

FRENCH FISHERS' PERCEPTIONS ON FISHERIES MANAGEMENT, IN THE NORTH SEA COD CASE.

Frédérique Alban, UBO, Centre de Droit et d'Economie de la Mer,
frederique.alban@univ-brest.fr

Denis Bailly, UBO, Centre de Droit et d'Economie de la Mer,
denis.bailly@univ-brest.fr

ABSTRACT

The Working Group on Fisheries Systems of the International Council for the Exploration of the Sea (ICES) has identified the production and the use of knowledge in policy and management decision-making as one of the critical processes to be analyzed in the evaluation of the performance of fisheries systems. Many fishers believe that their views and knowledge are not sufficiently taken into account by managers and scientists. This lack of involvement undermines the support of the conservation measures adopted (legitimacy and compliance), and so their efficiency.

Based on semi-structured interviews with French fishers targeting cod (*Gadus morhua*) in the North Sea, this paper analyses their perceptions on the European Union recovery plan, its legitimacy and efficiency. It also investigates their opinions concerning the role of scientific expertise and politics in forming decisions.

This paper is part of the research developed by the PKFM ("*Policy and Knowledge in fisheries management*" – Q5RS-2002-01782) project, which has been funded under the European Commission 5th Framework Programme.

Keywords: Fisheries management ; knowledge; decision-making process; North Sea ; cod; recovery plan; common fisheries policy ; fishers perceptions

INTRODUCTION

Created in 1983 (EC Regulation 170/83), the Common Fisheries Policy (CFP) has to face to several failures in its management system, in conservation, economic and political terms. Politically, the Green Paper on the CFP highlighted the feeling of the parties concerned that they were not sufficiently involved in the decision-making process of European fisheries management from the elaboration of scientific advice to the adoption of technical measures... [1]. This lack of involvement undermines the support for the conservation measures adopted, because of losses of legitimacy among users and thus losses of compliance and effectiveness [2, 3]. The lack of involvement (at all stage of the policy, from the conception to the implementation) and the lack of incorporating users' knowledge in the decision-making process have been demonstrated to lead to a lack of legitimacy and thus lack of compliance with regulations. Fishers claim for a greater role in the design, drafting and implementation of the CFP. It is necessary to establish closer dialogue and transparency with these groups and to make the entire decision-making process more transparent, especially in the preparatory stages.

The issues of knowledge, legitimacy, enforcement and efficiency of collective action, such as fisheries policy are closely linked. Management depends on stakeholders accepting that the knowledge on which policy and management is based is valid and relevant. Fisheries management, as a public policy, appears too much based on scientific expertise and political bargaining at the European level of decision. The scene of fisheries management is dominated by strong doubts about the future of fishing and the decision-making process.

Thus, the Working Group on Fisheries Systems (WGFS) of the International Council for the Exploration of the Sea (ICES)¹ has identified the production and the use of knowledge in policy and management

decision-making as one of the critical processes to be analyzed in the evaluation of the performance of fisheries systems [4].

Taking the North Sea cod as a case study, the E.C. funded “Policy and Knowledge in fisheries management” (PKFM) project analyses the relationship between the management decision-making process and the production of the scientific advice that is used in that process. By assessing the ways in which (scientific) knowledge is used to inform and justify fisheries decision-making process, the goal of the research project will be to find ways to obtain smoother communication and greater accuracy for the scientific basis of natural resource policy.

The North Sea cod stock is now considered near the collapse through the 1990s despite the TAC policy being set at the levels corresponding to the scientific advice. On the basis of scientific advice, the European Commission, alarmed over the state of cod stock, has implemented a recovery plan to rebuild the North Sea cod stock.

The North Sea represents about 5% of the world fish landings. The North Sea cod stock was economically and culturally important. However, the reported landings are decreasing since the early 1980s. Between the periods 1978-1982 and 1995-1999, landings and spawning stock biomass have fallen down at 58% [1]. As the Canadian cod stocks which collapsed in the early 1990s, the situation of the North Sea cod stock is critical. The stock is now badly depleted and a recovery plan is urgently required to rebuild the stock.

After a brief description of the North Sea cod fisheries and the objectives of the PKFM program, this paper will analyze French fishers perceptions, underlining their objectives and the rationale of their arguments that build specific discourse, which differ from those of scientists or policy-makers.

CONTEXT

Description of the PKFM program

The U.E. project “Policy and Knowledge in fisheries management”- PKFM (2002-2005) funded under the Key Action 5 of Quality of Life of the 5th Framework Programme is focused on the North Sea cod as a test case. This program focuses on the knowledge production and its utilization in the public decision-making process within fisheries management system. The objective is to assess the ways in which scientific and other sources of knowledge are used to inform and justify fisheries decision-making process. By studying the perceptions on management practices, the aim is to decrypt the rationale of specific discourse and to ascertain how scientific information is used by various stakeholders. The final goal is to improve the understanding of the institutional framework that supports design and implementation of collective action.

Among other initiatives conducted under the PKFM project, the group will conduct:

- Technical evaluation of methodology to produce scientific advice for fisheries management (robustness of model, estimation of uncertainty, precision of basic data used, retrospective bias...).
- Semi-structured interviews with representatives of all the actors of the North Sea management system (i.e. fishers’ organizations, administrators, politicians, scientists, environmental NGOs) on their perceptions of management practices.
- Interviews on the role of scientists and fisheries science in shaping management policies and decisions

North Sea cod stock and its recovery plan

The North Sea (ICES sub area IV) is located in the Northeast Atlantic and is mainly bordering by the United-Kingdom, the Netherlands, Denmark and Norway (Fig. 1).



Figure 1: North Sea

The multi-species demersal fisheries in the North Sea usually target a mixture of roundfish species (cod, haddock, whiting...) or a mixture of flatfish species (plaice, sole) with bycatch of roundfish. Thus, there are mixed fisheries, with many stocks exploited together in various combinations in different fisheries. The cod stock is shared (joint stock) and thus co-managed by the European Union (EU) with Norway. As most commercial species, the cod stock is managed by TAC/quota regulations that apply to the ICES Sub area IV or a combination of sub area IV with adjacent areas (English Channel, Skagerrak and Kattegat...).

In the past 10 years, the state of the stock for most roundfish and flatfish species in the North Sea has further deteriorated. Some of these stocks have reached historical lowest recorded values within this period. On the contrary, other southern species like sea bass and red mullet have increased and have sometimes attracted a fishery.

Since the end of the 1980s, the cod stock is overfished. Its spawning stock biomass (SSB) is under the biomass precautionary approach reference point (Bpa) since 1984 and is under the critical benchmark (Blim) since the 1990s. Since 1999, ICES alerts the EC on the North Sea cod stock, which was far outside safe biological limits (Fig. 2 and Table 1). Since 2001, ICES has recommended zero catch of cod in the North Sea and calls for a complete ban on the North Sea cod stock to prevent the stock from collapse. In 2002, the ICES recommendations included closure of fisheries that caught cod as bycatch.

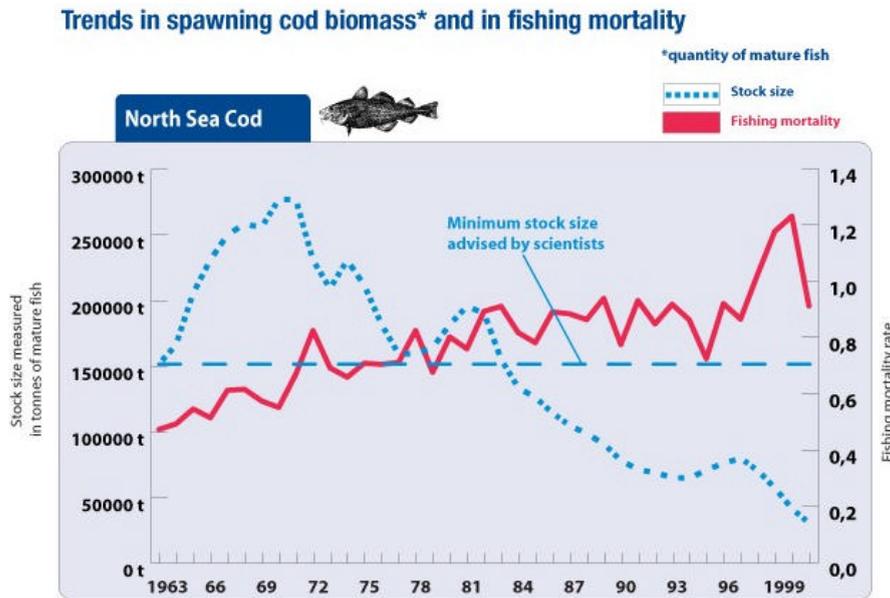


Figure 2: Trends of the North Sea cod stock (Source: DG Fish, Commission of the European Union).

Table 1: Spawning stock biomass, landings and fishing mortality of the North Sea Cod Stock (unit: tons)

Average on the period	1978-1982	1995-1999	Difference in%
SSB	178 340	73 970	-58.52%
Landings	299 880	125 760	-58.06%
Fishing Mortality Age 2-8	0.79	0.87	+10.13%

Source: EC, 2001, Green Paper, volume 2, pp.126.

Since 2001, the EC has cut the TAC for cod on the basis on scientific advices. Early in 2001, the EC has adopted emergency measures, consisted of closed areas to all cod fisheries during the spawning season. It has been completed in October 2001 by technical and control measures, especially an increase in mesh size (from 110 to 120 mm) for cod trawling, to improve the selectivity of fishing gears. Despite these emergency measures, catches are still higher than the productive capacity of the cod stock. Reported landings of cod in 2002 were 55 000 tons. In 2003, the SSB has been estimated at 52 000 tons, which is a third of the 150 000 tons that scientists recommend as a precautionary approach benchmark (Bpa)ⁱⁱ.

Instead of a complete closure of demersal mixed fisheries, the EC decided in December 2002 to adopt temporary measures for cod, including a drastic reduction of the fishing quotas and the introduction of the first-ever fishing effort restriction in Europe based on the geographical areas and groupings of fishing gears (restrictions of the number of days vessels can spend fishing). The multi-annual recovery plan to rebuild the depleted cod stocks has been adopted in early 2004 (Council Regulation N° 423/2004 of 26 February 2004), mainly based on fishing days restrictions. This regulation extends the recovery plan to the several other cod stocks (North Sea, Skagerrak and Kattegat, Eastern Channel, west of Scotland and Irish Sea).

French fishers in the North Sea fisheries

French fishers take up a weak importance in the North Sea cod fisheries. They harvest only 4% of the total landings, whereas Danish and Norwegian fishers harvest respectively 45% and 22% of the landings. Moreover, with a total French landings of cod around 11 000 tons in 2000, cod represents less than 4% of the total French landings of fish and shellfish (and 5% of the turnover). While French fishers were not much concerned by the emergency measuresⁱⁱⁱ, the recovery plan for the North Sea cod stock affects all North Sea fishers, even those who don't target cod.

In fact, the French fleet affected by the recovery plan is composed by 3 groups:

- Offshore trawlers targeting saithe or deep-sea species in the North of the fishing zones (ICES sub area IVa and II)
- Coastal trawlers targeting seabass, red mullet or squid... mainly in the South of the North Sea (ICES sub area IVc)
- Inshore netters targeting flatfish species (sole, plaice...) mainly in the East of the English Channel (ICES sub area VIIId)

Thus, French fishers mainly target other species than cod (such as squid, sea bass, red mullet, sole, plaice...). In consequence, cod is only a bycatch specie which is not economically important. For instance, cod represents only 3% of the netters' turnover.

FRENCH FISHERS PERCEPTIONS AND DISCOURSE ANALYSIS

The relationship between fisheries scientists and the fishing industry is vital. The advice of fisheries scientists must be seen to be credible, not just by their peers, but by the fishers themselves, if it is to be accepted.

Focused on fishers' perceptions, the discourse analysis of French fishers is based on semi-structured interviews and publicly available documents produced by fishers' organizations. Interviews with the representatives of the local and regional fishers' organizations have been conducted in May 2004.

It is possible to structure the French fishers' discourse around three topics:

- relevance of the recovery plan
- effectiveness of the recovery plan
- gaps in the decision-making process.

Relevance of the recovery plan?

French fishers express a global disagreement on fishing days regulation and underline the irrelevance of the recovery plan. This plan implemented to rebuild the collapsed stock of cod symbolizes several differences of perceptions between fishers, scientists and managers.

These three stakeholders don't have the same perception of nature and disagree about the causes of the state of the cod stock. Whereas the scientific community alerts on the state of the North Sea cod stock in danger of collapse, French fishers consider that the North Sea cod stock is not depleted but has just moved towards the northern North Sea. Concerning the perceptions of the causes, French fishers underline drastic change in the caught species for several years, due to environmental variation or ecological changes. They also mention other anthropic pressures (pollution). On the opposite, scientists consider that one of the major causes of this deterioration is the continuous very high level of exploitation and the fishing technological improvement. But scientists recognize that it cannot be excluded that changes in the environment play a role. In the last 10 years, the climate has changed and mean sea temperatures have increased. Changes in the sea currents have also been observed. The changes in

environmental conditions may be responsible as well for changes in the distribution as for abundance of the different species. According to the scientists, even if there is considerable speculation on the reasons for the observed changes, the major cause of the stock deterioration is the excessive fishing mortality and not the climate change.

Something more surprising is that both stakeholders mention the Canadian cod collapse, but they don't give the same interpretation of this example. Whereas fishers think that the Canadian example is the proof that the stock will never recover even if a complete ban is implemented, scientists use this example to justify that a recovery plan is immediately required.

Moreover, French fishers don't have the same perceptions of the management system, especially concerning the goals of the CFP. Instead of long-term conservation objectives, they favor short-term economical viability of their activity. Fishermen claim for a taking into consideration of social effects of the cod plan, not only by the implementation of accompanying financial measures, but mainly in the decision of the TAC level and the number of fishing days. Interviewed on the precautionary approach, they globally agree with this principle. However, in practice, they completely refuse the application of the precautionary approach to the North cod stock. To guarantee sustainable development, the precautionary approach to fisheries management means that even the absence of relevant scientific data cannot be used as a pretext not to adopt or to postpone the adoption of measures to conserve resources and protect their environment. Action is more imperative when available scientific findings point to a danger that is likely to grow worse, with potentially disastrous consequences. On the opposite, French fishers argue about the uncertainty of data and stock evaluation to postpone the adoption of measures.

As shown by the "two cultures" theory [7], disagreement about facts can have damage to the legitimacy of fisheries management in the eyes of the fishing public. Denying the depleted state of the cod stock, French fishers consider the cod recovery plan as illegitimate and thus irrelevant. They also consider the management system as unfair since they have changed their target species for several years. In fact, their catches have been shifted from relatively cheaper groundfish (like cod) to expensive species like seabass and red mullet.

Effectiveness of the management system?

French fishers underline the global inefficiency of the fisheries management. As proof, they mention the fact that the stock is still in a bad state despite the previous adopted measures (such as the drastic cut in the cod fishing quotas...).

First, they criticize the adverse impacts of regulation and call into question the consistency of the regulation. The emergency measures and fishing days restrictions have resulted in a fishing effort reallocation on other species and/or in other fishing zones, especially towards the southern North Sea. This reallocation leads to technical and resources conflicts, but also increased fishing effort in the southern North Sea, contrary to the aims of management. According to French fishers, restrictions on the fishing days also force them to take more risks during one day. Moreover, the fisheries regulation is too much complex to be enforced due to the multiplication of new rules. Because of this complexity, it is very difficult to respect the rules and it could be an incentive for poaching. The lack of enforcement is one of the main causes of perceived management failure for local fishers. But, although enforcement is clearly not adequate, few fishers suggest that enforcement should be more severe. The majority of fishers feel that enforcement should be modified. They perceive ineffective enforcement and wish some modifications of enforcement practices. They underline the importance of folk management (within the producers' organizations^{iv}) and enforcement by the community through peer pressure.

Secondly, French fishers have the feeling fisheries are mismanaged and misplaced. Scientists and policy makers are looking at the wrong issues. They don't take enough account of negative impacts of the industrial fisheries^v on the ecosystem. Industrial fisheries catch also juveniles of several species, including

cod and harvest species with low trophic level which are food for several other species. French fishers also reproach fisheries managers to disregard impacts of fisheries management on the markets and on the processing companies, especially with the high variability of TAC/quotas.

Lack of dialogue and transparency in the decision-making process

Many fishers believe that their views and knowledge are not sufficiently taken into account by managers and scientists. They regret the lack of co-operation with decision-makers in taking decision and formulating management tools. Despite the official declaration since the reform of the CFP, French fishers have not the feeling of an effective participation in the decision-making process.

First, there is a mutual mistrust between fishers and scientists about data on which management decisions are based. Fishers question the validity of scientific data and methods to assess stocks. According to them, scientists use inaccurate and obsolete data. In the same time, scientists from the ICES have observed substantial misreporting (underreporting) of roundfish landings associated with restrictive quotas, especially cod landings in 1998 and 2001. Thus, most of them are pessimistic concerning the reliability of data from fishers, especially commercial CPUE data and effort data. More specifically, there is a problem with data from fishers don't report discards.

Secondly, French fishers have an unfairness feeling about the negotiations between the EC and Norway (based on track records determine historical rights). The European TAC is less than 134 000 tons whereas the Norwegian TAC is about 450 000 tons.

Third, French fishers criticize the "inconsistent behavior" of policy-makers who implement new regulations without assessing the performance of the adopted measures

Finally, concerning the role of politics in the decision-making process, we can observe a mitigated perception among fishers of the political bargaining during the Council of Fisheries Ministers in December.

CONCLUSION

Cod stock has reached in recent years its lowest recorded values. Alarmed over the state of cod stock, the EC implemented in 2004 a recovery plan on the basis of scientific advice. However, there is controversy on scientific advice. Because of the adaptative capacity of the French fishers who have modified their fishing strategies (change in the caught species), the depletion of the cod stock has not involved a crisis process. On the opposite, the recovery plan, developed in the line with the precautionary approach for stocks in danger of collapse, is a bitter for fishers to swallow and has been more a source of conflicts and crisis than cod depletion.

French fishers do not embrace the recovery plan and the new system of fishing days. As usual, fishers search causes of depletion outside fisheries. They have a strong feeling of unfairness concerning fisheries management. They claim for deeper participation in collecting data and formulating management regulation. However, they express a global consensus concerning the regional advisory councils (RAC) in order to strength the relationship between fisheries science and the industry (consultation at national and regional level).

The North Sea cod case confirms the "two cultures" theory, i.e. the cultural gaps between scientific explanation and fishers' knowledge. This theory explains the main difficulties to effectively include fishers' observations. Breakdowns in communication caused by this difference in knowledge cultures are a primary reason for disagreements about facts and the consequent damage to the legitimacy of fisheries management to the eyes of the fishing public.

On the opposite, the fishers' lobbying behavior based on "scientific discourse" is more new. Fishers try to instrumentalise scientific argumentation in order to defend their point of views. Moreover, a willingness to develop self-funded research is observed. Fishers (through national fishers' organization and

producers' organizations) have expressed their intention to commission their own scientific analyses and hire scientists to incorporate fishers' knowledge and data in order to shape the fisheries management. Finally, these globally pessimistic perceptions of the management system are may be influenced by the specificities of the French North Sea fishers. Answering to this question is the goal of the PKFM program comparative approach.

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ENDNOTES

- i. The International Council for the Exploration of the Sea (ICES) is the main body for producing scientific advice regarding stocks in the Northeast Atlantic (including North Sea cod) to the EC and national governments. It is the prime source of advice on the marine ecosystem to governments and international regulatory bodies that manage the Northeast Atlantic Ocean and adjacent seas, such as the Baltic Sea and North Sea. It provides scientific information and advice on living resources and their harvesting.
- ii. However, the absolute value of the SSB in recent years is uncertain due to suspected increase in the proportion of unreported landings [5].
- iii. Thanks to regulatory zoning of the ICES fishing zones.
- iv. In Europe, producers' organizations (PO) are formed by fishermen or fish farmers associating freely in order to take measures to ensure the best marketing conditions for their products. While membership is voluntary, PO members have to respect rules in their production and marketing operations. Members must sell their products exclusively through the organization thus concentrating supply. POs manage the system of fish removals (taking fish off the market when prices fall) and enforce the withdrawal prices. In some Member States, POs are not only dominant in the market but are also involved in the day-to-day management of quotas.
- v. Industrial fisheries are defined by the use mode of their catches. Production is destined for industrial purposes other than human consumption (fish meal and oil). It represents a very important activity in northern Europe. The Member States involved in this activity are primarily Denmark and the United-Kingdom. In the North Sea, landings generally range between 1 and 1.5 million tons a year, or around half of all landings [6]. Their catches mainly consist of sandeel, Norway pout, blue whiting and sprat. The industrial catches also contain bycatches of other species, including herring, haddock and whiting.