just before and after the vote at the European Parliament for a ban on DSBT and consistent with the intense NGO-related activity which had raised the salience of the issue in the media in anticipation of this event (i.e. campaigns, petitions, and particularly a comic strip published in November; see events of late 2013 in Annex 4). This graph serves to illustrate the salience of DSBT in the news.

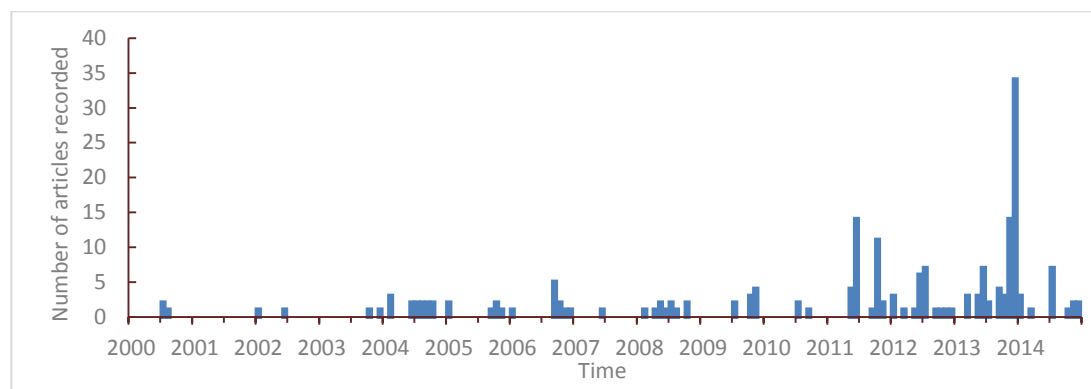


Figure 27 Number of news articles from the Lexis Nexis search and recorded signaling normative pressure to reduce DSBT for each year between 2000 and 2014.