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REVERSING THE BURDEN OF PROOF FOR FISHERIES MANAGEMENT

Managing commercial fisheries within sustainable limits

A SAFMAMS Workshop
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Report
by

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Preface

The SAFMAMS project - **S**cientific **A**dvice for **F**isheries **M**anagement **A**t **M**ultiple **S**cales - draws insights from existing research projects and management processes on the most useful forms of scientific advice for marine environmental management and communicates those insights to scientists and decision makers.

The scope of this SAFMAMS workshop on "REVERSING THE BURDEN OF PROOF FOR FISHERIES MANAGEMENT" is wider than just the scientific advice: it considers a fisheries management system that includes industry obligations to prove that their planned activities are consistent with sustainable exploitation as a prior condition for obtaining a fishing licence. The discussion made specific references to the EU Common Fisheries Policy.

The report, while based on inputs from the participants in the workshop, is not intended to be an accurate or detailed account of the discussions; conclusions and opinions are those of the authors. The discussions at the workshop were lively and we are very grateful for the inputs that the participants offered. We may not have caught all points that were made or may have misunderstood some interventions and we apologise for such omissions or misunderstandings which are entirely our responsibility. The authors are particularly thankful to Magnus Eckeskog (Sweden) and Henn Ojaveer (Estonia) for taking notes during the discussions.

The workshop was organised by the ICES Secretariat and the participants were invited in a personal capacity attempting to achieve a balanced participation of interested parties (industry, NGOs, science) and having a wide range of science disciplines represented. It was therefore regretted that we were unable to include a legal expert among the participants. The participants are listed in Annex I.

Introduction

Article 56 of UNCLOS 1982 gives the coastal State sovereign rights in the exclusive economic zone for the purpose of exploring and exploiting, conserving and managing the natural resources and these sovereign rights form the basis for any government fisheries management. Political declarations signed by governments require that commercial fisheries shall be conducted within sustainable limits, e.g. the implementation plan adopted at the WSSD 2002 (Johannesburg) that aims at sustainable fisheries by 2015. According to Council regulation 2371/2002, the EU Common Fisheries Policy shall ensure sustainable exploitation of living aquatic resources. For this purpose, the Community shall apply a precautionary approach to protect and conserve living aquatic resources, and to minimise the impact of fishing activities on marine eco-systems. It shall also aim at a progressive implementation of an eco-system-based approach to fisheries management. It shall aim to contribute to efficient fishing activities within an economically viable and competitive fisheries and aquaculture industry, providing a fair standard of living for those who depend on fishing activities and taking into account the interests of consumers. Discussing Reversing the Burden of Proof in an economic context would focus on who pays for the management system rather than to establish a system that assures sustainable exploitation. Generally, who pays for science and management under a system based on the reversal of proof was not seen as an essential element of the argument for or against such a move.

The EU Common Fisheries Policy after the reform in 2002 involves the fishing industry and NGOs in the management decision process through the Regional Advisory Councils. These RACs assist the Commission to identify ways of achieving sustainable fisheries. As fisheries affect a number of parties beyond the fisheries sector, fishermen and scientists the RACs also include other stakeholders. However, the final

decisions remain with the governments. Data and science input to the decision process is generated through a government system. Also, control and enforcement is entirely government driven and the burden of proof on the status of fish stocks lies with the government institutions.

The present system of management allows little or no opportunity for redistributing the burden of proof. Reduced to its simplest elements, it comprises a two tier system in which the government sets the required standards and annual limits on fishing activity and where industry has no option but to operate within the limits set. Throughout most of Europe, the estimation of TACs and annual catch quotas forms the cornerstone of the management system and is supplemented by technical conservation measures (MLS, gear restrictions and closed areas). Governments have delegated the task of assessing the status of fish stocks and ecosystems to advisory agencies (national laboratories) and their results are coordinated by ICES. Although ICES' advice to governments on sustainable levels of fishing are framed according to a precautionary approach, it is the government - in setting the annual catch quotas - that assumes final responsibility for the level of precaution (risk) adopted.

Providing the industry operates within the conditions set by government, it is not required to demonstrate further that its activities are within sustainable limits. Indeed, in the absence of any documented evidence of unsustainable practices, the presumption is that fishing is sustainable and should continue without further restrictions - a situation that gives rise to perceived advantages, on the part of industry, in withholding or manipulating information required by government. An exception to the general rule occurs in relation to the management of European Marine Sites (EMS). Here, any proposed change to fishing activities affecting an EMS requires the fisheries manager (public authority or industry) to carry out an Environmental Impact Assessment before the new activity is approved.

A further problem in relation to the existing system, arising from the failure to separate clearly the tasks of setting the objectives of management and making specific decisions, is the tendency for government to attempt to micromanage the fisheries instead of devolving responsibility to other more appropriately situated organisations. The discussions during the SAFMAMS workshop were developed in a context of a 'management by objectives' approach, where the government’s prime responsibility lies in framing clear objectives for management. Specific decisions can only be adopted where it is demonstrated that they are wholly consistent with the agreed objectives.

In the light of these reservations, it is appropriate to examine whether an alternative system, where industry has greater responsibility for detailed management of its activities and for demonstrating that these are within sustainable limits, offers a better solution. RBP involves the transfer of responsibility for the impact of fishing on the marine ecosystem - and, in particular, for documenting the likely levels of that impact - from government to the industry. Thus RBP is closely linked to notions of a precautionary approach and environmental responsibility. There are several examples of economic activities where industry carries the burden of proof. In the pharmaceutical industry, for example, firms cannot market their products without extensive laboratory and field testing to establish proof that the products are safe to use.

Under RBP the fishing industry would be similarly required, through its fishing plans, to provide proof that the proposed activities were sustainable in relation to both the fish stocks and the integrity of the marine ecosystems. Fishing activity would thus require 'prior consent' from government, instead of the present situation where demonstration of the impact of fishing occurs largely after the event.

A basic question is: proof of what? Proof is very difficult to establish/define. Before the concept can be implemented or perhaps even discussed in detail this “proof” should be made clear. For the purpose of this discussion the “proof” is seen as something that is fixed normatively; we are content with a “proof” that is in accordance with agreed standards; we do not require absolute proof. The latter will be extremely difficult to establish, perhaps even impossible. Standards would include that the impact assessment is done in accordance with an established protocol. Proof is established through fish stock assessments and other assessments under an ecosystem approach. Therefore, RBP implies an approved assessment of the impact of the proposed exploitation as a precondition for access to the resources. A RBP management system is therefore built on two principles:

Access to resources is subject to

- *prior demonstration by those who intend to catch the fish that their planned exploitation is sustainable;*
- *the individual fisher is member of an organisation that is collective accountable for the actions of its members.*

Why fisheries and why now?

Science has long been concerned with issues relating to proof and, by implication, where the burden of proof should be placed. In fisheries, the present concern for reversing the burden of proof reflects the growing belief that systems of management which place the burden solely on the managers and their scientific advisers simply do not work. Arguments for shifting the burden of proof have been developed over the past 20 years or so.

One important stimulus for renewed interest in the idea has been the adoption of an ecosystem based approach to fisheries management, in which policy makers are bound to recognise a duty of care for the protection of marine ecosystems. In the late 1990s the National Marine Fisheries Service of the USA, in a report to Congress (NMFS, 1999) argued that it should be incumbent on the fishing industry to provide proof that proposed fishing activities would not cause irreversible damage to marine habitats nor threaten endangered species before permission could be given by the responsible authority.

More recently the case for reversing the burden of proof has again been raised in relation to the industry's concerns over the reliability of ICES stock assessments as a basis for recommending TACs. In part this problem is due to the distortion of landing statistics caused by IUU fishing and it was posited that reversing the burden of proof could provide a means of requiring the industry to take greater responsibility for IUU fishing activity.

But reversing the burden of proof has a broader relevance for the debate on fisheries governance. In the relatively short history of fisheries management there has been a discernible shift in decision making from central government institutions towards greater involvement of the industry. Reversing the burden of proof would seem to complement a number of recent trends including (i) the principle of stakeholder participation; (ii) regionalisation of management; (iii) independent accreditation for responsible fishing; and (iv) realignment of the role of higher order decision making bodies from micro-management to a stronger focus on framing the basic principles and strategic objectives.

A particular issue for fisheries is the tradition within this sector of rather defining itself as a way of living rather than as economic activity. In this respect this is marked difference to other sectors.

What should we understand by the burden of proof?

There are, in essence, three interrelated aspects to the idea of reversing the burden of proof, *viz*

a) *Reversing the burden of proof.* In the context of fisheries management this involves moving from the situation where an activity is allowed to take place until such time as there is clear evidence that it may be causing irreversible damage to the ecosystem (or to the sustainability of fish stocks) to one where the fishing industry is required to demonstrate from the outset that no such damage is likely to occur, before consent for that activity can be given by the management authority. This is akin to the notion of prior consent.

b) *Locating the burden of proof.* Identifying who should shoulder the burden of proof can prove difficult. At present it is impossible to ascribe with any precision where the burden of proof should lie. No one partner in the decision making process can be held formally to account for failure to meet required objectives and standards, though blame is commonly attributed to 'insufficient and inaccurate science',

'inappropriate and ineffective regulation' or 'irresponsible and illegal fishing'. Criminal prosecutions for infringement of particular regulations, brought against a very small number of individual enterprises each year, have proved an insufficient deterrent against irresponsible fishing. Reversing the burden of proof should help to bring clarity to the question of who shoulders the burden of proof.

c) *Rebalancing the responsibilities for decision making*. Reversing the burden of proof implies a major restructuring of the management process (see Sections 3 and 4 below). In particular, where the industry is required to establish that its proposed activities will meet the required standards for achieving given objectives (sustainable fishing, environmental protection etc), it follows that the industry should be given the opportunities to assume a greater level of responsibility for designing and implementing its own management strategies (fishing plan) as well as monitoring and reporting on its own activities.

All three aspects are considered in the report.

What can reversing the burden of proof reasonably achieve?

From a brief understanding of what is involved in reversing the burden of proof for fisheries management, we can begin to anticipate the kind of benefits that might flow from such a move. Among the more obvious of these benefits are:

(a) creating greater clarity and transparency in the management process;

(b) placing responsibility for management very much closer to those directly involved who will ultimately carry the burden of proof;

(c) moving towards collective responsibility for the actions of the fishing industry and strengthening the culture of compliance;

(d) developing a more positive, proactive approach based on seeking the best opportunities for fisheries development rather than reactive responses to emerging crises involving ever more stringent legislation; and

(e) providing an essential and hitherto missing ingredient of the ecosystem based approach.

Levels of Objectives and who should be responsible

Fisheries must meet several objectives ranging from being economic viable, i.e. generating a profit for those involved, to being conducted within sustainable limits. In these discussions the focus is on sustainability of the activity while the economic feasibility is left to the industry operating within sustainable limits. This gives a hierarchy of objectives, Figure 1. The question is therefore, whether for each level the Burden of Proof can be

Figure 1. Hierarchy of objectives for a fisheries management system

reversed and if so under which conditions.

Sustainability

This upper level in the pyramid of objectives is based on general policy decisions. Such decisions, taken at a political level, are the basis for setting exploitation limits commensurate with acceptable levels of environmental impact.

Sustainable use of renewal resources are not the only possible objective for this upper level. Alternative approaches would involve maximizing economic profit with or without considering environmental externalities. The SAFMAMS workshop was based on the assumption that ecological sustainability is the overarching consideration and that fisheries shall be conducted within sustainable limits irrespective of the economic feasibility. Defining sustainability is societal task. Stakeholders have a role in this process defined by their role in society.

Reversing of the burden of proof is not considered appropriate for this level. Government shall retain responsibility.

Requirements for proof and required level control and enforcement

Assessment of the status of stocks/fisheries forms the basis for decisions on fisheries management. Such assessments are not confined to the traditional biological stock assessments but can include economic feasibility, capacity, general impact by the fleet on the marine ecosystem (e.g. including effects on bottom fauna) and CO_2 emissions in the marine ecosystem. Society specifies the upper level of the objectives but will also need to provide itself with tools measuring the impact and determining whether it lies within acceptable limits. This requires definition of the proof standards and of the form and level of control and enforcement that is deemed appropriate. Society will need to make such decisions and justify them. These requirements are therefore the responsibility of society.

Reversing of the burden of proof is not considered appropriate for this level. Government shall retain responsibility.

Operational Targets – Acceptable levels of Exploitation

Sustainability is a very general concept which needs to become specific before it can guide management. This is done through setting limits on exploitation either by fleet or by species/stock. Such limits shall be defined for measurable (assessable) qualities, e.g. fishing mortality, by-catch or fishing effort which are the yard stick by which acceptable levels of impact on the ecosystem can be assessed. They are society's tools for judging whether an activity is acceptable. At this level reversing the burden of proof would be possible. Under the present CFP the acceptable level of exploitation is debated in forums that involves industry, e.g. when discussing management plans within the Regional Advisory Councils (RACs). This group of objectives is a mixed bag where both society (government) and industry jointly assume the burden of proof that actions are within sustainable limits. In practice this is the level where the CFP has met with significant difficulties in preventing governments – acting under pressure from their industry – from making management decisions within sustainable limits.

At this level there is a scope for Reversing the Burden of Proof. Responsibility for some elements are probably best placed with government while there clearly are elements that could be delegated to industry.

Operational Plans: Impact assessment - Accounting and Auditing

The lowest level concerns the operational plans that form the basis for approval of the activity. These operational plans include several elements

- Description of the intended fishing activity
- Impact assessment of the proposed fishing
- Documenting procedure (accounting) of the fishing activity
- The auditing procedure

This list depends on the involvement and competence delegated to the industry, e.g. auditing would likely not be required if the documenting procedure were a public (government) responsibility.

It is implicitly assumed that RBP requires a system where activities are subject to prior consent by a public authority. A RBP system therefore implicitly assumes that the industry has the capacity to provide an impact assessment and that this capacity includes the ability to project the level of impact from the proposed activities.

This is the central level for Reversing the Burden of Proof and delegating responsibility to industry.

How Might Reversing the Burden of Proof Work in Practice?

Rebalancing the responsibilities for management

In practice, reversing the burden of proof is likely to involve a management continuum structured along two dimensions: (i) the sequential stages of decision making from the identification of the underlying principles to the auditing of the fishing plan, and (ii) the responsible actors from central government to the fishing industry. Table 1 specifies the seven actions that must be considered in a management scheme. The

Table 1. The seven stages of management, see Figure 2

Action	**Definition**	**Who participates** (italics signify lead agency)	**Burden of proof**
Principles	articulated societal values (e.g. human rights, environmental obligations, etc)	mediated through ***international agreements*** between sovereign powers	-
Objectives	specification of principles	***sovereign power****(s)* and civil society, with consultation with science and industry	sovereign power
Standards	numerical indicators (limits, targets) of objectives	***sovereign power****(s)* and science	science
Instruments	management (ie fishing) plans	***industry***, science and consultation with environmental organisations	industry
Validation	approval (or rejection) of management plans	***sovereign power****(s)* with advice from science	-
Implementation	fulfilment, monitoring and reporting on management plans	***Industry***	industry
Audit	auditing of annual reports on fishing activity	***sovereign power****(s)* with advice from science	-

Figure 2 sets out one plausible scheme in which the distinction is made between those stages of the management process which remain the responsibility of the sovereign authority (the EU institutions and/or the member states) and those where responsibility (and the burden of proof) is transferred to the fishing industry. The stages/actions are defined in Table 1.

In theory the line between public (above the line) and industry (below the line) responsibility can be drawn at almost any point along the vertical axis; where the line is drawn will depend in large measure on the degree of liability the industry is willing to accept and its capacity to undertake additional responsibilities. In practice, it seems most likely that the line will be drawn between the setting of standards (in the form of limits or targets) and the choice of instruments (in the form of a fishing plan).

Above that line, the responsibility for setting the basic principles (sustainable development, protection of human rights, the precautionary approach, ecosystem based management etc), defining clearly prioritised objectives and fixing precise standards rests with the public authority, working in close collaboration with science and consulting widely with the fishing industry and other stakeholders. The principles and objectives are likely to be universal and enduring, remaining constant throughout the policy period and, in all probability, from one policy period to the next. By contrast, the standards will vary from one area to another and be subject to alteration according to the perceived health of the marine environment and/or the state of the fish stocks. The standards set will be expected to hold good for the period of the fishing plan.

Below the line, the industry assumes responsibility for the management decisions and becomes accountable for its actions. Responsibility takes the form of preparing, and ultimately implementing, a series of fishing plans setting out the industry's tactical approach to meeting the predetermined objectives and standards, including those for the protection of the marine environment as well as the recovery and/or sustainability of the fish stocks. The plans would be drawn up on the basis of the best possible scientific advice provided by 'accredited' scientists. It is likely that such fishing plans would be (a) multi-annual, normally covering a period of 3 to 5 years, but reviewed and audited annually, (b) prescriptive rather than indicative, providing a detailed and reasoned account of the proposed fishing activities, (c) precautionary in their approach, (d) fully adaptive to changing circumstances within the plan period, (e) open to public scrutiny and (f) legally binding and enforceable. Once approved, the industry's actions would be judged against the conditions set down in the fishing plan (i.e. the industry could not be held accountable for any unforeseen events or unanticipated changes to the behaviour of the fish stocks or the ecosystem). The industry would also be required to submit an annual report of fishing activity (including detailed information on catches, discards and landings) for auditing by the sovereign authority under advisement from science. The audit could provide the basis for recalibrating permitted catch levels etc in the ensuing years of the fishing plan and, in hopefully exceptional circumstances, the basis for legal action against the fishing industry.

Industry's response

The scheme outlined above implies a major restructuring of the management process. Higher order governance institutions such as the European Commission, occupying the centre of an elitist and somewhat paternalistic system of decision making, are relieved of their responsibilities for micromanagement of individual fisheries. The not inconsiderable task of detailed technical management - coupled with the burden of collective accountability - falls on the industry itself. It could prove quite difficult to sell the idea of reversing the burden of proof, and its consequences, to the industry unless clearly linked to some form of incentive structure. On a very much smaller scale, an incentive-led approach is at present being trialled in the North Sea where the industry's own plans for cod avoidance are linked to rewards in the form of days at sea allocations. It would, however, be more difficult to devise comparable incentives for the assumption of overall responsibility for day to day management of the fisheries, especially as the benefits would need to be immediate rather than deferred to some time in the future.

There is growing evidence that the industry is eager to find solutions to problems caused by over-exploitation in order to combat rising operational costs, indebtedness and risks of insolvency. The

attractiveness of reversing the burden of proof lies in the greater scope for industry to make appropriate management decisions and escape the tyranny of highly prescriptive regulations, imposed from above, that may or may not be suited to a particular fishery. By moving to a situation where, given sensible objectives and realistic standards, it can begin to apply its own rules of conduct carefully tailored to meet the specific needs of the fishery concerned, the industry derives a considerable benefit. Yet despite the superficial attractiveness of 'self-management', the industry's initial response is likely to be sceptical. Calculation of the costs involved in terms of organisational restructuring, financial obligations and legal liabilities, set against past experience where promised rewards all too often fail to materialise, could harden opposition to the proposed changes. It will be up to those who support the idea of objectives-led management to counter the industry's initial scepticism by giving substance to the incentives structure, devising a clear road map for transition to the new management approach, and by helping to build the industry's self-belief that it can prosper under such a system.

It would be foolish to downplay the magnitude of the task. There are clear capacity constraints (organisational, financial, expertise and experience) that can only be resolved gradually over time. Merging the different cultural traditions of organisation in the fishing industry into a single, coherent body capable of representing the industries of different member states would prove a considerable task. Dependence on sound scientific and business advice made available to the industry as the basis of its fishing plans will come at a premium. But possibly the greatest challenge would be to bring about a change in the ethos of the industry from unwilling subject of management from above to self-reliance in taking the lead in managing the fisheries. All this argues for an incremental approach to reversing the burden of proof and rebalancing the responsibilities of management.

Monitoring, surveillance and control: the issue of compliance

Management by objectives as outlined in this report, coupled with the relocation of the burden of proof, is partly intended as a means of achieving high levels of compliance with the objectives, standards and regulations of fisheries policy. Although the industry has been slowly building a culture of compliance based on the recognition that breaches by a few may impact quite severely on the majority, the level of IUU fishing remains unacceptably high. Part of the rationale behind reversing the burden of proof is the expectation that industry would need to assume much greater responsibility for the control of illegal fishing. As industry takes on the burden of day to day management it would be expected to become increasingly self- reliant in the monitoring and control of fishing activity. More reliable data provided by the fishing fleet should form the basis for accurate reporting of annul fishing activity, lessening but not obviating the need for independent checks at the landing ports.

The question of whether enforcement procedures would need to change under the influence of reversing the burden of proof seems perhaps less clear. While industry based management organisations would normally expect to have sufficient powers to discipline their members, it is uncertain where the legal responsibilities for enforcement might lie, especially as the rules by which the industry is expected to abide would be established by a number of different agencies. Unless certain legal responsibilities, including the licensing of fishing vessels, were also devolved to industry based organisations, it seems more likely that the state would retain authority for high level sanctions such as the suspension or annulment of licences to fish. What is clear is that the industry - at least at the present level of income generation - would be unable to bear the costs of enforcement at sea, even if in the longer term the level of enforcement activity might be reduced in line with an increasing level of compliance. Moreover, the customary separation between management and enforcement agencies would continue to provide an independent means of guaranteeing compliance. The likelihood is, therefore, that national enforcement agencies, with their increasing capacity for electronic surveillance, would continue to function in respect of breaches of international, national and locally generated regulation.

Paying for science and management

The question of who pays for science and management under a system based on the reversal of proof is not seen by some as an essential element of the argument for or against such a move, though for others there is presumption that reversing the burden of proof would transfer all or part of the responsibility for scientific research and advice to the industry. The question is likely to assume greater relevance if, as predicted, the transaction costs are likely to rise substantially. While there may be some savings in government commissioned research and in public administration costs, additional science costs are expected to be incurred both in relation to the industry-led fishing plans and their validation and auditing. The sharing of the responsibility for meeting those costs is likely to be an important practical issue.

There are two broad scenarios for future funding: either fisheries management is seen as a public obligation in looking after societal interests in healthy seas and renewable stocks of living marine resources, in which case science and management are basically funded from the public exchequer. Or a distinction is made between government funded marine research (including annual stock assessments) and contract research intended to benefit the fishing industry *per se* and funded directly from the industry's own reserves.

At present, however, the situation is complicated, on the one hand, by the inability of large sections of the catching sector to fund independent scientific research and advice and, on the other, by the limited supply of appropriate scientific expertise. There is a risk, therefore, that access to good science could become subject to 'rationing by price', with the larger, more homogeneous segments of the industry able to commission first rate advice and the smaller, more fragmented and less wealthy parts of the industry unable to compete in the market for scientific advice and left to subsist on more basic levels of information.

Under these circumstances it would seem more likely that, in the early stages of developing the new approach, the state will need to continue its role of funding the scientific inputs to management. Over time, and with the industry increasingly in a position to benefit financially from the new regime, the issue of resource rentals will take on greater relevance.

The implications for fisheries governance

A new structure for EU fisheries governance

In this section, attention switches from the generalities of reversing the burden of proof applicable to most if not all the world's fisheries to focus on the practical issues of how the rebalancing of management responsibilities might be integrated within the fisheries governance framework of the EU, with its multi-level decision making process embracing a large, diverse and spatially complex 'common pond'. In simple terms, the present system relies on a strongly centralised, top-down, 'command and control' process. Key areas of decision making (principles, objectives, standards and much of the detailed work on instruments) are vested in the European institutions (Commission and Council of Ministers) with some important aspects left largely to the member states (fleet restructuring, vessel licensing, quota management and responsibility for inshore fisheries). Reversing the burden of proof and, more particularly, the concomitant rebalancing of responsibilities for management calls into question this particular model.

What follows, therefore, is an outline of one possible schema for incorporating the changes outlined in earlier sections. The schema makes two important assumptions, both of which are open to challenge: that responsibility for management of inshore fisheries should remain with the coastal state; and that the organising principle of the new system should be regional.

While it might be theoretically desirable for the new management system to incorporate both inshore and offshore sectors - especially when dealing with finfish species - for practical and political reasons, it probably makes more sense to retain the existing separation of responsibilities for inshore and offshore

fisheries. Four factors reinforce this approach: (i) differences in structural characteristics and organisational cultures; (ii) levels of local ecological knowledge implicit in inshore management; (iii) the social significance of inshore fisheries at both local and regional scales; and (iv) basic administrative convenience. It will, however, be up to coastal state administrations to ensure adequate levels of coherence between the inshore and offshore regimes.

Establishing an appropriate scale for effective management is a familiar issue. There is a broad consensus over the need to break down the monolithic management of fisheries in the EU's 'common pond' into more appropriate management units. But there is the potential for debate as to whether the most suitable organising principle is the regional sea, fleet sector or fishery - or, indeed, a combination of all three. In opting for a regional seas approach, consideration is given to several important factors: (i) the approximation of the regional seas to large scale ecosystems; (ii) the need for an overview of the totality of fishing operations and their environmental impacts within a given area; (iii) the emergence of a regional dimension to EU fisheries management through the growing influence of RACs; and (iv) congruence with proposals for a regional approach to other areas of marine management that will exert an increasing influence on fisheries management in the future (CEC, 2005; CEC, 2006).

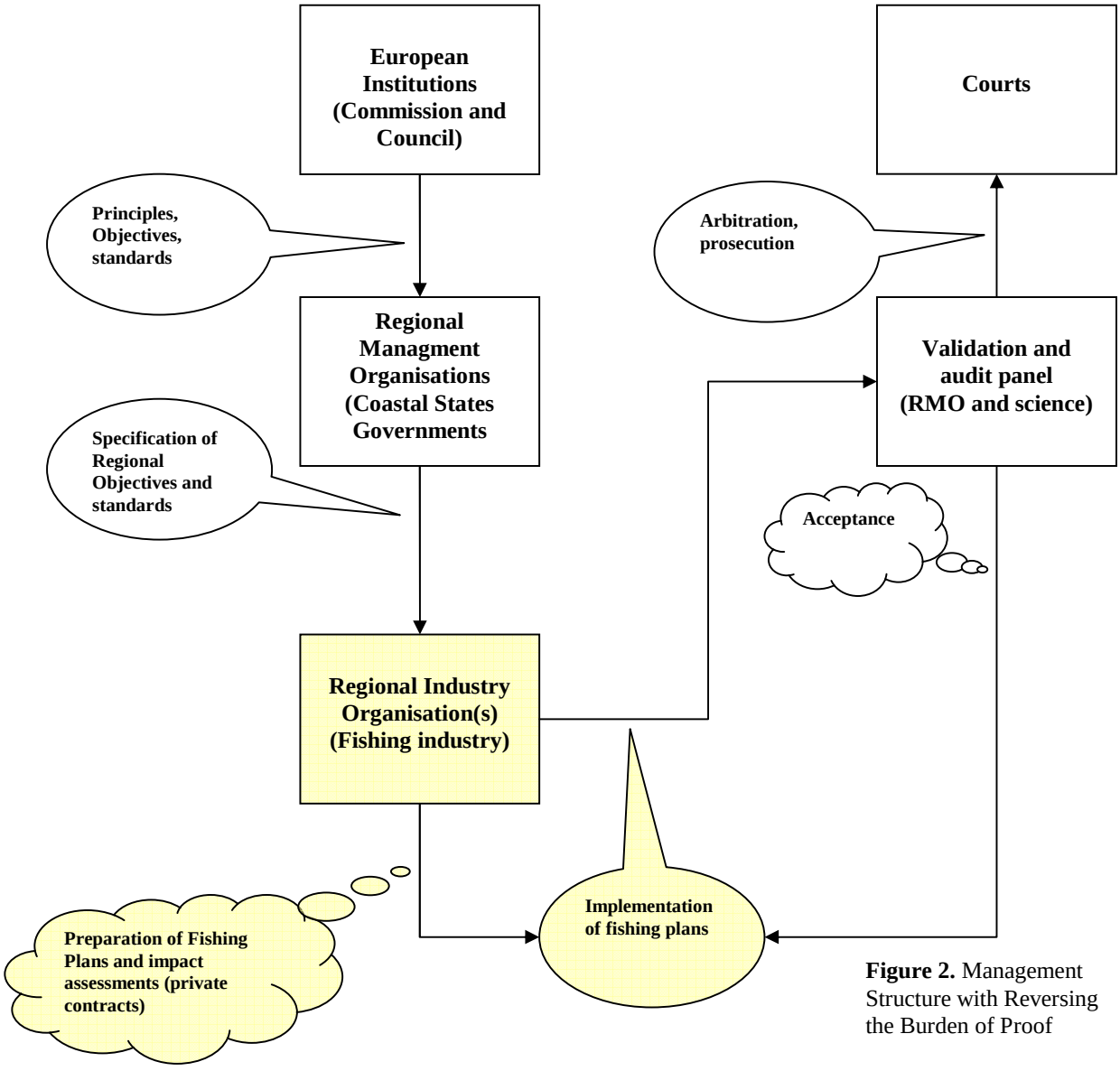

Figure 2. Management Structure with Reversing the Burden of Proof

The system depicted in Figure 2 is governed by the need to keep it as simple as possible, avoiding unnecessary bureaucracy while recognising the rebalancing of responsibilities inevitably implies a more complex structure of management and a lengthening of the decision making process. The key features are the reduced role of the European institutions; the creation of a regional management organisation (RMO) comprising those states with active fishing interests in the regional sea and responsible *inter alia* for the specification of regional objectives and standards and the coordination of fishing activities with other users of marine space (including MPAs); and a regional industry body, or constellation of separate sectoral organisations, required to draw up and implement the fishing plans. Those plans will in turn be validated and subsequently audited by independent panels commissioned by the RMO.

Any number of variations on the model and its constituent parts are possible. The most radical would be to shorten the circuit by eliminating the second stage (RMO), though this would involve the removal of the member states from any influential role in the management of the offshore fisheries - a potentially

dangerous precedent and one which the Council of Ministers would be unlikely to countenance. It would, in turn, substantially increase the workloads of the Commission and/or the industry.

Institutional implications

All of the major partners in the management process - public administration, industry and science - would be affected to a greater or lesser degree by a change in the basic system. The reduced range of activity to be undertaken by the *European institutions* accords with an emerging concern within the Commission as to its continued ability to engage effectively with the full range of decision making currently undertaken. A rebalancing of the workload to allow the Commission to focus more on the strategic approach to fisheries management should help to bring greater clarity to the nature, aims and objectives of the CFP and greater transparency to the management process through the elaboration of objectives and standards and the introduction of audit procedures.

Member states

For *member states*, their formal involvement in the RMOs would mean an enhanced level of participation in management at the macro-regional level and help to guarantee a sufficient degree of congruence between decision making in the realm of fisheries and other key areas of marine management (pollution control, exploitation of sea bed resources, renewable energy, shipping and nature conservation) and assist the anticipated development of marine spatial planning. It is at this level of management that key decisions would need to be taken concerning the integration (or trade off) between fisheries and environmental objectives. There will, of course, be major obstacles to overcome in designing an appropriate structure for the RMOs to ensure a balanced perspective on national, sectoral and scientific interests. No one model would be likely to fit all regional circumstances.

Fishing Industry

There can be little doubt that the *fishing industry* would bear the brunt of organisational changes. Mention has already been made of the issues of capacity constraints (financial, organisational and in terms of management experience) faced by the industry and to the problem of achieving a fair and balanced representation of national and sectoral interests involved in any one regional sea. There is the added problem of legal authority for an industry based organisation to compel the compliance of their members. Without such authority, laying the burden of collective responsibility on the industry is likely to prove a meaningless exercise.

Nominally, there is no limit on the type, or number, of industry organisations that can apply for the licence to fish and submit a fishing plan as proof of their intent to comply with the objectives and standards laid down, providing they can provide reasonable evidence of their capability to implement the plan once it has been agreed. In theory, such an organisation could represent a particular segment of the fleet, a group of national fishing interests or a consortium of fishing companies etc. However, the greater the degree of fragmentation of the industry into different interest based organisations, the more difficult it would be to ensure a necessary level of coordination and compliance for the region's fishing activities; the harder it would be for the RMO to assess the overall impact of fishing plans on fish stocks and the ecosystem; the more pressure that would be placed on science to produce appropriate advice; and the higher the overall transaction costs.

In several respects, therefore, the ideal solution - but one which may only rarely be achievable - is for a single, well founded and adequately funded organisation with a well developed sub-committee structure to give access to the views of different fishing interests and a sufficient measure of in-house expertise, to prepare and implement a complete set of fishing plans on behalf of the region's fishermen. As with the

RMO, no one model will serve all regions. It will be up to the region's fishing interests, in consultation with the relevant RMO, to determine what will work best for them.

Science

It is clear that there would be an increased demand on *science* to provide advice in support of the new management process. Rather less clear is how far the nature of the science behind the advice will need to change to incorporate the needs of the different clients and the different stages in the management process. And still less certain whether, and to what extent, the organisational structures of science will have to alter to accommodate these developments. Scientific inputs would be required at four different stages: (i) in the assessment of fish stocks and the setting of standards by the Commission, a task currently undertaken by ICES; (ii) in the specification of regional objectives and standards by the RMO, where the relevant member state laboratories could be assigned the task; (iii) in the preparation of fishing plans, where advice would be commissioned by the regional industry organisation(s); and (iv) in relation to the validation and auditing of fishing plans by an independent panel of scientists. Science might also be called upon to play an important role in cases of arbitration or litigation.

The outcome is likely to mean more in the way of industry commissioned advice, calling on accredited scientists (as individuals or consortia), but probably no significant reduction in the demands placed on ICES and the national laboratories. The demands on 'independent' scientists would tend to be irregular rather than providing a constant source of employment.

The assessment reports as we know them to-day could become part of the fishing industry’s annual accounts. Collection of data and abundance surveys, assessment of the status of the stocks and ecosystems together with an impact assessment of the exploitation plan for the ensuing period would follow predefined standards.

The assessment scientist would become a certified assessor working for the industry or a public auditor. The system would need to include appropriate mechanisms that ensure that the assessor can and does act in accordance with standard obligations for scientific honesty.

There are also some concerns as to how far the new management system would serve to stimulate or impede the development of new science and technology. One point of view might be that, were basic assessment and advice methods deemed adequate in providing proof of intent to comply with the set standards, industry would be unwilling to pay for more sophisticated science. By contrast, it could be argued that, in the absence of any precedents, industry would be keen to search for 'least cost' methods of producing a viable fishing plan. Moreover, the range of scientific advice sought by industry in the preparation of the fishing plan would tend to be broader, including not only advice on fish stocks, gear selectivity and ecosystem impacts but also economic advice relating to operating costs, quality control and markets.

A major issue is how far the nature of the science underpinning the advice should be allowed to change in order to fit the requirements (and the pockets) of the fishing industry in developing their fishing plans. Greater flexibility in the form of advice presented to industry should not be permitted to compromise the scientific procedures and standards of proof on which the advice is based. That advice will still need to be supported by a weight of scientific evidence sufficient to convince the assessors of the fishing plans (and, ultimately, a court of law). Squaring the circle of maintaining standards of scientific evidence and industry's ability to pay may prove a difficult task.

The system would still include a public science sector. Not only are there issues concerning the definition of standards, objectives etc but also if the evaluation and audit function implied in Figure 2 is to be effective, the public sector would require profession capacity to deal with the impact assessments and auditing the impact report.

Conclusions

The Workshop on *Reversing the Burden of Proof in Fisheries Management* was a preliminary skirmish in what could become one of the major debates on fisheries management in the early years of the 21st century. It sought to explore the ways in which the industry might shoulder more of the burden of proof for sustainable fisheries and, *pari passu*, how the current distribution of management responsibilities might be reorganised to allow the fishing industry to take on a much greater role in fisheries management. The discussions proved lively, wide ranging and constructive.

The foregoing report has attempted to outline one possible scenario for reversing the burden of proof and rebalancing the responsibilities for management. Not surprisingly, there are many unresolved questions. The discussion focused on fisheries issues *per se*, leaving aside those issues which primarily concern environmental protection. There was no attempt to define a possible timeframe for introducing the new management system (nor, indeed, for the basic task of formulating and validating the fishing plans). Nor was it possible to pay much attention to the organisational details of either the Regional Management Organisations (RMO) or the industry management organisation(s), or to indicate how the all-important 'incentive package' to win support from the industry might work The emphasis in the discussions - and, therefore, in the report - was on the basic principles and broad outlines of the new management approach.

Nor has any attempt been made to construct a final balance sheet of costs and benefits of reversing the burden of proof and the reallocation of management responsibilities. Nonetheless, certain potential advantages and disadvantages of introducing the new management approach became clear. On the plus side were those anticipated in the introduction - greater clarity and transparency in the management process; placing responsibility for management closer to those directly involved; greater collective responsibility on the part of the industry; and a more proactive approach to fisheries development. On the debit side, a more extended decision making process; increased demands on science; the likelihood of higher transaction costs; and greater risks of litigation.

Broadly the feasibility of the new approach would seem to rest on three key factors:

i) whether the fishing industry is willing and able to assume greater responsibility for its actions in return for an enhanced level of self- management;

ii) whether the high order government institutions at the European and member state levels are prepared to devolve some of their existing powers and responsibilities to regional management organisations and/or to the fishing industry; and

iii) whether the potential benefits outweigh the additional costs of science and management.

It was also clear to the authors that reversing the burden of proof will have consequences for all involved with fisheries management and that such a change could imply significant institutional changes. It was as clear from the discussions that reversing the burden of proof can be done on a fairly limited scale and it could be more broadly applied; obviously the consequences of a limited application would be smaller than if the principle would be broadly applied.

Despite a number of doubts left lingering in the minds of the participants, at the end of the Workshop, their overall response was sufficiently positive for the ideas implicit in the term 'reversing the burden of proof' to be taken forward (though probably using a more positive form of words). There was strong support for attempting to stimulate discussion within the Commission as part of the agenda for the continuing reform of the CFP; but equally it was felt important to consider moving the debate away from the more abstract discussion to practical action in the form of real life case studies, starting from fairly small and relatively simple examples but moving towards trialling the new approach at a regional or sub-regional scale.

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Annex I: List of Workshop Participants

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