PARTICIPATION, ACCOUNTABILITY, AND THE EUROPEAN UNION'S COMMON FISHERIES POLICY[1]

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ABSTRACT

In the 2002 CFP Reform, a potentially significant change that took place involved tentative steps toward increasing stakeholder participation if fisheries governance. Participation by the fishing industry (and conservation groups) in the management of fisheries is, in general, a positive thing. However, participation has many different 'practical definitions,' i.e. it means in different things in practice, and not all of them are the ideal 'participation means we are all working together to improve fisheries management". Participation may mean 'we work for our goals and try to exclude others from the resource'. Perhaps the most common practical definition, however, is 'participation means our chance to hold other stakeholders accountable. The present paper examines this last practical definition of participation - holding others accountable - in terms of its impact on scientific deliberations of the fishing industry's general participation in fisheries governance. The focus is on the ICES system and the scientific deliberations around North Sea Cod. In this context, participation means accountability on a variety of levels. Because the EU managers must account to the fishing industry they demand that this advice be delivered in ways that facilitate this accountability. The scientists also feel directly accountable to the industry, which changes which issues they emphasize, and seek to ensure consistency and fairness in their advice beyond what is biologically justified. Through a micro-level examination of these impacts, the paper illuminates the dynamics of participation as it plays out in the real world.

Keywords: Participation; Fisheries; EU

INTRODUCTION

The participatory mode in fisheries governance begins with a shared understanding of what is going on in the sea. Sharing such an understanding implies that an approach to developing the scientific basis of management decisions that has itself, in some sense, been participatory. This idea should raise some eyebrows. Our common sense understanding of science, for good reasons, does not include the idea of 'participation'. Science is supposed to yield objective knowledge, not participatory compromises. The role of science in fisheries management is precisely to provide objective information about the situation that the can be used to make participatory decisions about responses to the situation. Participation, after all, is a polite word for politics, and science is supposed to be shielded from politics.

Jasanoff (2002) is one of a growing number of voices expressing an alternative approach to science and policy. While the West has spent the past 30 years developing institutions that are supposed to protect policy-relevant science from politics, she argues, this vision has never been achieved. Within every policy arena where science is relevant it has been continually re-entangled in politics. However, the world is changing and this entanglement is taking on different kinds of meanings. In the past, when totalitarianism and nuclear weapons were the defining images of science and technology, the danger was a "monolithic alliance of science and technology with the state" (367). Now, however, "it is the turn of civil societies to insist that the production of policy relevant knowledge should be made available for public scrutiny and input. To politicize science in *this* way - that is, by making in publicly transparent and accountable - is not the same as allowing science to be captured by the special interests of state and industry. Public accountability, carefully institutionalized, can only promote the interests of democracy" (368).

A clear case can be made for the application of Jasanoff's reasoning to fisheries. The early post-war years were indeed often characterized by an overly close cooperation between the fishing industry and the agencies responsible for the assessment and monitoring of fish stocks (McEvoy 1986), so a 'monolithic

alliance' justifying itself with biased science was a real danger. It is hardly a danger today. Fishers face regulatory agencies staffed by scientists who have strongly embraced the precautionary principle (Wilson et al. 2002) and any openings for fishers' participation in the scientific aspects of management could only conceivably exist within a civil society context in which marine conservationists would also have standing. Checks and balances would be in place that would allow Jasanoff's public transparency and accountability to make a positive contribution to the accuracy and legitimacy of the science being used by management decisions. Hence, we do not see a problem stemming from the basic idea of civil society participation in fisheries science.

The question is how such participation should be achieved. We believe that one important key lies in understanding the relationship between the physical (and social) scale of what is being managed and institutions doing the management. There are numerous examples of a knowledge base for fisheries management being produced through cooperation between scientists and fishers on *small* scales that are perceived by most stakeholders as useful and legitimate (Wilson 1999). However, collaborative programmes dealing large-scale fisheries have been much more focused on involving fishers in particular roles, often as data gathers (Bernstein and Iuddicello 2000) or reviewers of completed science, without achieving participation in a broad sense. In fact, in our assessment, social scientists do not know very much about how to 'carefully institutionalize' large-scale institutions to allow participation in science to 'promote the interests of democracy'.

As the data presented in this paper will demonstrate, the issue is not in any important sense a problem of unresponsive bureaucrats or a lack of political will. It is a problem of institutional coordination; it is about the possibilities and constraints in how institutions make and communicate decisions. We examine aspects the production of scientific knowledge for fisheries under the EU Common Fisheries Policy in general and in relation to North Sea Cod in particular. In our close observation of examples of these processes we actually found a good deal of *accountability* traceable to the concerns of the fishing industry, as well as extensive and honest attempts by many fisheries scientists to be *transparent* about how scientific decisions are arrived at. Yet this accountability and transparency has in no way led to a knowledge base for fisheries management perceived by stakeholders as useful and legitimate. Indeed, the scientific structures of the CFP are so reviled that some groups of fishers openly and actively resist providing it with any data at all.

Our intent is to provide a systematic analysis of the impact that the current forms of participation have on the science structures of the CFP. The participation that is happening now is a long way from the ideal of participation. It takes place mainly through the intervention of politicians, lobbying by European and national organizations representing the fishing industry (and conservationists), and at times through active political resistance. This participation is strongly influenced by rivalry between and among fisheries and member states. Nevertheless, it is a form of participation that generates forms of accountability, demands transparency, and has real impacts, both positive and negative, on the way science is done. Indeed, what is happening with fisheries science in the CFP is, we believe, quite representative of stakeholder participation as it is actually carried out on large scales. Our hope is that an empirical analysis of the impacts of current large-scale, participatory practices, however flawed, on the generation of scientific advice will be a greater contribution to improving those practices than if we were to write an essay on how it might be done.

THEORY AND METHODS

Once a social scientist has concluded that participatory approaches are desirable, and the question has become what kinds of research will contribute to learning how to make such approaches work well at larger than local scales, there are many theoretical traditions to choose from. Within Anthropology and Sociology, however, most of these approaches are based on the examination of small-scale processes and do not provide tools to explicitly examine scale. This weakness is not shared by Political Science and empirical work in that discipline has indeed made important contributions to our understanding of both scale and participatory institutions (e.g. Ostrom 1990). They have achieved this, however, by using game theory or other approaches based on an atomistic theory of motivation grounded in instrumental rationality. This works very well as long as it is applied to institutional contexts where the "game" metaphor is a good fit with the way people actually approach situations.

This very strength, however, makes it less useful for understanding how to improve participatory processes in other institutional contexts where assuming that the process is a game is tantamount to assuming that the process will, at least to some degree, fail. To the extent that people interact as tactical

opponents in a process they weaken those aspects of the outcomes that are the central aim of participation: legitimacy and cooperation. We cannot ignore the fact that people do interact as tactical opponents, but we will achieve little progress in improving participatory governance within large-scale institutions if we assume, either as a simplification or through an empirically uninformed understanding of society, that it is the only way that people interact.

It is these considerations that point us toward Habermas (1984, 1987) whose Theory of Communicative Action uses a dual theory of motivation in which actors are oriented both to instrumentally rational goals and to achieving a mutual understanding based on what he calls 'communicative rationality.' This is a unique and important contribution, even if a somewhat incomplete one. The coordination of social action requires the existence of mutual understandings. His investigation of the underlying logic of communicative rationality, which he presents in tandem with a theory of social systems, has provided a starting point for analyzing the relationship between communications and scale. For fisheries management, this has been developed further (Wilson and McCay XXXX, Wilson and Jentoft XXXX, Wilson 2003) in the direction of examining how both the rationalities of instrumental competition and of communication to achieve coordinated actions coexist within social conflicts and help shape institutions. While there is no space for a full description the main points of the theory relevant to the present paper are that:

Institutions are shaped by tacit bargaining between groups in pursuit of diverse and/or conflicting goals;

Institutions need communicative mechanisms to coordinate social action;

Such mechanisms have strengths and weaknesses that are scale dependent;

The mechanisms that work well on small scales tend to allow institutions to have greater sensitivity to social values and factual truth;

The mechanisms that are effective at coordinating behaviour over large scales tend to distort the contents of communications by restricting what can be communicated;

Institutions are expressed, reproduced and marginally changed by micro-level behaviours and are, therefore, analysable by the observation of the norms guiding such behaviours.

Science is an institution that relies heavily on what Habermas calls non-distorted or rational communications, which is a mechanism that allows institutions to be sensitive to factual truth, about nature of example, but which is poorly equipped for coordinating behaviour across large scales (Wilson 2003). Non-distorted communications meet two conditions: there is no manipulation involved in the communication and that everything communicated is open to any question, from any participant, about its validity (White, 1988). This model should not be thought of as an attempt to describe empirical conditions. It is a norm in the sense used in the last paragraph. People use it as a yardstick to evaluate the kind of communicative situation they find themselves in. While no one expects the conditions to be fully met, they have to be met to some degree if a convincing shared reality is to be reproduced (Habermas and Nielsen, 1990). Science, as Merton (1968) pointed out, makes very heavy use of norms that seek to maintain non-distorted communications because institutional sensitivity to the truth requires, more than any other communicative facility, an openness to the raising and evaluation of any claim without *a priori* constraints.

The terms institution and norm need a bit of fleshing out here. Following Scott (1995), we see institutions as patterned social interactions with regulative, cognitive and normative dimensions. This is not the more common 'rules of the game' approach. The emphasis is on shared meanings that define behaviours and cognitions as fitting or not fitting particular normative patterns. Hence, where other scholars may choose to analyse institutions by examining the written rules that emerge from formal bargaining, we feel that it is necessary to delve further into the link between institutions and actual behaviour. In recent decades the term norm, for good reason, has gone out of fashion in sociology because earlier uses implied values so wide shared that they were seen as structural components of society. This idea had few empirical referents in a conflict-ridden world. Norms, as we use the term, are not structural but phenomenological. They do define appropriate behaviour *a priori*, rather they created through processes of deciding on, rationalising and accounting for behaviour (Heritage 1984). It is these processes that link shared meanings to behaviour. Norms are not empirical phenomena, they are cognitive phenomena, they are counterfactual ideals through which observed behaviours (including acts of speaking)

are understood. This observing, rationalising and judging, however, reproduces institutions and has tremendous influence on subsequent behaviour.

This idea of norms as an analytic link between micro-level behaviour and institutions defines the method we take in this paper. One of our central research questions is what kinds of influences could we discern on these scientific process from other institutions that make up the fisheries system in general. For this paper we focus on the influences on these deliberations that are traceable, sometimes directly but mainly channelled through the European Commission, to the needs of the fishing industry to hold scientists accountable for the impact of their advice on fishermen. We conceptualise and term these links as forms of 'accountability'. The main reason for using this basically positive term for what also might be called 'political pressure' is because we believe that participation, even when hampered and distorted by large scales, is helpful and necessary. Stakeholders such as fishers, managers and scientists have a right in democratic societies to hold each other accountable. The tools we currently have for doing so, however, are blunt and crude and can have the possibility of hindering, as well as helping, processes of creating pictures of nature that are both accurate and shared. The point of this paper is to describe the effects of these forms of participation on the work of scientists in hopes of finding ways to improve these tools.

Research activities were carried out under the auspices of the ICES Working Group on Fisheries Systems. We observed in detail two scientific deliberations within the ICES system, the September 2003 meeting of Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak and the October 2003 meeting of the Advisory Committee on Fisheries Management. We also observed two meetings of the Scientific, Technical and Economic Committee for Fisheries. We carried out both formal and informal interviews with fisheries scientists. Publicly available documents such as ICES and STECF reports and the Memorandum of Understanding between ICES and the EC were also analysed. Notes from observations, informal interviews, and original documents were analysed using qualitative data analysis software (NUD*IST).

Fisheries advice for Europe is given through the ICES system. ICES, The International Council for the Exploration of the Sea, was founded[1] in the late 19th Century to investigate both natural and man-made causes for fluctuations in fisheries stocks (Rozwadowski 2002). ICES is an inter-governmental organization that coordinates and promotes marine research in the North Atlantic, including adjacent seas such as the Baltic and North Seas. With more than 1600 marine scientists from nineteen countries around the North Atlantic, scientists working through ICES gather information about the marine ecosystem. This information is used to fill gaps in existing knowledge; it is also developed into unbiased, non-political advice. ICES advice is used by the nineteen member countries to help manage the North Atlantic Ocean and adjacent seas.

ICES has three advisory committees that provide advice on marine ecosystem issues. The committee of interest to this chapter is the one which provides advice on fish and shellfish stocks, the Advisory Committee on Fishery Management (ACFM). The ACFM is the official scientific body providing advice to the Commission of the European Union (EC). The Commission also has its own advisory committee, STECF (Scientific, Technical, and Economic Committee for Fisheries), which often consists of many of the same members as ACFM working groups. When this chapter refers to scientific advice, the discussion is referring to advice from ACFM and STECF scientists to the EC.

ACCOUNTABILITY FROM MANAGERS' ADVICE THAT FACILITATES THEIR RELATIONSHIP WITH INDUSTRY

Our examination of the relationship between the Directorate-General for Fisheries (known commonly as DG Fish, DG Fisheries, and DG XIV) and fisheries scientists within both ICES and DG Fish's own STECF has uncovered a number of ways in which DG Fish is holding the scientists increasingly accountable. This tightened accountability can be directly traced to pressures stemming from participation of the fishing industry, and to a lesser extent, conservation NGOs, in fisheries management. Scientists are accountable for providing advice in a form that facilitates the managers' relationship with industry and other stakeholders. Communication between DG Fish and ICES contain reference to at least five important kinds of changes in the way scientific advice is formulated and communicated.

A shift from the fish stock to the fishery as the basic unit of reference for advice
A demand that advice not be open to different interpretation by the various stakeholders
A demand that advice be less restrictive of manager's responses and options
A need to consider technical measures
A need to remain consistent in expectation of the harvest (catch?) goal

Given the abbreviated nature of IIFET papers, this paper examines only the first of these kinds of changes in turn, asking what impact they are having on how advice is formulated and communicated.

SHIFTING FROM THE FISH STOCK TO THE FISHERY AS THE UNIT OF REFERENCE FOR ADVICE

The institutional reality of fisheries management, from a much broader perspective than simply biology, is driving ICES towards giving advice in based on fisheries, many of which affect several fish stocks, rather than fish stocks as the basic unit. Historically, ACFM scientists provided advice on fish and shellfish in the form of single stock of a single species. Such advice is based on well-established theory and practice in fisheries management based on the principle of density-dependent population regulation (Rosenberg et al. 1993). From a purely biological perspective, questions about managing multiple species were of more concern during the 1970s than today. While predator-prey interactions are important, few scientists still believe, as some did then, that such interactions undermine the validity of stock assessments for single species (Peterson 1993).

> *The Commission, in response to the needs of the industry, are making the case for this shift from the stock to the fishery. As the STECF has said:*
> *ICES advice is explicitly single species though on occasions a comment is included that management should take the restrictions on another stock into account. Whilst it is helpful to have the issue stated, the failure to provide suitable advice is a problem. In the particular instance of recovery plans there [are] often extensive interactions between the catches of different species in the fishery. There is a need for fishery based options, which provide matched restrictions to* ***mixed fisheries*** *at a range of rates of exploitation.* 13th Report of the STECF, November 2001)ppxxxx

From the industry and Commission perspective single species advice ignores the basic reality that it is fisheries, i.e., a hard to define complex of fishing ports, fishing boats, and fishing gears, that managers actually manage. The term 'mixed fisheries' in the quote above is the critical one because the problems that the fishing industry is holding the managers accountable for arise where a 'fishery' is fishing for more than one 'fish stock'. For example, boats that fish for nephrops also catch cod as bycatch. If, as current ICES advice would have it, there was a complete ban on the capture of cod, these nephrops boats would be unable to fish for the nephrops that they would otherwise be allowed to catch. The 2002 report of the Working Group on the North Sea and Skagerrak explains the issue as follows.

> *Current advice provided by ICES is mainly given in the form of fishing mortality limits and associated catch options, which are derived separately for individual fish stocks. This form of advice has two major disadvantages.* ***First, it takes little account of biological interactions****. Second, the stocks being analysed are often caught together in mixed- species fisheries, so the catches of species harvested by a given fleet are not independent of each other. This process is traditionally referred to as technical interactions. If, as currently, TAC are set independently for each stock, fishing for one species may lead to discards and/or misreporting of another species, for which the TAC has already been reached….. **The Commission has** on several occasions **acknowledged the need** to deal with technical interactions in ICES advice. This year, a request has been made to ICES to compile age- structured catch and effort data by fleet as appropriate, and to initiate multi fleet multispecies short- term forecasts based on these data.*(pp XXXX)

The bolded wording suggests that dealing with mixed fisheries is both a scientific issue and an ICES initiative. The complexity that the question of mixed fisheries brings to the boundary between what is 'management' and what is 'science' will be discussed further below. In 2003 ICES initiated a Study Group for the Development of Fishery Based Forecasts to try to define fisheries and establish a framework for

pulling together the necessary data. They chose to base their definition of fisheries on a combination of engine power, gear and mesh size (SGDFF XXXX), hence excluding the question of fish species, or any other biological variable, from the definition of fishery.

The move toward mixed fisheries influences the ways that scientific advice is produced in a number of ways:

It requires that biological advice be fitted to a social unit rather than a biological one;
It encourages a consistency in descriptions of scientific outcomes;
It blurs even further the distinction between 'science' and 'management'.

We discuss each of these influences in turn.

Fitting Biological Advice to a Social Unit.

A fish stock is a natural phenomenon while a fishery is a social one. The move from basing scientific advice on a natural concept to a social concept is a profound one. Social scientists have long understood that the difference between references to things in the natural world and the social world is a critical part aspect human communication (Festinger et al. 1950). A reference to something in the natural world involves material substance that makes verification possible in principle. The social world, at least as we define it here, is a communicative system made up shared meanings that can only be interpreted and never directly verified. Whether or not one agrees intellectually with this definition of the boundary between the two worlds[2], as an empirical reality this distinction, defined in this way, is built into the most basic coordination mechanisms of many social institutions (Habermas 1987) and is critical to fisheries management (Wilson 2003).

While there are certainly many scientific complexities around defining a fish stock, e.g. genetic variation, migration, spawning behaviour etc., these are the kinds of questions that fisheries scientists are trained to resolve. Fisheries, on the other hand, are social units with porous boundaries that individual fishers can cross, in fact, fishers can unconsciously or deliberately blur the boundary between various fisheries. Fisheries compete with one another among ports and nations, and have lobbyists and politicians that speak for them.

This shift changes the way that the fish themselves are understood, as classifications are driven by social rather than biological concerns become more important in the discussion. During the ACFM meeting scientists reported that fishers had communicated concerns to them about scientists examining catch composition and making judgements about which species were targeted and which ones were bycatch, an economic distinction having nothing to do with fish biology. Nevertheless, if scientific advice is to attach to fisheries, then the fisheries must be defined and as precisely as possible. The required precision, of course, stems from the fact that managers must apply often costly and contested regulations to fisheries. Consequently, if it is not completely clear who or what is in that fishery, then regulations cannot be implemented.

ICES is in the process of trying to develop models for mixed fisheries that would allow managers to predict the complex outcomes for many fleets fishing for several fish stocks. We observed some of this process at the 2003 meeting of the ICES Working Group on the North Sea and Skaggerak where the scientists were concerned with building such a model focused on the North Sea Cod, including other fish stocks caught by fleets that caught cod both as a target species and as bycatch. They defined the fishing fleets based on gear and mesh size and included the fleets for which they had the necessary data for a total for, at total during this meeting of 83 fleets. The definitions of fleets used were a controversial point among the scientists. Getting useful and comparable for all these fleets was perhaps the greatest challenge and they were glad to have the data they had, even if it was only for one year. Collating the data for the eventual use of this or similar models for management advice was going to require the attention of several ICES working groups. More "aggregate data," i.e. total landings by fleets and countries was available than data on the age composition of the catch. Age composition is an important aspect of stock assessment models so whether or not to use simple aggregate data was a point of discussion. It was clear to the scientists that these data problems precluded any use of the model in decision making, and they were concerned that this would be misinterpreted. The models results were very sensitive to decisions about how the fishing fleet were defined and combined, which suggested that the model should be set up to combine fleets as little as possible, the structure that would be the most demanding of good data. Another problem was how to handle

the question of relative stability, i.e. the principle in the CFP that the relative shares of fisheries enjoyed by countries does not change through management decisions.

At the Fall 2003 ACFM scientists were confronted with having to figure out how to generate fisheries based advice based on this new unit in the face of the extremely serious situation with cod in the North Sea. Seriousness which showed itself both in terms of the low numbers fish – the biological reality of the stock – and economic implications for the people making their living in the related fisheries. Their data about the condition of the stock led to an unquestioned consensus that fishing on cod needed to be reduced to zero. As one scientist put it at ACFM: "are we giving stock or fisheries advice, are we bound because we give fisheries advice to ignore that this stock is near commercial extinction" (from observers notes). But what did this mean for fisheries on other healthy stocks that could not avoid catching a few cod. They could not simply say "a few cod would be alright" a few cod from many other fisheries would be many cod. They were loath, however, to put fishers fishing mainly on healthy stock out of work. The scientific decision they were being asked to make was unavoidably also a political one as soon as the focus was shifted to fisheries. An exchange at ACFM put the issue as follows:

> ***Session leader;*** *the problem is the linkage of stock and fisheries advice, and that is a problem. We should not say 'closure of all fisheries' but 'a zero catch of cod' then we raise the question of closing the fisheries. But we* ***have to keep the fisheries and the stock separate things****..[further discussion]..****Another scientist****: We don't want to take away the strong message [about the cod, but] we are giving unclear advice that says you can have fishing and not, we cannot escape criticism.* ***Leader****:this is moving in the right direction, we must anticipate that criticism with some text.* (from observer notes at the ACFM meeting in October 2003*)*.

At least in this case, the scientists were unable, in the end, to shift the scientific advice from the natural unit to the social one.

Fairness in Fisheries Management: Consistency and Scientific Advice

Required to give advice for multiple fisheries, scientists are very concerned about consistency among advice for stocks and fairness among sectors. The source of this concern is the participation of the industry. It is not a new thing. Scientists have always been concerned about consistency in terms of making consistent use of the best information and methodologies. They have also been concerned about treating different fisheries consistently long before the fisheries-based advice became an issue. Nevertheless, the turn to fisheries based advice intensifies this desire for consistency.

As the following quote indicates the EC is held accountable by the industry for fairness among member states and fishing sectors:

> *When ICES advises a closure for cod, haddock, and whiting and not for plaice, sole, and nephrops, there is a perception in the whitefish sector that the flatfish sector is not taking up its share of the conservation burden. We need equitable and credible mixed-fishery advice. The advice given for one may be in conflict with advice for other stocks, limiting the credibility of the advice;* (An ICES official quoting a concern expressed by the EC*)*

The Commission wants ICES' scientific advice to be equitable and credible. Credibility is a clear enough idea from a scientific perspective, science is about credibly explaining how you know what you say you know. But equity? Equity is about distributive justice, it enters fisheries management through the desire of various user groups to be treated fairly (Loomis and Ditton 1993). How can scientific advice be equitable? The closest a scientist can come to 'equitable advice' is be as consistent as possible in the ways they analyse and describe the various fish stocks (and now fisheries). Yet consistency of outcomes and descriptions of those outcomes is not a scientific value. In fact, good science tends to uncover differences.

ICES response to the particular EC concern quoted above illustrates this:

The situations were not similar as the fisheries in these areas were not identical, they take place on different grounds, cod is more in the north of the north sea while plaice and sole are generally more southerly. ICES attempts to point to critical links between fisheries and provide good current advice, but the situation may change from year to year [nevertheless]….ICES has started to move toward fleet-based advice. (The same ICES official describing ICES response)

To raise an argument such as "we have to do it this way for sole because we did it this way for sprat" is to draw on other norms than scientific ones. Furthermore, as it is accountability from the industry

that is driving this need for consistency, it is in the public face of the advice that the consistency is most imperative. Leaving open the possibility that publicly offered explanations of conditions of fish stocks will be simplified to the point where differences are no longer apparent (see the comment of Scientist One below). This norm of consistency, however, has a strong influence on scientists' deliberations.

During the ACFM discussion of cod in October, 2003 the scientists' desire to be consistent about advice for cod influenced their Interactions many times. In our first example, they were discussing how to deal with the ways that underreporting of catch (from both discards at sea and unrecorded landings) influenced stock assessment outcomes. Some amount of cod was removed from the stock by the fishery over-and-above the removals that the scientists had information about. This difference was serious enough so that it was one of two prominent reasons (the other being that the extremely small size of the cod stock itself introduced uncertainties beyond any scientists experience) that the WGNSSK, the working group that does the cod assessment, had declined to make forecasts about future of the stock based on their assessment. This decision led to a number of discussions at ACFM including the following:

> ***Scientist One****: I had real concern about landings in 2001 about 2002 I don't know, I feel that 2003 will be weak again. In 2001 there will not change the advice so customers may say 'you must have a forecast' but for advice we don't need the forecast [cod was so low that no prediction was necessary about the impacts of fishing in the coming year as it was clear to them that no amount of fishing could be considered]. Scientist Two: if we are going to do a forecast I would rather it not be us. We can't correct for a bias in landings for an analytical forecast, let those who want massaged figures to do the massaging... **Scientist Three**: we need a decision, the biggest argument for getting a forecast is consistency, where does the burden of consistency fall, in sub groups [i.e. on judgements about individual stocks] in plenary [where the general advice is formulated]. **Scientist Four**: the art is for the sub-group to begin consistency by being internally consistent, but we need to be consistent about how we deal with language about under-reportin.* {from observers notes for at the ACFM meeting in October 2003).

In spite of the fact that they already agreed that scientific advice for cod stock had to be zero catch, and that the cod stock was in such a condition that singling it out for special treatment, i.e. not offering a forecast, was justified scientifically, they were still very concerned that they describe the cod in a manner consistent with other stocks. This concern was driven, in this case directly, by the response of the industry to the issue of underreporting. The conclusion was to be careful that underreporting was dealt with the same way for each species within the language of the official advice.

Another exchange took place a while later. It illuminates the strength of the desire to be consistent:

> ***Scientist One****: Don't write anything, leave it, it is too complicated, just say they [biological reference points for cod] have been updated. **Scientist Two**: We agreed that we could not do forecasts, so if we change reference points based on the same assumption, here we say we can revise a reference point in the medium term when we said we could not for haddock. **Scientist Three**: Is this repeating the medium term exercise? **Scientist Two**: We should be consistent. **Scientist Three**: Yes, but what is the Fpa based on. **Scientist Four:** The algorithm was run again at the same age range. **Scientist Three**: So it is technically the same. **Scientist Five**: A couple of well crafted sentences about changing age ranges and rescaling the reference points to make it clear what we have done in the introductory pages, otherwise I agree with Scientist One. **Scientist Two**: I am just saying for cod we concluded one thing and for haddock another because of the selectivity pattern. **Scientist Four**: The concern is starting stock sizes and that does not matter in the long term, in haddock it is the exploitation pattern and that matters in the medium term. **Scientist Two**: I don't want to complicate things, but if you then go to sole and only look at Floss the revised reference point for sole was only .56. **Scientist Three**: It was updated in different ways and was supposed to reproduce what was done, but it doesn't?? [Scientist Two is outnumbered and gives up with body language clearly suggesting dissatisfaction with the outcome.]*

During this exchange no scientist questioned the idea that the assumptions underlying the identification of reference points for cod and haddock should be the same, even though were important differences in the condition and available information about the stocks, as evidenced by Scientist Four and Five's comments. Scientist Two, however, was emotionally committed to the idea of consistency and

pushing for it to an extent that the other scientists all thought would make the advice unnecessarily complex.

Mixed Fisheries-based Advice and the Line between Science and Management

The boundary between science and management is seen by scientists as a critical one. Indeed, it is the basis of how scientists understand their role in fisheries management: scientists describe what is true about nature and then managers decide what to do about it (Wilson and Degnbol 2002). In practice this is a very hard line to maintain. All stakeholders at least nominally support this clear line between science and management. As a EC official told us in an interview: "*advice should tell managers **what** to do, not **how** to do it*." Moving toward fisheries-based advice, and toward advice dealing with mixed fisheries in particular further obscures this already porous boundary.

The following exchange took place at the WGNSSK among a group of scientists working on the development of a fisheries-based model to aid managers in understanding interactions between different fisheries. The exchange illustrates two interesting things. The first is how the scientists, particularly on the level of a sub-group working on the nuts-and-bolts of figuring out how to meet the needs of managers have to feel their way into the details of a leading-edge question like mixed fisheries without having a very clear idea of what their work is going to be used for. Along with this is the real concern they feel that their work is going to be misinterpreted or misused by managers and other stakeholders who will be reading it. Particularly the suggestion by Scientist Six at the end of the exchange tells us something of the level of this concern.

> ***Scientist One**: When we have completed this data base what shall we use it for**? Scientist Two**: Are we using this to produce alternative advice? **Scientist One**: Yes. **Scientist Two**: It will be used as an example. **Scientist Three**: ACFM wants to see this kind of thing. **Scientist Two**: It is illustrative, management will not be based on it this year. **Scientist Four**: We should use the 2004 data so people don't pick it up and use it as something real..... **Scientist Five**: What I thought I would do is to use the data from last year's STECF meeting and do an exploratory analysis with data sets that are not proper enough for good results, we will use the analysis to explain what the model is doing and how it can be used..... **Scientist Three**: Ideally it would be better to use the same data set. **Scientist Four**: But if it is just an example it won't matter. **Scientist Six**: Maybe you should use bad data so no one is tempted to use it for something inappropriate*.(WGNSSK Sept. 2003 observers notes.)

In the plenary later on, this same model was evaluated as much in terms of its management implications as its technical characteristics.

> ***Scientist One**: This is dangerous, let me give you an extreme example, a fleet is catching 100kg of cod and no other species. Another is catching 1000 kg of cod and 10,000 plaice. It is the first that will have to stop fishing! **Scientist Two**: No, that is why you have option P1 and P2, so that managers can make decisions like this [Ps refer to the fact that the model gives managers the option of reducing each fleets catch equally or in proportion to the species composition of a fleet's catch, or in proportion to it portion of the catches of all fleets combined]. **Scientist Three**: We need to put in all the calculations, we can't put forward only one analysis. **Scientist Four**: You just suggested we put forward a scenario, while I thought this was just a sensitivity analysis. If you suggest options, one may be taken up, but this sensitivity analysis shows that this model is very sensitive to how it is set up. **Scientist Five**: But that is a political decision… If we don't think we can explain this we should not put it forward. **Scientist Four**: After this discussion about Scientist One's point it sounds like we can't really explain this model **Scientist One**: Instead of naming the fleets give them a code or something so they can't use the data except for sensitivity. **Scientist Five** [visibly frustrated]: We step forward and a soon as it becomes a little political we say lets cover it up so you can't see it.* (WGNSSK, Sept. 2003, observers notes.)

Each of the scientists is coming at defining the line between science and management in respect to mixed fisheries in a different way. Scientist One wanted to make sure that nobody was going to be able to use the model to make decisions while there were possibilities of "dangerous" inequities in results. He

wanted to put the data in a code that obscured the identity of the fleets so that it could never be misused. This idea lead to Scientist Five making strong objections. Scientist Two (explaining the approach taken by the sub-group, which included Scientist Five) wanted to give the managers options based on pre-programmed model parameters, so that 'managers can make decisions' within these predefined options. The options were likely intended to help the managers avoid, or at least deal with, the inevitable political wrangling between fleets as they competed to avoid having their portion of the mixed fishery cut back as little as possible.

The scientists at ACFM pickup this discussion of the mixed fisheries from the WGNSSK. They had put aside the model being developed at the WGNSSK both because it was not fully developed and tested and because their was insufficient data. They were still forced to deal with the underlying issue. What follows is an excerpt from their discussion:

> ***Scientist One:*** *I think really we need to say there is not science-based way of establishing what minimum [bycatch of cod] means and how it should be distributed among the fisheries. The managers have to deal with the ratio between the fisheries. [Extended discussion followed of the seriousness of the cod problem and the need for a 0 catch.]* ***Scientist Two****: We could have an opening statement saying the catch should be 0 and all fisheries closed, then continue with this text [saying that bycatch should be minimized].* ***Scientist Three****: I agree to a large extent, but it should be made conditional on the implementation of the cod recovery plan [a plan under consideration at that time by the Council of Ministers] as that would take account of the mixed fisheries.* ***Scientist One****: The evaluations or recovery plan last year shows that that would take 8 years.* ***Scientist Three****: That may be acceptable to managers.* ***Scientist Four****: Yes, but to the stock.* ***Scientist Five:*** *This is, of course, a management decision, but you need to decide if you are giving stock advice or fisheries advice, this is the mixed fisheries issue. You stated in your evaluation of the recovery plan that you said it would work, so why say 0 here?* ***Scientist Three****: We are saying that we should give advice contingent on recovery plan. We need input from managers in priorities if we give fisheries based advice.*

The scientists, without the possibility of a 'science-based way' or even a mathematical description of how bycatch could be distributed, continued to struggle with what their advice should be and what role it should play in the midst of a broad, and confusion, set of possible management scenarios for cod. They felt the need for a dialogue with the managers, with input about priorities, but this contradicted the formal role they are supposed to play to provide 'objective advice'. The main outcome of the debate is the following text from the ACFM Report:

> *...for the mixed demersal fisheries catch options must be based on the expected catch in specific combinations of effort in the various fisheries. The distributions of effort across fisheries should be responsive to objectives set by managers, but also must result in catches that comply with the scientific advice presented above.....An evaluation of how any combination of effort among fleets would affect depleted stocks would require that the catch data on which such estimates were based included discard information for all relevant fleets. Such data have been collected for many fisheries, but have not been made available to ICES. Therefore, ICES is not in a position to present scenarios of the effects of various combinations of fleet effort. However, if reliable data on all landings and discards by fleet were available, it would be possible to present forecasts based on major groupings of fleet/fisheries, and evaluate the impacts on cod and other rebuilding species of various distributions of effort among fleets. If management were to allow any demersal fisheries in 2004.... some catch of cod would be inevitable, and therefore the fisheries would be inconsistent with the ICES advice. It is obvious that the larger the catch of cod the larger the risk that the stock will decline even further, and the greater the discrepancy from the ICES advice.... However, the data...do not make it possible to calculate the true catches (and hence the impact on the stocks) by fleet or fishery. Therefore, there is no defensible basis for suggesting what fishing opportunities would still ensure no catch of cod and few discards of plaice and sole. (ACFM Report Oct. 2003 pp 222).*

The text reflects the discussions. The inability of ACFM to resolve their dilemma is placed squarely on the data problems. This choice of emphasis re-establishes the boundary between science and

management and portrays this line once again as a clear one. Once a model has been developed that allows a mathematical description of the distribution of by-catch, and adequate data collated to run the model on the actual fleets involved, the model itself will stand on, define, and will like in some fashion, such as the P options described above, hide the porous-ness of that boundary.

CONCLUSION

This paper has provided a very brief introduction to the issue of participation in European fisheries. In the 2002 CFP Reform, tentative steps were taken toward increasing stakeholder participation in fisheries governance. Participation by the fishing industry (and conservation groups) in the management of fisheries is, in general, a positive thing. However, participation has many different 'practical definitions.' In this paper, 'participation means our chance to hold other stakeholders accountable, especially in terms of its impact on scientific deliberations of the fishing industry's general participation in fisheries governance. The focus was on the ICES system and the scientific deliberations around North Sea Cod. In this context, participation means accountability on a variety of levels. Because the EU managers must account to the fishing industry they demand that this advice be delivered in ways that facilitate this accountability. The scientists also feel directly accountable to the industry, which changes which issues they emphasize, and seek to ensure consistency and fairness in their advice beyond what is biologically justified. Through a micro-level examination of these impacts, the paper illuminates the dynamics of participation as it plays out in the real world of fisheries management in the European Union.

REFERENCES

Bernstein, Brock B. and Suzanne Iudicello, 2000, National Evaluation of Cooperative Data Gathering Efforts in Fisheries: A Report to the National Marine Fisheries Service National Fisheries Conservation Center.

Freudenburg, W.R., S.Frickel, and R. Gramling, 1995, "Beyond the Nature/Society Divide: Learning to Think about a Mountain" *Sociological Forum* 10(3):361-392.

Habermas, J., 1984, The Theory of Communicative Action Volume I Reason and the Rationalization of Society Boston: Beacon Press

Habermas, J., 1987, The Theory of Communicative Action: Volume II Lifeworld and System: A Critique of Functionalist Reasoning Boston: Beacon Press.

Habermas, J. and T.H. Nielsen, 1990, "Jurgen Habermas: Morality, Society, and Ethics: an Interview with Torben Hviid Nielsen" *Acta Sociolgia* 33:93-114.

Heritage, J., 1984, Garfinkel and Ethnomethodology Cambridge: Polity Press.

ICES, 2003, ACFM Annual Report, Copenhagen, Denmark.

ICES, 2004, Working Group for Fishery Systems, Annual Report, Copenhagen, Denmark.

ICES, n.d., SGDFF,
ICES, n.d., WGNSSK

Jasanoff, Sheila, 2002, "Citizens at Risk: Cultures of Modernity in the US and EU" Science as Culture 2(3): 363-380.

Latour, B., 1987, Science in Action Cambridge: Harvard University Press.

Loomis, D.K. and R.B. Ditton, 1993, "Distributive Justice in Fisheries Management" *Fisheries* 18:(2) 14-18.

McEvoy Arthur, 1986, The Fisherman's Problem Cambridge: Cambridge University Press.

Merton, R.K., 1968. "Science and Democratic Social Structure" Chapter 18, Pages 604-615 in Merton, R.K. Social Theory and Social Structure New York: The Free Press.

Ostrom, E., 1990, Governing the Commons New York: Cambridge University Press.

Peterson, M.J., 1993, "International Fisheries Management" pp 249-305 in Haas, Peter M., Robert O. Keohane and Marc A. Levy (Institutions for the Earth: Sources of Effective International Environmental Protection Cambridge: MIT Press.

Porter, Theodore M., 1995, Trust in Numbers: the Pursuit of Objectivity in Science and Public Life Princeton: Princeton University Press.

Rosenberg, A.A., M.J. Fogarty, M.P. Sissenwine, J.R. Beddington, and J.G. Shepherd, 1993, "Achieving Sustainable Use of Renewable Resources" *Science* 262:828-829

Scott, R. 1995, Institutions and Organizations, Thousand Oaks CA: Sage Publications.

STECF, 2001, Scientific, Technical, and Economic Committee for Fisheries, Plenary Report #13, European Commission, Brussels, Belgium.

STECF, 2003, Scientific, Technical, and Economic Committee for Fisheries, Plenary Report #17, European Commission, Brussels, Belgium.

White, S., 1988, The Recent Work of Jurgen Habermas: Reason, Justice and Modernity Cambridge: The Cambridge University Press

Wilson, D. C. 1999 "Fisheries Science Collaborations: The Critical Role of the Community" keynote presentation at the Conference on Holistic Management and the role of Fisheries and Mariculture in the Coastal Community Nov 11 - 11, Tjärnö Marine Biological Laboratory, Sweden.

Wilson, D.C. and B.J. McCay, 1998, "A Governance Model for Environmental Policy" Crossing Boundaries, The Seventh Conferenc of the International Association for the Study of Common Property, Vancouver, B.C. 10-14 June.

Wilson, D.C. and S. Jentoft, 1999, "Structure, Agency and Embeddedness: Sociological Approaches to Fisheries Management Institutions" pp 63-72 in Symes, D. (Ed) Alternative Management Systems for Fisheries Oxford: Blackwell Science.

Wilson D. C., Bonnie J. McCay, Veronica Rowan and Barbara Grandin 2002 "Institutional Differences among Marine Fisheries Scientists' Views of their Working Conditions, Discipline, and Fisheries Management" *Fisheries* 27(8):14-24.

Wilson, D. C. and P. Degnbol 2002 "The Effects of Legal Mandates on Fisheries Science Deliberations: The Case of Atlantic Bluefis in the United States" *Fisheries Research* 58:1-14

Wilson, D. C., 2003, "Conflict and Scale: a Defence of Community Approaches in Fisheries Management" 193-209 in Wilson, D.C., J.R. Nielsen and P. Degnbol (Eds), The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects, Dordrecht, The Netherlands: Kluwer Academic Publishers.

ENDNOTES

1 Please note, this is a truncated version of a ***working draft*** of a paper to be included in a volume on participation, edited by Tim Grey. The full paper is to be completed and submitted in August 2004.

2 Though ICES official designates its start in 1902, scientists were working in the decades prior to this to get the organisation up and running.

3 Many would not. Some even argue that the distinction between social and natural phenomena is itself not meaningful (Freudenburg et al. 1995, Latour 1987 among others). Their argument is based on a) the fact that institutions can only respond to ideas (i.e., social constructions) about nature rather than nature itself and b) in the "post-modern condition" it is very difficult to verify the degree to which these ideas reflect nature. What these scholars miss or disagree with is that it is verification in principle, not in practice, that is the basis of the importance of the distinction between the social and natural in human interaction.