USING SOCIO-ECONOMIC INFORMATION IN EUROPEAN MARINE SITE MANAGEMENT: UK SHELLFISHERIES

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EXECUTIVE SUMMARY

Aim (p. 1)

Improve our knowledge and understanding of how social and economic information could be useful and influential within the management of the UK's European Marine Sites.

This aim relates to four key areas: **1)** the **context** of shellfisheries in European Marine Sites; **2) UK experience** of problems relating to the consideration of socio-economic information in decision-making; **3) global experience** of the use of socio-economic information in Marine Protected Area (MPA) management; and **4) recommendations** for change.

These four areas have been researched via a literature review of law, policy and research and a consultation with shellfisheries, inshore fisheries management and nature conservation actors.

Policy Context (p. 3)

There is a general governmental commitment in the UK to prioritising social and economic aspects of fisheries within policy-making relating to the marine environment. This is embodied by various recent strategy documents, such as *Net Benefits*, *Safeguarding Our Seas* and *A Sea Change: the Marine Bill*. The UK government has variously proposed the ecosystem approach, integrated coastal zone management, regional and social policy, the development of social and economic objectives, data provision, impact assessments, stakeholder involvement, and 'marine conservation zones' as means of addressing the socio-economic deficit in inshore fisheries management.

The Habitats Directive (1992) makes provisions for the consideration of social and economic factors in European Marine Site management. However, there is evidence that the principle of taking social and economic factors into account in decision-making is not filtering through to the practical management of those sites and the human activities taking place within them. This is partly because the UK Habitats Regulations (1994) do not allow explicitly for the consideration of social and economic implications of decisions relating to European Marine Sites, except under particular circumstances (via the IROPI – imperative reasons of overriding public interest – clause). As the legislation was established to protect environmental features, it is socio-economic factors (industry) that lose out where agreement cannot be reached.

Therefore, despite a general UK policy commitment to prioritising social and economic aspects of fisheries within marine environmental management, the conservation agencies and inshore managers are restricted by the legislative provisions of the Habitats Directive and the UK Habitats Regulations. They are also restricted by limited financial and staffing resources of inshore managers and conservation advisors.

UK Experience (p. 8)

Industry, inshore managers and nature conservation agency staff have found that legislative and resource restrictions do not necessarily exclude the consideration of social and economic factors from European Marine Site decision-making processes. Members of the three groups have, in many cases, found ways to manage these problems to enable effective working relationships and decision-making processes.

In other cases, however, problems have prevailed; and industry, inshore management and nature conservation respondents share a common understanding of the difficulties inherent in European Marine Site management and identify the same specific problems. Each recognise that the slow pace of decision-making, lack of staffing and financial resources and communicative failures have often served to undermine attempts to reach agreement.

The three groups propose common solutions, such as: improving communication, increasing resources for industry development, inshore management and nature conservation in the marine environment, and enabling collaboration between the different actors. All of these strategies can improve the capacity of the groups to identify mitigating measures that will enable industry activities to be accommodated, as far as possible, within the management of European Marine Sites.

Both industry and managers agree on the need to increase the speed and efficiency of the decision-making process, to clarify scientific requirements and thresholds, and to change the statutory roles of both managers and nature conservation agencies, backed by sufficient resources, to encompass socio-economic considerations. This would mean that a more balanced view of industry and marine environment requirements can be taken on a consistent basis. Finally shellfish operators, propose a change in socio-economic emphasis, so that the intrinsic value of local-scale coastal business is taken into account, in addition to the bottom line.

Global Experience (p. 17)

A variety of mechanisms in operation around the world offer lessons for how socio-economic information could be more effectively incorporated into European Marine Site management in the UK:

The integration of management institutions within a single shared framework can have the effect of increasing efficiency, sharing knowledge and reducing conflict in decision-making. These can exist at different scales – for example, the proposed National Shellfish Resource Group, (SAGB 2007) or Sea Fisheries Committees.

Those impacted by European Marine Site decisions need to be involved in this framework from the beginning. For example, stakeholder participation in marine protected area management, from site selection to monitoring programmes, has been shown to improve managers' understanding of the socio-economic context and of potential tradeoffs in the system, and can improve compliance;

Participation of interested parties, including shellfishers, within this framework could lead to collaborative agreement on socio-economic and conservation objectives in management plans for European Marine Sites. The adoption of an ecosystem approach, which takes account of human-environment interactions, may provide sufficient common ground to achieve this. And, if tradeoffs are made explicit prior to agreement, this can also contribute to conflict reduction.

The introduction of socio-economic data management systems, such as community or sector profiles or indicators, would increase the capacity of managers to accurately assess potential

costs and benefits of policies and decisions or identify socio-economic trends. For example, research could be conducted to assess the socio-economic carrying capacity of European Marine Sites.

Some of these mechanisms require state sponsorship and support. Others, in principle, can work at the local or individual level. In each case, advance consideration of socio-economic factors in collaboration with MPA users and other stakeholder groups and their participation in the more general process of MPA management and decision-making can help to reduce conflict.

Recommendations for Change (p. 24)

There are three different stages in the process of management of European Marine Sites where socio-economic information can be introduced:

STAGE 1	Site Selection
STAGE 2	Objective-setting and agreeing management plans
STAGE 3	Assessing proposed activities and policy instrument proposals for change

UK policy, the experiences of research respondents in the UK, and experiences from around the world offer five main strategies for incorporating socio-economic knowledge into the management of European Marine Sites. These are Value Change; Commitment; Institutional Change; Engagement; Scientific Change and they apply at each of the three management stages.

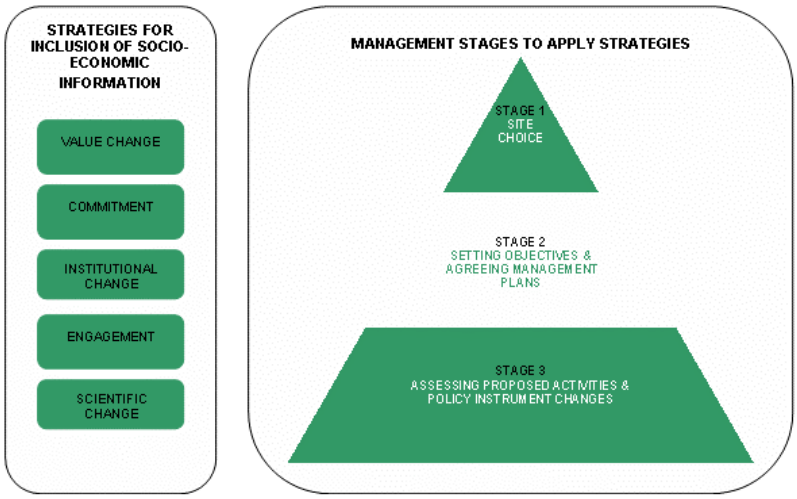

Figure ES1. Strategies and stages for incorporation of socio-economics into European Marine Site Management

UK policy documents, those consulted for this project – members of the shellfish industry, Sea Fisheries Committee officers and nature conservation agency staff – and the global literature review have proposed a variety of practical steps to achieve each of these five strategies. Table ES1 provides an overview of where support for each of them can be found.

Table ES1. Summary of practical steps for achieving strategies for the inclusion of socio-economic considerations in European Marine Site management

Strategy	Practical Steps	UK Policy-makers	UK Experience			Global Experience
			Industry	SFCs	NCAs	
Value Change	Reconsider "IROPI" to account for socio-economic value of local, small-scale businesses		✓			
	Find reasonable solutions that balance socio-economic and environmental needs	✓	✓	✓	✓	
Commitment	Systematic socio-economic data gathering, analysis and monitoring as a statutory requirement	✓		✓	✓	✓
	Allocate essential resources for consideration of socio-economics			✓	✓	
Institutional change	Streamlined institutions	✓				✓
	A single management framework for socio-economic and environmental factors eg. Integrated coastal zone management	✓				✓
	Socio-economic objectives	✓				
	An ecosystem approach, identifying the carrying capacity of sites	✓				✓
	Increase coherence with rural and social policy	✓				
	Broaden the agenda of European Marine Sites to include socio-economic aspects		✓	✓		
	Introduce local-scale institutional arrangements and supports, which are sensitive to local circumstances				✓	
Engagement	Improve communication and build relationships between industry, managers and nature conservationists	✓	✓	✓	✓	✓
	Shared and early discussion of proposals		✓	✓	✓	
	Collaborative, voluntary agreements such as memoranda of understanding or protocols		✓	✓	✓	
Scientific change	Develop methods to assess and monitor socio-economic factors, such as indicators, profiles, and cost-benefit, trade-off or capacity analysis	✓			✓	✓
	Review the process by which natural science is obtained		✓	✓		

NB. A tick indicates that a suggestion for the practical step was made: either in policy documents, by at least one respondent within the subsets industry, SFCs and NCAs, or in the global literature review. It does not indicate unanimous support for the measure. And, as suggestions were raised during general discussion, the above table does not rule out the existence of more support from different groups for any of the suggestions.

Conclusions (p. 27)

The general UK policy commitment to prioritising social and economic aspects of fisheries within marine environmental management is restricted by the legislative provisions of the Habitats Directive and the UK Habitats Regulations, on the one hand, and the limited financial and staffing resources of inshore managers and conservation advisors, on the other.

The legislation does not allow explicitly for the consideration of social and economic implications of decisions relating to European Marine Sites, except under the IROPI clause. It requires that decisions are taken on the basis of scientific evidence of likely effect on designated features. However, the experiences of industry, inshore managers and nature conservation agency staff tell us that this does not necessarily exclude the consideration of social and economic factors in the decision-making process. And global experience suggests that a requirement to conduct socio-economic impact assessments of decisions relating to MPAs can enable the systematic consideration of socio-economic implications of decisions.

By changing the socio-economic emphasis of the values underpinning management structures and decisions, and by improving communication, resources and opportunities to collaborate, a great deal can be done by all parties to work together to find balanced solutions that accommodate the requirement to protect designated features *and* the needs of industry.

USING SOCIO-ECONOMIC INFORMATION IN EUROPEAN MARINE SITE MANAGEMENT: UK SHELLFISHERIES

INTRODUCTION

Aim

Improve our knowledge and understanding of how social and economic information could be useful and influential within the management of the UK's European Marine Sites.

The need to examine the role of social and economic information in the management of the UK's European Marine Sites was raised during negotiations between the Shellfish Association of Great Britain (SAGB) and Natural England (the statutory nature conservation agency for England) to develop a Memorandum of Understanding regarding the 'Appropriate Assessment' of human activities within European Marine Sites.

The draft Memorandum refers to the "social, cultural and economic importance of sustainable management and development of shellfisheries and shellfish cultivation" (Art. 9). It also supports an "ecosystem approach", characterised by "adaptive management, acknowledgement of uncertainty and recognition of the need to balance environmental and socio-economic objectives are all characteristic of the ecosystem approach" (Art. 8). And there is a strong emphasis in the document on the need for industry, managers and Natural England to work collaboratively to find ways to mitigate potential negative environmental impacts of shellfish cultivation and harvesting activities.

The Memorandum has, to date, yet to be agreed. The role of socio-economic factors is one of the sticking points in negotiations. This is because, although all parties can broadly agree on the importance of the socio-economic sustainability of shellfish activities, the current UK interpretation of European Marine Site legislation limits the remit of assessments to biological factors, rather than taking a holistic approach to sustainability, for example, using the ecosystem approach.

In view of the lack of agreement on this issue, the current draft of the MOU does include a further investigation into the role of social and economic information in European Marine Sites in its 'Workplan'. This report responds to that proposal and aims to improve our knowledge and understanding of how social and economic information could be useful and influential within the management of the UK's European Marine Sites.

Operational objectives

The report addresses **four** key objectives:

1. **Policy Context:** By examining policy and legislative documents, assess the UK government's obligation and commitments to take account of socio-economic information in the management of European Marine Sites

2. **UK Experience:** Drawing on the experiences of shellfisheries, management and conservation actors, outline the reasons why the consistent consideration of socio-economic information is important in European Marine Site management

3. **Global experience:** From the available literature, provide detailed examples of how socio-economic information is being used in fisheries and conservation management decisions elsewhere in the world

4. **Recommendations:** Propose strategies for how industry, managers, nature conservation agencies and government can address the issue of how social and economic information can be used and be influential in European Marine Site development, implementation and management

Methods and Scope

The four objectives have been achieved via two key means:

First, a comprehensive literature review (including UK and non-UK examples) has been conducted of the use and influence of socio-economic information in marine conservation and fisheries management decision-making.

Second, members of the shellfish industry, regulators and nature conservation agencies have been consulted to gather anecdotal knowledge of their experiences of the use of socio-economic information in European Marine Site management.

The recommendations within this report are targeted towards the needs of the shellfish industry. However, they may also have some relevance for other fishery sectors as protected areas increasingly become a feature of the marine environment, both inshore and offshore.

Acknowledgements

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POLICY CONTEXT

What are European Marine Sites?

European Marine Sites are protected marine areas which have been designated under European Directives and national legislation. Their purpose is "to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status."[1] Many of these areas are located in key shellfish cultivation and capture zones.

The UK's protected marine areas form part of the European Union's Natura 2000 network of protected areas. They include sites designated under both the Habitats Directive (1992) and the Birds Directive (1979). A range of terms is used to refer to these protected areas: Special Areas of Conservation (SACs); Special Protected Areas (SPAs); Special Sites of Scientific Interest (SSSIs); and Ramsar Sites. The extent of these areas is illustrated in Figure 1, which features the Special Protected Areas (Figure 1A) and Special Areas of Conservation (Figure 1B) around the UK.[2]

As each of these types of sites comes under the jurisdiction of the same three key pieces of legislation, unless otherwise stated, this report will refer to these collectively as European Marine Sites.

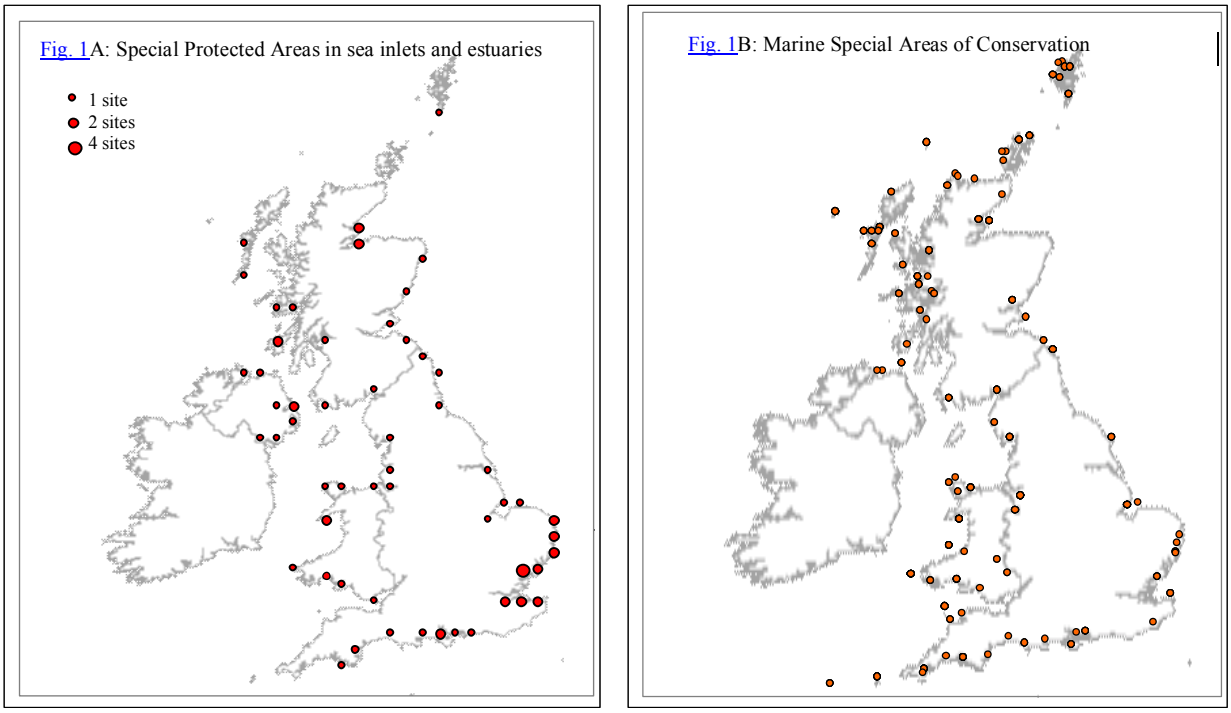

Figure 1. Illustrative maps indicating the location of some of the protected areas around the UK's coast (JNCC 2006)

[1] Habitats Directive 1992 Art 1(a)
[2] More information about the location of European Marine Sites can be found at www.jncc.gov.uk

Legislation

Three key pieces of legislation relating to European Marine Sites have laid out how human activities within European Marine Sites are to be dealt with and, if necessary, assessed. They are:

1) The Habitats Directive (1992), which "…involves the need to promote biodiversity by maintaining or restoring certain habitats and species at 'favourable conservation status' within the context of Natura 2000 sites, while taking into account economic, social, cultural and regional requirements, as a means to achieve sustainable development" (EC 2000:8),
2) The Conservation (Natural Habitats, &c) Regulations (1994), which brought the Habitats Directive into UK law
3) The European Court of Justice ruling on the Wadden Zee (2004), which ruled on the concept of 'plan or project' in Article 6/2 of the Habitats Directive

Legislative references to social and economic factors

Attention should be drawn to several references to socio-economic issues within the legislative framework of European Marine Sites. The Habitats Directive specifies, first, that: "Measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics" (Art. 2/3); and, second, Article 6/4 provides for a development to be allowed if there are "imperative reasons of overriding public interest".

The second of these provisions has been translated into UK law within the UK's Habitats Regulations (1994), which allow for "plans or projects" to go ahead if there are "imperative reasons of overriding public interest" (Art. 49/1-2). However, although these 'reasons' *can be* socio-economic, if a 'priority' habitat or species type is involved, the reasons must relate to "human health, public safety or beneficial consequences of primary importance to the environment", or "other reasons which in the opinion of the European Commission are imperative reasons of overriding public interest".

In each of these two key pieces of legislation, activities are referred to as "plans or projects". The 'Wadden Zee' judgement of the European Court of Justice (2004) ruled that "plans or projects" include existing activities as well as proposed developments. This ruling is important for shellfisheries as it has brought all shellfish activities into the remit of the Habitats Directive and its requirements to conduct 'appropriate assessments' of activities within European Marine Sites.

More detailed extracts from these three pieces of legislation are provided in Appendix 1.

UK Policy commitments to addressing social and economic factors

A series of governmental reports, strategies and policy statements have been issued in recent years. These all reflect the same message – that a balance needs to be found in marine and fisheries policy between environmental protection and human activities. This need for balance between environmental and socio-economic factors is expressed in the UK government general policy approach. *Securing the Future*, which details the UK's 'Framework for Sustainable Development' (Defra 2005c:16) has five guiding principles: 1) living within environmental limits; 2) ensuring a strong, healthy and just society; 3) achieving a sustainable economy; 4) promoting good governance; and 5) using sound science responsibly. However, it has also been stressed within fisheries and marine policy documents.

Safeguarding Our Seas (Defra 2002:5) pointed out the multiple factors at play in marine environmental policy: "We depend on the oceans and seas to help meet our economic and social

needs. At the same time, they contain unique habitats and diverse forms of life." Since then, successive reports have sought to develop policies for sustainable marine development that will enable this balance between socio-economic factors and environmental concerns to be achieved. Appendix 2 provides an overview of these documents.

In *Net Benefits* (PMSU 2004:10), there was a strong emphasis on the multiple goals of sustainable fisheries policy, among which were "helping secure the commercial future of the fishing industry", "supporting vibrant fishing communities" and "managing fisheries inside the broader marine environment". Again, social, economic and environmental objectives are linked together. This was also reflected by two of the draft goals Net Benefits produced for a future UK marine environment strategy (PMSU 2004:90): first, "to use marine resources in a sustainable and ecologically sensitive manner in order to achieve maximum environmental, social and economic benefit from the marine environment"; and second, "to sustain economic benefits and growth in the marine environment by enabling and encouraging environmentally sustainable employment"

Securing the Benefits (Defra 2005a:13-14) and *Charting A New Course* (Defra 2005b:1) specified that the UK's fisheries administrations' aim is: "A fishing sector[3] that is sustainable and profitable and supports strong local communities, managed effectively as an integral part of coherent policies for the marine environment." *Securing the Benefits* also stresses the need to assess socio-economic implications of policies: "The key to sustainable development is adopting a holistic approach rather than looking at any aspect in isolation. In relation to fishing, we need to consider the full social, environmental and economic implications of any measure. And it would be futile to try to address the challenges facing the fishing industry in isolation from addressing those which face the wider marine environment" (Defra 2005a:8-9).

This policy process will soon culminate in the Marine Bill. *A Sea Change – A Marine Bill White Paper* details legislation the Government hopes will deliver its vision of "clean, healthy, safe, productive and biologically diverse oceans and seas" (Defra 2007:2). A vision which reflects the broad scope of the Bill to include all the diverse marine activities – energy production and shipping, for example, sit alongside fisheries – within one framework. Thus, it is intended that the Marine Bill will provide "an integrated approach to sustainable management and the enhancement and use of the marine natural environment for the benefit of current and future generations. It will help deliver economic, social and environmental objectives with a strategic, progressive and effective approach" (Defra 2007:2).

Governmental proposals for meeting socio-economic commitments

An Ecosystem Approach: To address the dual priorities of "conservation objectives" and "individual needs", *Safeguarding Our Seas* proposed an ecosystem-based approach to marine policy. Working from the International Council for the Exploration of the Sea's (ICES) interpretation, this approach would feature the better integration of "marine protection objectives with sustainable social goals and economic growth" and "integrated assessments based on the environment, marine resources and socioeconomics" (Defra 2002:6-7).

Integrated Coastal Zone Management: One tool of the ecosystem approach is integrated coastal zone management, which brings all interested groups and individuals into the management process. The objective of this would be to: "establish sustainable levels of economic and social activity in our coastal areas while protecting the coastal environment" (Defra 2002:24).

[3] (The 'fishing sector' in this instance means all aspects of catching, processing, retail and associated industries that rely on wild-fish catch, including shellfish and the recreational sector.)

Regional and Social Policy: *Net Benefits* found that to be "truly sustainable", the fishing industry needs to have firm strategic foundations in four related areas: the commercial environment; fisheries policy; regional and social policy; and marine management (PMSU 2004:19). Arguing that: "Although the fishing industry…is…a key source of income and quality of life in a number of communities", and that it "provides important social goods in many remote and deprived areas," *Net Benefits* proposed that structural funds should be designed so that they continue to support the fishing industry – which is unique in the extent to which it is regulated, its geographic spread and its value to communities as a local renewable resource – and communities in meeting their objectives (PMSU 2004:79,86).

Social and Economic Objectives: *Net Benefits* proposed that to achieve the over-arching aim of fisheries policy – "to maximise the return to the UK of the sustainable use of fisheries resources and protection of the marine environment" – should be achieved by adopting explicit social and economic objectives alongside environmental goals (PMSU 2004:100). Economic objectives should ensure industry profitability and sustainability and social objectives in fisheries policy should be aimed primarily at assisting dependent and vulnerable fishing communities (PMSU 2004:79).

Data: Fisheries departments need to ensure that fisheries data is organised to allow a better understanding of the regional and community distribution of access rights, landings and employment, so that existing data can be of more value in determining the social impact of changes in fisheries policy, and to provide better information for regional and regeneration policy (PMSU 2004:134)

Impact Assessment: The *Marine Bill* proposes that environmental, community and economic impacts of any new plans and programmes in the marine area should be considered at an early stage and throughout the planning process. This would be achieved by carrying out an economic, environmental and social appraisal and an assessment of sustainability during the preparation of the draft plan (Defra 2007:31)

Stakeholder Involvement: *Net Benefits* emphasised the importance for managers of setting objectives *with* stakeholders for the inshore sector at the regional scale (PMSU 2004:79). The UK's Government's response to *Turning the Tide* (Defra 2006:27) proposed that the designation of marine protected areas for nationally important species and habitats should be led by conservation agencies, but that site selection would be a collaborative enterprise with industry stakeholders, which would take account of socio-economic considerations.

Marine Conservation Zones: The *Marine Bill* (Defra 2007:68,73) suggests a two-tiered approach to nature conservation in the marine area that will be more flexible in its protection of ecosystems and biodiversity without causing inappropriate economic or social impacts wherever possible:

1. Species and habitats important at the European level protected through conservation legislation transposing the strict requirements of the Wild Birds and Habitat Directives; and
2. Species, habitats and ecosystems that are important domestically protected through new provisions, to be known as Marine Conservation Zones, or MCZs, allowing greater flexibility to take account of other factors, including social and economic considerations.

Overriding Public Interest: The *Marine Bill* (Defra 2007:79) proposes that activities could be considered to be in the public interest if it can be demonstrated that:

1. There is a need to address a risk to human health or public safety;
2. It is in the interests of national security and defence;
3. There is a clear and demonstrable direct environmental benefit on a national or international scale;
4. There is a substantial contribution to regional economic development or regeneration; or failure to proceed would have substantial undesirable environmental, social or economic consequences. The definition of "substantial" was not made clear.

Policy context conclusions

Overall, there is a general commitment in the UK to prioritising social and economic aspects of fisheries within policy-making relating to the marine environment. And strategies have been devised for addressing this issue in practice. There is also provision for the consideration of social and economic factors in the legislation specifically relating to European Marine Sites. However, there is evidence that the principle of taking social and economic factors into account in decision-making is not filtering through to the practical management of those sites and the human activities taking place within them. The subsequent section considers why this is the case by drawing on the experiences of the shellfish industry, inshore managers and nature conservation agency officers.

UK EXPERIENCE

Scoping the issue

As explained in the previous section, although the UK Habitats Regulations refer to 'imperative reasons of overriding public interest', they fail to make it clear how else measures relating to the Habitats Directive shall "take account of economic, social and cultural requirements and regional and local characteristics" (Habitats Directive Art. 2/3). The development of a Memorandum of Understanding between SAGB and Natural England went some way towards exploring this issue in relation to 'Appropriate Assessments' within European Marine Sites. This section considers the broader experiences of shellfish cultivation and capture operations with decision-making in relation to their activities and their interactions with designated features within marine protected areas. These views were gathered during an informal consultation with industry members affected by these processes.

The survey took in 12 owner-operators in the mussel and oyster sectors from England, Scotland and Wales. Its purpose was to gain a general understanding of how existing European Marine Site management decision-making processes take social and economic factors into account, to identify key obstacles and to ask what changes could be recommended to improve those processes. The survey was followed by conversations with four Sea Fisheries Committee fishery officers, and with representatives from three of the UK nature conservation agencies who provided their own perspective on the use of socio-economic information in European Marine Sites.

This section primarily reports on the views of industry with regard to their own experiences of the role of socio-economic factors in European Marine Sites, key obstacles to its inclusion and recommendations for how the situation might be best improved. The views of inshore fishery managers and the perspective of nature conservation agencies, as expressed during conversations with them, are also described. And the recommendations made by the all the different UK actors for how socio-economic information can be included in European Marine Site management are summarised in Appendix 3.

This preliminary survey of the knowledge and experience of these different actors helps to provide a lens through which to view the experiences of other marine conservation and fisheries management systems around the world and their relevance to the UK inshore context.

The Shellfish Industry

Common experiences

The socio-economic value of the shellfish sector was emphasised during the survey process and there is a strong sense of frustration within the industry of the failure of the management system to give this value due recognition. Comments from respondents included references to their livelihoods, the traditional place of their industry in the coastal environment (long before protected areas were thought of), the sustainability of the industry, the wealth they generate for local, national and other European economies, and the existing employment and potential number of jobs they could create for local people if growth in the industry was encouraged by the government. Despite all of these important socio-economic aspects of shellfish enterprises in Britain, there is no formal means for them to introduce socio-economic information into European Marine Site decision-making processes.

There is great diversity between the experiences of industry in decision-making processes associated with European Marine Sites. Designations, details and deliberative processes are all

different. Thus, it is difficult to draw a reliable picture of the interactions of shellfish industry with European Marine Sites. However, a number of characteristics do appear to be broadly common to all:

1. Protracted decision-making processes
2. Lack of consideration of the economic status of small businesses
3. Prioritisation of the environment at all costs
4. Changing personnel in nature conservation agencies
5. Expensive science
6. Unwillingness to listen and learn
7. Exclusion from the communicative loop

Not all of these factors are present in every UK European Marine Site. There are strong exceptions, such as the developing co-management system in the Wash (Larsen et al. 2006), where fishermen are actively included in decision-making. However, when taken together, they do combine to create a slow and cumbersome system of decision-making in European Marine Sites, which is more likely to alienate than engage participants in shellfisheries around the UK's coast. In some cases, shellfishermen have adapted their own businesses to this new reality. Elsewhere, this has been very difficult to achieve and high costs have been incurred.

Obstacles to the inclusion of social and economic information

Experiences of shellfishers from around the UK indicate that social and economic aspects of their operations are not systematically considered in the management processes relating to European Marine Sites. The reasons can be divided into three categories:

Institutions: Under UK law there is no statutory obligation to consider social or economic impacts of the introduction or management of European Marine Sites. UK policy, while emphasising socio-economic factors as being important, has not filtered this priority down to the practical level where decision-making on European Marine Sites and associated human activities take place. Here, environmental protection objectives take precedence. Instead, the system only allows, in apparently extreme circumstances, that an activity may be regarded as being so important that it overrides conservation objectives: under the Article 49 provision for 'imperative reasons of overriding public interest'.

Thus, the subject of socio-economic implications of policy decisions is not otherwise explicitly addressed during decision-making processes in European Marine Sites. Instead, socio-economic information may be tabled but is not regarded as decisive. In the case of Appropriate Assessments of shellfish activities in European Marine Sites, for example, decisions have to be taken by Relevant Authorities on the basis of scientific evidence of probable impacts of shellfish fishing and cultivation activities on those features that have been designated under the European Marine Site. If there is insufficient biological evidence, in principle the precautionary approach is applied.

Therefore, as a result of a variety of reasons, including limited budget and resources and the absence of a clear mandate of responsibility for this issue, socio-economic aspects of shellfisheries are not systematically taken into account by decision-makers in European Marine Site management. The extent to which socio-economic factors are considered is thus heavily dependent on the individuals involved – industry, managers and nature conservation agencies.

This situation is further complicated by the multiple bodies – Sea Fisheries Committees, Nature Conservation Agencies, local councils, coastal estate owners, environmental non-governmental organisations and national and devolved government departments and ministers – industry has to deal with on an individual basis. It is the experience of some respondents that little attempt is made to integrate the work of these different organisations, or even to communicate with each other. Changes in Ministers and staff can exacerbate this problem.

This results in replication of processes, research and questions to industry, which has the effect of slowing down the decision-making process and has a high cost attached in terms of time and money. Several industry respondents reported negotiations that have lasted for more than five years, and are still ongoing. The slow pace of decision-making creates a cultural conflict with the industry, which is characteristically populated by self-employed individual or family-run operations, used to taking decisions very quickly. The lack of communication between different organisations and the speed of decision-making both need to be addressed.

Some industry members report that their nature conservation agency officer consults and informs them, and takes into consideration the value of their activities. However, others suggest that they have been excluded from decision-making processes, have not been advised of relevant meetings, and that individual officers can hold up the decision-making process seemingly indefinitely – for example, by proposing new scientific queries, once existing ones have been satisfactorily addressed, or by reversing verbal agreements with industry – the latter of which is likely to be due to the lack of flexibility afforded to individual officers by the organisations themselves.

In some cases, it was reported that a pattern of working has been established between industry, nature conservation agencies and managers, within the remit of the limited evidence allowed to be considered, which works. Industry, in this case, puts all its effort into scientific corroboration of the absence of harm to designated features from proposed or existing activities. Thus, industry is meeting the system on its own terms. However, this option has inherently high economic costs and is at the sacrifice of any moral value attributed to the existence of local enterprises in the UK's coastal communities.

Operating scale: There are two ways in which the scale of fishing operations creates obstacles to the consideration of socio-economic factors in European Marine Site management and decision-making: first, economically; and, second, politically.

With regard to the first, shellfishing operations are not of the right business scale to be taken into account under the 'imperative reasons of overriding public interest' clause of the UK Habitats Regulations (1994). IROPI is invoked in a value-laden way that encompasses large-scale economic developments that could benefit the national economy and population. Smaller-scale local businesses, which have a value to local economies and communities do not fall into this category. And, shellfishers often find that other developers in other marine industries do not consistently take account of their views.

The way in which IROPI is deployed indicates that it is imbued with prior assumptions about the scale and scope of activities which can be deemed to be of imperative reason of overriding public interest. Such activities must be of a large enough size or be of significant enough importance to have benefit to the general population. Local-scale, family-run businesses, which create local employment, and which add value to the local economy – albeit many of which have substantial export markets and are economically successful – do not fall into this category. Shellfish enterprises fall into this category. They tend to be small/medium-sized and the economic – for example, the added value to be had from expansion in terms of jobs and money in the local economy – and social benefits of them are ignored – for example, a shellfish farm in a bay area can act as a tourist attraction, adding value to the local environment.

In addition, it is the experience of several of the industry survey respondents that public UK investment and financial support is provided for non-UK companies and that priority is not given to local firms. This is despite the fact that non-local firms do not contribute to the local economy to the same extent as local ones and tend to allow local resources to be extracted without benefits being felt by the local economy.

Second, the political scale of shellfisheries and shellfish farms is tiny in comparison with the political weight of other marine users, of the environmental lobby and environmental legislation governing European Marine Sites, and of the general public. Shellfish businesses tend to be owner-operators, without access to an influential network, beyond their own industry association. Thus, they have comparatively little political influence, which is limited still further by their economic need to run their businesses successfully.

It is the industry's experience that while high costs in time and money of obtaining permissions under European Marine Site legislation to farm or extract shellfish mean that newcomers to the industry, especially young people, would find it very difficult to set up a business, large corporations setting up marine developments and/or extraction programmes, with more political clout, are treated differently. Owners of shellfish enterprises feel that they are not subject to the same decision-making process as larger marine businesses and do not have a comparable degree of influence over the policy process. This is despite the fact that, for example, large scale energy producers laying gas pipelines or installing windfarms, have the potential to damage the marine environment on a far greater scale than a shellfish farming operation.

In addition, there are fears in the industry that public rights, for example the introduction of public access to the whole English coastline, will threaten their operation, putting the socio-economic interests of the general public before the socio-economic interests of the industry who are financially dependent on the coast. The feeling was also expressed that fisheries issues are not given priority by government ministers.

Overall, the relatively small business and political scale of shellfish enterprises means that becoming involved in lengthy wrangling over their activities in European Marine Sites is a costly process, in time and money, with little support to be found outside the industry itself. This process is despite official government recognition that shellfisheries can be sustainable (PMSU 2004).

Science: Establishment, expansion or changes of use to shellfish enterprises that may affect European Marine Site designated features are required to demonstrate their absence of impact. The burden of proof is on industry to provide scientific evidence of this, in accordance with questions posed by nature conservation agencies or relevant authorities. This has a high direct economic cost and indirect costs associated with time taken to gather evidence. These costs are exacerbated when multiple successive requests for different scientific evidence are made with regard to the same site. There is a general concern that the precautionary principle is used indiscriminately in decision-making relating to European Marine Sites. And, several respondents reflected that while they are required to produce scientific evidence to order, if they have a scientific query themselves – for example, relating to water quality or shellfish disease – the authorities can be very slow to investigate.

Industry recommendations for overcoming obstacles

A number of recommendations were made by industry respondents for how the obstacles outlined above might best be overcome. These are described here.

Grassroots: Bring the policy focus back to the grassroots. Prioritise small-medium operations, employing local people, rather than businesses that will not add value to the local economy or create local employment. This could be addressed in terms of business support funding and decisions relating to conflicts between businesses in European Marine Sites. It could also be addressed by reviewing the use and intentions of the 'IROPI' clause of the Habitats Regulations.

Science: Get the science right. Streamline and better manage the process by which scientific evidence of impacts is requested – stricter timelines and a policy of requesting all scientific evidence at the same time – would reduce costs to industry in time and finance. This would

require more careful consideration on the part of authorities of what questions need to be answered with regard to the impacts of a shellfish operation in any given site and what science is required to answer those questions.

Communication: The industry needs to be able to build up long-term relationships with nature conservation officers, sea fisheries committee officers, civil servants and scientists. This should be based on respect, a willingness to listen and recognition of the sustainability of long-term successful shellfish operations.

Consistency in personnel is important and industry should be kept informed of changes. New officers in enforcement or nature conservation can learn from consulting shellfisheries owners and operators and learn from them. Closer liaison between different agencies themselves would also be advantageous, as it would help to reduce the amount of work currently being replicated in the decision-making process. The statutory inclusion of stakeholders in decision-making processes relating to European Marine Site management could improve relationships between them and agencies.

Scale: The scale of legislation, support bodies, statutory requirements and frameworks needs to be appropriate to the scale at which businesses in the industry operate. For example, there needs to be more emphasis on small-scale businesses in the Marine Bill

Voluntary agreements: It was suggested that a protocol could be developed for dealing with fisheries in European Marine Sites; and that a Memorandum of Understanding between industry and nature conservation agencies, such as the draft MOU between Natural England and SAGB, which has yet to be agreed, would be beneficial in terms of clarifying roles, responsibilities and objectives in European Marine Sites and finding ways to introduce socio-economic information.

Non-industry reflections on the role of socio-economics in European Marine Site management

In this section, the text provides a preliminary reflection of the perspectives of two sets of actors – Sea Fisheries Committees (SFCs) and Nature Conservation Agencies (NCAs) – regarding the use of socio-economic information in European Marine Sites. The views which are reported were expressed during an informal consultation, which was limited to just a few respondents. Therefore, this section is intended to provide insight into the perspectives of SFCs and NCAs on this issue, rather than present a full and representative picture of their views.

Inshore managers

Marine site criteria: The Habitats Directive is concerned with environmental protection and conservation, and decision-making criteria used by competent authorities, such as SFCs, are biological or environmental, rather than socio-economic. IROPI is the only clause where socio-economic factors can be explicitly taken into account, and, to the knowledge of respondents, it has never been used in a fisheries-related decision.

However, when SFCs take any decision they do so with a regard for socio-economics. For example, socio-economic issues – such as fishery longevity and economic and community value – are raised by SFCs during discussions relating to European Marine Sites. Yet, there is a general concern that these aspects tend to be overruled, even in cases where there is no scientific evidence of likely effect on designated features, under the remit of the precautionary principle.

Given that people make a living from the marine environment, respondents took the view that the agenda of marine sites should be broader than nature protection. They suggested that European

Marine Site management and decision-making criteria could be changed so that decisions can be openly made for a combination of conservation and socio-economic reasons. If a balanced approach is adopted, scope can be found for fisheries to take place and for socio-economic impacts to be considered, without compromising the features that require protection. This legislative change would improve the transparency of the decision-making process.

Roles and Resources: SFC resources are very limited, restricting inshore managers' roles to only meeting their statutory responsibilities. Resources are particularly stretched by the European Marine Site decision-making process, which is overcomplicated and slow. For example, the appropriate assessment process replicates the checks and balances already incorporated into the work of SFCs and centralised decision-making in NCAs slows the process down further.

Given limited resources, in order for it to be properly considered, socio-economic assessment would have to become a statutory role of SFCs, with appropriate funding earmarked for this purpose. This process would not be limited to simple accounting, so that decisions favour the most profitable boats. Instead, socio-economic analysis could focus on a range of factors: what is best for the fishery and fishing community; maximising prices, number of vessels, length of season and number of crew; maximising the socio-economic value of the resource; or more environmentally-friendly gears/methods.

To facilitate this extra responsibility, the existing decision-making process would need to be streamlined and speeded up and more resources would need to be allocated to allow SFCs to address both environmental and socio-economic aspects. It was proposed that inshore management decision-making could be speeded up by establishing agreed management principles between industry NCAs and SFCs, rather than working from rigid rules. It was also suggested that NCAs could also be required to have a regard for socio-economic interests, in addition to their primary focus on nature conservation. Including an NCA representative on each SFC would facilitate such a change.

Relationships: There's a lot of disagreement within industry and there's a lack of understanding and a lot of mistrust between the industry and nature conservation agencies. The two groups only tend to talk to each other when there's a problem, rather than on a regular informal basis, making their relationship more authoritarian than collaborative. This creates conflict.

Relationships between industry, SFCs and NCAs need to be improved. Regular communication, discussion, participation, knowledge sharing, learning from experience and openness should be encouraged. SFCs communicate regularly with fishermen at the individual and representative levels by phone and in person, individually and at meetings. They also convene frequent meetings between industry and nature conservation agency officers. SFCs often take on an informal mediation or brokerage role, as they are regarded as having no vested interest by both sides. Increasing the awareness of all parties of what the fishery looks like and how it is managed would reduce the current high level of misinformation. The provision of information for fishermen regarding SFC and NCA responsibilities would also be helpful.

We need to be less legalistic in our response to problems. Collaborative local decision-making, rather than public inquiries or ministerial decisions, can produce better, more acceptable long-term solutions. One reason for this is that decisions with industry support behind them are more successful and create a reduction in the blame culture that has characterised the industry. If things go wrong, they have to take partial responsibility. A policy of more NCA collaboration with industry and SFCs could be introduced at the corporate level. An MOU between nature conservation agencies and the shellfish industry would be a good way to achieve this.

Science: There are concerns that the precautionary principle has been invoked unevenly and on a vague, rather than scientific basis. It was recommended that guidance on the reasonable use of the precautionary principle should be developed. For example, the principle should be used where necessary and be based on independent scientific evidence of likely impact. And, until

such time as evidence becomes available, activities of socio-economic importance could be allowed to proceed, with appropriate monitoring. Two useful tools for achieving this could be: first, to introduce a higher bar for the precautionary principle if its use means a development is to be stopped or delayed; second, likelihood of impact could be graded to indicate what the appropriate management response should be. This would mean that the burden of proof of impact/no impact would be on both sides, rather than just industry. A joint industry, SFC, NCA workshop or seminar could address the issue of the use of the precautionary principle.

Nature conservation advisors

Marine site criteria: European Marine Sites are sustainable use sites, designated solely for nature conservation reasons. Decisions are based on available science and, in the absence of detailed scientific knowledge, management decisions relating to activities in European Marine Sites are often based on strong probability of impact, or no impact.

Unless IROPI is invoked via Ministerial decision, any activity within the site, or affecting the site, must be compatible with the site's primary objective of protecting designated features. IROPI is more often used for larger enterprises and developments than fisheries, for which IROPI decisions have never, according to one respondent, been used. And IROPI does not allow you to ignore the marine environment: decisions in favour of development have to be accompanied by environmental compensation or mitigation measures.

Regulatory impact assessments do not include socio-economic impact assessments and it is important that there is general acceptance that the legislation is in place and must be adhered to. If there was no Directive then areas could take on biodiversity and socio-economics: one respondent proposed that a broad principle of full consideration of environmental, economic and regulatory assessment by competent authorities would be welcome. But working with existing legislation does limit the process.

Socio-economic factors: Socio-economic and political factors affecting proposed sites are considered between the agency proposal and government decisions on proposed site lists/boundaries of sites. And the consideration of socio-economics within existing European Marine Sites varies depending on the resources and approach of the relevant competent authority, industry strength and coherence, and general good management. The number of operators and political clout can also be an influencing factor. However, as smaller operators are potentially less likely to have an effect, decisions can work in their favour on biological grounds.

Resources and Roles: The role of NCAs is to provide the environmental advice element of the European Marine Site decision-making process and they have a statutory responsibility to protect the designated features within European Marine Sites. NCAs do not take socio-economic factors into account in their advice relating to new or existing European Marine Sites. This begs the question: who should the government designate to advise them on socio-economic aspects implications of policy? Possible candidates include industry-related organisations, such as Seafish or the national fisheries institutes – CEFAS and FRS – who have previously not included non-natural science aspects in their statutory work.

Within the broader context of their obligations to the environment, NCAs are aware of sustainable development, and they do have an interest in cultural aspects of coastal communities, but they have limited financial and staffing resources with which to address fisheries issues. Very few staff are solely dedicated to fisheries or even the marine environment. These specialist staff tend to be based in agency headquarters, rather than regional offices, but they can help to mediate between industry and local nature conservation officers who may not have a full marine understanding.

But, NCAs do try to accommodate the interests and activities of industry within or near European Marine Sites. They do this by talking informally to industry at an early stage about the specific location, methods and seasons of proposed activities. Nature conservation staff can then guide them to areas that are less sensitive, thereby accommodating their needs, while fulfilling their statutory obligation to protect the designated site features. Industry may then raise issues of motoring time and distance, water quality or weather problems and, again, accommodation can be made to improve the situation for industry and address these potential problems in any solution. Problems occur where there is no room for accommodation. This can lead to a stand-off, ultimately leading to a public inquiry or a ministerial decision.

Relationships: Miscommunication between industry, SFCs and NCAs can be a problem. This is partly because of the lack of knowledge people have of the process when they come to the table – for example, the scientific requirements of the Habitats Directive and of the designation process.

Respondents highlighted the importance of communication between NCA project officers and industry, and of stakeholder engagement in general. In Scotland, new management fora explicitly bring stakeholders (industry and community) into the management process. In particular, early dialogue on specific proposals is critical and common discussion of scientific evidence can be useful.

NCAs should do their best to be reasonable. They could issue guidance on the sensitivity of areas, find ways to regulate intensity and give fishermen ideas about activity that will not damage designated features by communicating with them. Fishermen also need to engage. Working together – for example developing more selective gears – can be mutually beneficial. Otherwise the industry and nature conservation agencies only come together to address crises.

The existence of multiple jurisdictions means that there is no clear process for addressing problems and this has both socio-economic and environmental implications. For example, other issues, such as water quality, are the responsibility of external agencies. Addressing these issues more effectively could reduce conflict between industry and environmental industries.

Management tools: Tools that are beneficial for both the marine environment and socio-economic aspects of fisheries need to be developed. For example, there is ongoing work to identify areas where you can operate fishing and shellfishing activities without impacting on European Marine Site features. A traffic light system indicating intensity of likely impacts would provide a useful means of judging quickly what sites are feasible, which are unfeasible and which would need more detailed assessment.

Regulations need to be more sensitive to local circumstances. One NCA approach is to restrict specific fishing intensity, as low level impacts or particular gears can be compatible with European marine site objectives. Limits to the number of fishing or shellfishery permits are useful here. As are measures opening only one site at a time to activity to prevent impact across the board and restrict it to one location. A simple open vs. closed fishery regulation is often insufficient to take account of the needs of the specific marine environment and can be very restrictive for industry. Spatial zoning, codes of conduct and voluntary agreements can also be useful mechanisms. Incentives for the development and use of ecologically-friendly gear, or for local processing/sourcing could also be factored into the management system. For example, the English Shellfish Industry Development Strategy (SAGB 2007:20) recommended the establishment of Shellfish Producers Boards to link supply and shellfish management through local managers, such as SFCs. Such management tools can be structured within a site management plan.

Knowledge: Industry information regarding the spatial distribution of fishing effort would be very useful and SFCs are working with industry on this. At the moment it is difficult to gather information at scales relevant to individual sites – enforcement and stock assessment data is at

ICES rectangle level; and industry spatial/historical information is also difficult to obtain. Other activities, such as diving, for example, are also not mapped.

There is a lack of knowledge about the socio-economic value of the marine environment and fisheries. The overall socio-economic value of the resource, rather than just fisheries, should be explored. NCAs would find information about the extractive and in situ value of resources and about how fisheries and the ecosystem interact useful. This could help managers to find the optimum balance between environment and fisheries.

UK conclusions

The difficulties that shellfish operators have experienced in dealing with the requirements of the Habitats Directive and the UK Habitats Regulations are reflected by SFC and NCA respondents. There is a shared recognition between industry, SFC and NCA respondents of the difficulties inherent in European Marine Site management.

Each recognise that the slow pace of decision-making, lack of staffing and financial resources and communicative failures have often served to undermine attempts to reach agreement. As the legislation was established to protect environmental features, it is industry that lose out where agreement cannot be reached. This can have significant socio-economic implications.

The three groups – industry, managers and conservation advisors – also propose common solutions. These include improving communication, increasing resources for industry development, inshore management and nature conservation in the marine environment, and enabling collaboration between the different actors. All of which can improve the capacity of the groups to identify mitigating measures that will enable industry activities to be accommodated, as far as possible, within the management of European Marine Sites.

In addition, there was a strong emphasis from both industry and managers on the need to increase the speed and efficiency of the decision-making process, to clarify scientific requirements and thresholds, and to change the statutory roles of managers and NCAs to encompass socio-economic considerations so that a balanced view of industry and marine environment requirements can be taken on a consistent basis. It was considered that an MOU between NCAs and the industry would be advantageous in addressing these issues.

The subsequent section looks beyond the UK to learn how socio-economic information is being factored into marine protected area (MPA) management elsewhere in the world.

GLOBAL EXPERIENCE

MPAs: Marine Protected Areas

European Marine Sites fall into the general management instrument category of Marine Protected Areas, or MPAs. Around the world, this management tool has been deployed to address specific conservation and fisheries management problems, such as the protection of benthic flora and fauna, of important habitats, and of commercial fish, particularly in spawning areas. As a result, mechanisms have been developed to ensure the effective management of MPAs. Some of these address socio-economic factors. In this section, these mechanisms are described and their usefulness for European Marine Site management is evaluated.

Factoring socio-economics into MPA management

The ecosystem approach: This common 'buzzword' in marine management represents a more holistic approach. Although there is confusion and disagreement about what the objectives of an 'ecosystem approach' might be – preservation (RSE 2004), restoration (Pitcher and Pauly 1998) and sustainable exploitation (Rosenberg & McLeod 2005) are just three of these – the underlying principle of this mechanism is that a range of human activities and their interactions with all components of the marine environment should, as far as possible, be taken into account in marine management decision-making. MPAs have been used to help protect species, biodiversity and habitats and to improve ecological knowledge. They are understood by many to be a key instrument of the ecosystem approach that can be used to balance ecological and fishery objectives (Vandeperre *et al.* 2006; EFEP 2004; Garcia-Saez 2005) and to preserve historic and cultural heritage (Alban *et al.* 2006). MPAs can thus have multiple purposes that span ecological and socio-economic objectives.

The interpretation adopted by this report is that the ecosystem approach is just that: an approach to management. It doesn't require setting hard ecological targets. Instead, it is a management method that takes a wider view of the marine environment. This method requires: 1) analysis of the impacts of human activities on the marine environment, or particular features of it. This aspect of the ecosystem approach is characteristic of the European Marine Site management systems currently in place in UK waters; and, 2) the ecosystem approach also requires assessment of the impacts of marine management measures on the marine environment *and* activities being undertaken within that environment. Thus, the ecosystem approach can be about monitoring regulatory activity as well as commercial activity.

In Australia, for example, fisheries managers and scientists regard the ecosystem approach to fisheries management, which looks at the full ecosystem effects of fishing, rather than focusing solely on stock impacts, as requiring "science-based understanding, assessment and management of…the socio-economic aspects of fishing" (CSIRO 2007). And, elsewhere, it has also been proposed that "one of the key activities in developing an ecosystem approach is the establishment of overall or integrated objectives, and at a specific level, more detailed and operational objectives" (FSBI 2001:7). Therefore, the ecosystem approach represents an opportunity, rather than a constraint, to bring human concerns into European Marine Site management, where conservation objectives have thus far taken centre stage. Socio-economic impact assessments are an example of taking an ecosystem approach and these are addressed below.

Socio-economic impact assessment: In line with the ecosystem approach, the principle of considering the wider impacts of fisheries policy – rather than just direct commercial stock impacts – is becoming increasingly common.

For example, the Australian Bureau of Rural Sciences (BRS 2005) has developed a 'toolkit' for socio-economic impact assessments of MPAs. The toolkit recommends developing a regional profile, based on primary and secondary data, gathered using quantitative and qualitative surveys and participative research methods, such as focus groups and interviews. This information can then be used to assess direct and indirect impacts of a proposed MPA. Profiles include information on population, labour force, income, education, skills and training, industry structure and firm performance, and measures of social capital and social well-being, at the individual and community levels.

A second example of socio-economic impact assessments of MPAs can be found in Canada. After the Oceans Act (1997) made provision for the establishment of MPAs, the Canadian Department for Oceans (DFO) issued a framework for their establishment and management. Potential sites are identified and screened, and, once this has been completed, three assessments take place – ecological, technical and socio-economic – before recommendations are made for site designation. The socio-economic assessment is required to focus on how the MPA would affect human activities in and around it and how socio-economic benefits of the MPA could be enhanced and/or its costs reduced (DFO 2007).

Cost-benefit or tradeoff analysis: A lot of research has concentrated on the economic value that MPAs generate via ecotourism and fisheries, on their intrinsic value to society and on their biological and ecological effects, rather than on the socio-economic costs of MPA introduction (Dixon *et al.* 1994; Sanchiro *et al.* 2001:12). This is despite the fact that fishers will incur the greatest impacts of MPA introduction, with higher impacts being felt in isolated coastal areas than in urban coastal communities (Badalamenti *et al.* 2000:115-6).

Negative impacts are felt by those resource users who have traditionally used the grounds; they are felt indirectly by those in adjacent grounds, with some user groups impacted disproportionately; and costs tend to be immediate, while benefits are realised over the long-term, perhaps only by later generations (FSBI 2001:1; Sanchiro *et al.* 2001:19). It is thought that if decision-makers have an improved understanding of costs and benefits of MPA introduction it may help them to make decisions and compensate "losers", if necessary (Sanchiro *et al.* 2001:20). Cost-benefit analysis can be carried out by a process of stakeholder identification, valuation of market and non-market costs and benefits, and aggregation of balances to calculate the overall balance sheet (Alban *et al.* 2006). Table 1 presents a list of factors to consider in cost-benefit analysis of MPAs.

However, socio-economics are often not taken into account in practice. This is because socio-economic costs and benefits are difficult to quantify, particularly given the inherent uncertainty of attempts to predict impacts of new management tools on biological and economic systems; and the value of non-extractive uses – ecotourism and conservation value per se – is equally, if not more, difficult to quantify (Sanchiro *et al.* 2001:13).

In addition to quantifying the costs and benefits of an MPA, it is also useful to consider social, economic and environmental tradeoffs underlying decisions relating to the MPA's management (FSBI 2001; Sanchiro *et al.* 2001). From their work in Tobago, Brown *et al.* (2002:4) have found that if managers are explicit about such tradeoffs, it can increase policy legitimacy where multiple and diverse interests are involved. One way of achieving this is to use multi-criteria analysis, in which resource users, managers and environmental interests are asked to weight the importance of different objectives, or 'criteria'. This approach would use economic, social and ecological criteria. An example of these, in relation to experiences in MPAs popular with tourists in the Caribbean, is provided in Table 2.

Table 1. Cost-benefit analysis (based on Sanchiro et al. 2001)

Categories	Benefits	Costs
Extractive Users (e.g., commercial and recreational fishermen)	• increase in catch • reduced variation in catch • better catch mix (i.e., greater frequency of older/larger fish)	• decrease in catch • congestion on the fishing grounds • user conflicts • higher costs associated with choice of fishing location • increase in safety risks
Non-extractive Users (e.g., divers, eco-tourists, and existence value)	• maintain species diversity • greater habitat complexity and diversity • higher density levels	• damage to marine ecosystem • loss of traditional fishing community
Management	• scientific knowledge • hedge against uncertain stock assessments • educational opportunities	• increase in monitoring and enforcement costs • foregone economic opportunities (e.g., oil, gas, and mineral exploration and bio-prospecting)

Table 2. Examples of economic, social and ecological criteria that could be ranked by stakeholders in an MCA process (Brown et al. 2002)

Economic Criteria	Macro-economic benefits of tourism Tourist benefits
Social Criteria	Local employment in tourism Informal sector benefits Costs of local access
Ecological Criteria	Water quality Productivity Coral reef health Management habitat

Priorities can be set collaboratively through this process, reflecting multiple values rather than a single value framework, and the tradeoffs between different objectives become more explicit. This suggests that, in addition to socio-economic information, biological and ecological knowledge is also important to decision-making processes based on analysis of tradeoffs.

Socio-economic data: For the most part, such impact assessment processes rely on ad hoc data-gathering, rather than the construction of large-scale socio-economic databases. Several concerns regarding using existing data are raised in the guidelines. First, it is likely to have been collected with a very different purpose in mind. Second, data could contain inexplicit bias that could skew the findings of any assessment. Third, information could be out of date and would need to be refreshed. And, finally, existing data can be at differing and inappropriate scales that may not be relevant to the issue at hand.

However, an experimental data system that can house essential socio-economic information and ensure its accessibility to fisheries managers and other users is being developed for the North Sea. It is hoped that by using data linked to specific socio-economic indicators, ensuring the collection of the same data across North Sea communities and sectors, and developing community panels for collecting social data, it will be possible to gather baseline data and update the system on a regular basis (NSWN forthcoming).

Community profiles: Ad hoc profiling in Australia contrasts with a systematic process of socio-economic profiling of fishing communities taking place in the US. These profiles have three parts: people and place (location, demographics, education, housing, and local history); infrastructure (current economic activity, governance/institutions and facilities); and fishery involvement (community activities in commercial, recreational and subsistence fishing) (Colborn et al. 2006). These profiles, which will be updated every 3-5 years, include both quantitative and qualitative information and are designed to support impact assessments of policy options and management approaches, including marine protected areas.

Similarly, Sanchiro *et al.* (2001:20), working from Leeworthy and Wiley (2000), recommend that the process of considering socioeconomic factors in MPA establishment should entail: identification of all current users; quantification of the spatial distribution of economic use and activity; mapping of commercial and recreational fisheries; and profiling of user groups.

Capacity definition: It has also been suggested that it would be useful to define the social *and* biological "carrying capacity" of MPAs (Badalamenti *et al.* 2000; Davis and Tisdell 1995; Garcia-Saez 2005). This would enable the formulation of management strategies that would prevent "deterioration (of MPAs) and the consequent loss of their value" (Badalamenti *et al.* 2000). This is a useful approach for European Marine Site management, where conservation objectives currently override all other considerations. 'Favourable conservation status' and associated biological monitoring could be accompanied by 'favourable socio-economic status' and socio-economic monitoring.

Socio-economic monitoring using indicators: Socio-economic indicators are under development, among other places, in Australia, New Zealand and Europe. Socioeconomic indicators of MPA effectiveness can be developed alongside biophysical and governance indicators, to enable effective monitoring to take place (Pomeroy *et al.* 2004).

Indicators work from the principle that it is not necessary to know everything in order to identify trends; and so they make it possible to target limited resources as it would be possible to employ a relatively small number of indicators, depending on the extent of the focus of any monitoring programme. Limiting the number of indicators used for evaluation is likely to prove more effective than developing "long and detailed plans which may become so overwhelming they are not applied" (Garcia-Saez 2005: 4-5)

Statistics New Zealand (2007) provide a clear definition of an indicator: "An indicator is a parameter than can be measured to show trends or sudden changes in a particular condition. They are reactive to change and simplify complex data into readily usable information that can be used to communicate complex trends or events. Indicators reduce the number of measurements that are normally required to give a complete picture of a situation."

Indicators can relate to social, economic and human capital (Webb *et al.* 2004); society, economy and culture (Statistics New Zealand 2007); and economy, society and governance (Bodiguel *et al.* 2006). Broadly speaking, social indicators describe the attributes of a society or individuals within in a society, including well-being. Economic indicators record levels of income and socio-economic position. Cultural indicators focus on cultural engagement, identity and heritage. And governance indicators refer to openness and accountability of management systems. Different kinds of indicators – for example socio-economic and environmental – can be linked together to monitor the impacts of fisheries management.

Participation: Many authors consider that MPA development, management and monitoring should be a participative process from the very beginning (FSBI 2001; Garcia-Saez 2005:6; Pomeroy *et al.* 2004; Sanchiro *et al.* 2001; Alban *et al.* 2006). There are several reasons for this.

Local fishermen, in particular, should be involved because their compliance is necessary and because they are the user-group most likely to be disadvantaged by the introduction of an MPA

(FSBI 2001:7). Fishermen's knowledge is also very useful for MPA management: "local fishers can provide valuable contributions through their knowledge of the area, assisting in the choice of the most suitable site to be placed under protection and providing useful information for its successful management" (Badalamenti *et al.* 2000:116).

Stakeholder participation is also likely to prevent economic benefits of MPAs from bypassing local communities. And, by taking the opportunity to instil their values within an MPA's purpose and management framework, stakeholders are more likely to be actively involved in and supportive of them (Garcia-Saez 2005:4,8).

Finally, early and full stakeholder participation at all stages of the decision-making process would mean that "the socioeconomic aspects of establishing MPAs, which often are the deciding factor in determining whether MPAs succeed or fail, can be considered in an integrated way along with the ecological factors" Sanchiro *et al.* (2001:9). The Australian 'toolkit' example illustrates that socio-economic impact assessments of MPAs can be a participative process with stakeholder consultation taking place throughout. The reason for this is that involvement of industry and other stakeholders can help to validate the content of profiles and the findings of impact assessments. And, the consideration of socio-economics can bring indirect management and conservation benefits, as well as direct socio-economic ones.

Institutional change: Research in Tobago tells us that institutional change can make MPA management more effective. "Diverse and complex systems of property rights, which require state, private and collective decision-making, and diverse and often conflicting users" (Brown *et al.* 2002:2), such as those operating in the UK's inshore waters, could be replaced by more integrated management systems. The roles of existing institutions in decision-making can, for example, be made more explicit and linked together more effectively by creating 'umbrella' regulations and regulators to govern resources (Brown *et al.* 2002; cf. Edwards and Steins 1999). In the case of European Marine Sites, this would mean more joined up management between Sea Fisheries Committees, local councils, coastal estates, the Marine Fisheries Agency and the nature conservation and environment agencies, in association with industry participation. This could be achieved, for example, on the recommendation of the Shellfish Strategy (SAGB 2007), by the establishment of a National Shellfish Resource Group; or the establishment of new streamlined multi-agency/resource user institutions at the local scale, such as Local Producer Boards linked with SFCs.

Decentralising management to the local level would also allow industry interests to have more direct influence over MPA goals and decisions, making management more sensitive to socio-economic aspects (Sanchiro *et al.* 2001:23). For example, a range of user groups were involved in setting and ranking decision-making criteria in an MPA in Tobago (Brown *et al.* 2002). This led to the recommendation that participative discussions should be used to define and redefine MPA goals on a continuous, rather than one-off, basis.

Decentralisation could come in the form of co-management (Clifton 2003). However, it is feared that the inclusion of resource users in management decision-making could undermine the stated conservation objectives of SACs in the UK (Jones and Burgess 2005) and general concern has been raised regarding how scientific impartiality in decision-support can be maintained on both social and ecological sides (Jones 2006). One way to deal with the problem of conservation objectives being undermined is to combine bottom-up cooperation with top-down policy strategy. Table 2 (based on Jones 2002) illustrates the difference between top-down and bottom-up approaches. It is worth noting that some of the bottom-up characteristics were proposed by members of the shellfish industry during the consultation for this report.

Further, combining these two frameworks – top-down and bottom-up – could also help to address the inherent scientific uncertainty of many MPAs, reducing the need to resort to the precautionary principle. Jones (2002), for example, proposes that, "in the absence of full scientific information

on the structure and functions of marine ecosystems, scientific priorities must be integrated with socio-economic priorities."

Table 3. Top-down vs. bottom-up institutional frameworks for managing MPAs (based on Jones 2002)

Top-down	Bottom-up
Emphasis on enforcement – sectoral law	Emphasis on stakeholder participation and cooperation – customs
Executive authority – international, national or regional policy	Community-based partnership – largely local view
Reliance on comprehensive scientific information	Science used for guidance where appropriate and available
Little scope for compromise	Greater scope for compromise
Statutory objectives and imperatives	Collective and selfish objectives
Institutional "ways of doing business"	Informal communications and "ways of working"

Conflict management: MPAs can cause conflicts between fishermen, other users and environmental interests: "When deciding on MPAs, resource managers run the risk of placing too much emphasis in the beginning on where to site MPAs and how much of the resource to protect and too little emphasis on the socio-economic considerations" (Sanchiro *et al.* 2001:20). The establishment of MPAs can also attract new users, creating more opportunities for conflict and disagreement.

Early consideration of socio-economic factors is recommended in order to address such potential problems in advance of MPAs being established (Badalamenti *et al.* 2000). Shared agreement in advance on indicators of change and associated actions in the event of change can help address potential conflicts. Another strategy is to restrict management options under particular circumstances – for example, the introduction of a requirement to scientifically demonstrate damage of particular activities prior to the establishment of MPAs (Sanchiro *et al.* 2001:20). General compensation may not be appropriate, but direct payments to those demonstrably impacted may be an option. Participation can help to resolve conflicts of interest (Alban *et al.* 2006). And, finally, clearly defining and agreeing MPA objectives in advance can also act to prevent unnecessary conflict (FSBI 2001:1; Jones 2002).

Compensation: Compensation can be used to correct the uneven socio-economic impacts of MPA-related decisions. This can increase social acceptance and compliance and limit the transaction costs relating to change. Table 4 present a list of possible compensation measures. However, it is worth noting that sometimes these can have undesirable effects (Alban *et al.* 2006).

Table 4. Possible compensation measures to mitigate impacts of MPA-related decisions (based on Alban et al. 2006)

Compensation measures
Money transfers
Building of harbour facilities
Assistance to increase spatial access for boats
Assistance with the development of alternative fishing activities
Assistance with converting to or diversifying into tourism-related activities
Buyback programmes
Allocation of exclusive rights, such as catch quotas
Territorial use rights of fishing

Global experience conclusions

There are various mechanisms in place around the world to facilitate the consideration of socio-economic factors in MPA management:

- The **ecosystem approach** represents an opportunity to introduce socio-economic objectives into European Marine Site management;
- **Socio-economic impact assessments** consider direct and indirect effects of MPAs;
- **Cost-benefit or trade-off analysis** represent concrete tools for managers to agree objectives and conduct both quantitative and qualitative assessments in conjunction with those (often fishers) facing potential socio-economic impacts;
- **Socio-economic data management systems** would enable decision-makers and other parties to have easy access to, and make use of, socio-economic information about fisheries sectors and fishing communities;
- **Community profiles** represent one means by which such data management systems could be organised;
- **Capacity analysis** could improve the general understanding of the ecological and socio-economic carrying capacity of the site, and the relationship between these two aspects;
- Socio-economic **indicators** would enable an effective and cost-effective means of monitoring socio-economic trends;
- Stakeholder **participation** in the MPA process from site selection to monitoring programmes can improve managers' understanding of the socio-economic context and of potential tradeoffs in the system, and can improve compliance;
- **Institutional integration** would bring decision-makers together within a single organisation, such as the National Shellfish Resource Group or Shellfish Producer Boards (SAGB 2007:18,20), would improve consistency within the management process and reduce conflict;
- Effective **conflict management** can also be achieved by early and thorough consideration of socio-economic implications of policies for ALL interested parties.

Some of these mechanisms require state sponsorship and support, particularly when it comes to obtaining necessary, but often sensitive, commercial data. Others, in principle, can work at the local or individual level. In each case, advance consideration of socio-economic factors in collaboration with MPA users and other stakeholder groups and their participation in the more general process of MPA management and decision-making can help to reduce conflict.

RECOMMENDATIONS AND CONCLUSIONS

Recommendations

A number of key recommendations have emerged from this study: Value change; Commitment; Institutional Change; Engagement; and Scientific Change. These five strategies apply at three different stages in the process of management of European Marine Sites where socio-economic information can be introduced:1) Site Selection; 2) Objective-setting and agreeing management plans 3) Assessing proposed activities and policy instrument proposals for change (Figure 2).

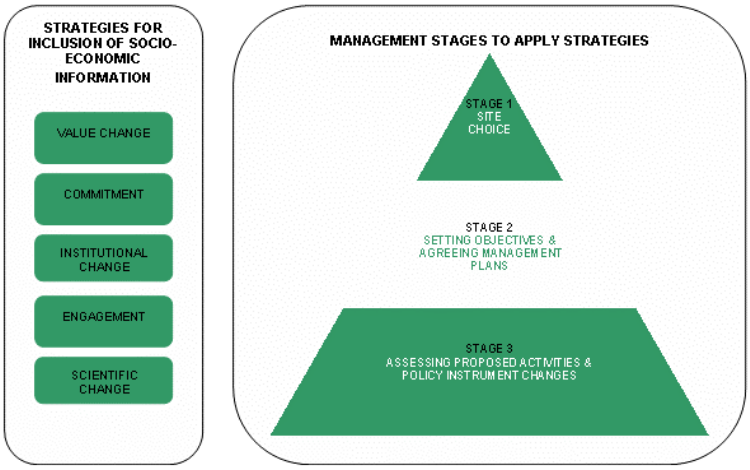

Figure 2. Strategies and stages for incorporation of socio-economics into European Marine Site Management

UK policy documents, those consulted for this project – members of the shellfish industry, Sea Fisheries Committee officers and nature conservation agency staff – and the global literature review have proposed a variety of practical steps to achieve each of these five strategies. These are detailed below and Table 5 provides an overview of where support for each of them can be found.

VALUE CHANGE

- Consider the interpretation of "overriding public interest."
- Large-scale operations and national concerns should not necessarily be the only criteria.
- There is socio-economic 'public' value attached to small-medium size enterprises, employing local people; small sustainable shellfish farming and capture operations are easy to manage/monitor; and there should be respect for sustainability of long-term successful shellfish operations.
- This view is reflected by the Marine Bill which places more emphasis on small-scale businesses.

COMMITMENT – PRIORITISE SOCIO-ECONOMIC PLANNING, ANALYSIS AND MONITORING

- Advance a multi-level commitment to socio-economic data gathering, analysis and monitoring as a part of European Marine Site management.
- Devise a protocol for dealing with socio-economic aspects in European Marine Sites. This could, for example, sit alongside any Memorandum of Understanding between the shellfish industry and nature conservation agencies.

- This would provide a sound foundation to developing a process by which socio-economic factors are systematically considered during the management process.
- Cost-benefit and trade-off analysis, impact assessments and indicators would all require social and economic data, analysis and monitoring.

INSTITUTIONAL CHANGE – STREAMLINE AND BALANCE DECISION-MAKING

- Streamline institutional involvement and interaction to ensure inter-agency collaboration, reduce repetition of work and the burden on industry and improve communication: for example, the introduction of umbrella organisations where there are multiple jurisdictions in force, and of bottom-up collaborative approaches to management decision-making.
- Integrate socio-economic and environmental factors within one management system and make sure both of these are considered from the beginning of any decision-making process.
    - Include the consideration of socio-economic implications of decisions in the statutory role of Sea Fisheries Committees
    - Require nature conservation agencies to have a regard for socio-economics in formulating their advice for European Marine Site management decisions
    - Allocate resources for Sea Fisheries Committees and nature conservation agencies to fulfil these roles
- Collaboratively develop and adopt social and economic objectives for European Marine Sites or inshore regions, which are transparent about trade-offs that have been made between socio-economic and environmental considerations.
- An ecosystem approach could be used which would, as one of its tasks, define the socio-economic and biological carrying capacity of European Marine Sites or an Integrated Coastal Zone Management approach would bring the two sets of components together in one framework.
- Consider how regional and social policy can be brought to bear on European Marine Site management. The two policies should not be divorced from each other.

ENGAGEMENT – BY ALL ACTORS

- Industry, nature conservation agencies, scientists and managers need to build up and cement long-term relationships and to work hard to communicate with each other on a regular basis
- The statutory inclusion of stakeholders which would ensure systematic communication between different actors and ensure facilitate mutual awareness and learning.
- By improving communication, resources and opportunities to collaborate, a great deal can be done by all parties to work together to find balanced solutions that accommodate the requirement to protect designated features and the needs of industry.
- Shared early discussion of site location, time of activity and cultivation and extraction methods, for example, can provide a satisfactory solution for all sides.
- This could be entrenched at the organisational level via, for example, an MOU, between industry and nature conservation agencies.

SCIENTIFIC CHANGE – BROADEN THE KNOWLEDGE BASE

- Get the science and the science process right.
- On the socio-economic side, impact assessments, indicators and monitoring would all be useful, and due consideration should be given to the concept of ‘favourable socio-economic status’.
- With regard to natural science, the process by which science is requested and obtained during decision-making relating to European Marine Sites would benefit from review, and the relationship between the precautionary principle threshold and socio-economic factors could also be explored.

Table 5. Summary of practical steps for achieving strategies for the inclusion of socio-economic considerations in European Marine Site management

Strategy	Practical Steps	UK Policy-makers	UK Experience			Global Experience
			Industry	SFCs	NCAs	
Value Change	Reconsider "IROPI" to account for socio-economic value of local, small-scale businesses		✓			
	Find reasonable solutions that balance socio-economic and environmental needs	✓	✓	✓	✓	
Commitment	Systematic socio-economic data gathering, analysis and monitoring as a statutory requirement	✓		✓	✓	✓
	Allocate essential resources for consideration of socio-economics			✓	✓	
Institutional change	Streamlined institutions	✓				✓
	A single management framework for socio-economic and environmental factors eg. Integrated coastal zone management	✓				✓
	Socio-economic objectives	✓				
	An ecosystem approach, identifying the carrying capacity of sites	✓				✓
	Increase coherence with rural and social policy	✓				
	Broaden the agenda of European Marine Sites to include socio-economic aspects		✓	✓		
	Introduce local-scale institutional arrangements and supports, which are sensitive to local circumstances				✓	
Engagement	Improve communication and build relationships between industry, managers and nature conservationists	✓	✓	✓	✓	✓
	Shared and early discussion of proposals		✓	✓	✓	
	Collaborative, voluntary agreements such as memoranda of understanding or protocols		✓	✓	✓	
Scientific change	Develop methods to assess and monitor socio-economic factors, such as indicators, profiles, and cost-benefit, trade-off or capacity analysis	✓			✓	✓
	Review the process by which natural science is obtained		✓	✓		

NB. A tick indicates that a suggestion for the practical step was made: either in policy documents, by at least one respondent within the subsets industry, SFCs and NCAs, or in the global literature review. It does not indicate unanimous support for the measure. And, as suggestions were raised during general discussion, the above table does not rule out the existence of more support from different groups for any of the suggestions.

Conclusions

The general UK policy commitment to prioritising social and economic aspects of fisheries within marine environmental management is restricted by the legislative provisions of the Habitats Directive and the UK Habitats Regulations, on the one hand, and the limited financial and staffing resources of inshore managers and conservation advisors, on the other.

The UK's legislation does not allow explicitly for the consideration of social and economic implications of decisions relating to European Marine Sites, except under the IROPI clause. Whereas, Article 2(3) explicitly states that measures taken pursuant to the Habitats Directive "shall take account of economic, social and cultural requirements and regional and local characteristics." The problem is of course, there is no established process for doing so.

The experiences of industry, inshore managers and nature conservation agency staff tell us that the need for decisions to be taken on the basis of scientific evidence of likely effect on designated features does not necessarily exclude the consideration of social and economic factors in the decision-making process. By improving communication, resources and opportunities to collaborate, a great deal can be done by all parties to work together to find balanced solutions that accommodate the requirement to protect designated features *and* the needs of industry. Shared discussion of site location, time of activity and cultivation and extraction methods, for example, can provide a satisfactory solution for all sides. This could be entrenched at the organisational level via, for example, an MOU, between industry and NCAs.

The UK government has variously proposed the ecosystem approach, integrated coastal zone management, regional and social policy, the development of social and economic objectives, data provision, impact assessments, stakeholder involvement, and 'marine conservation zones' as means of addressing the socio-economic deficit in inshore fisheries management. Shellfish operators, for their part, propose a change in socio-economic emphasis, so that the intrinsic value of local-scale coastal business is taken into account, in addition to the bottom line. SFCs propose that a statutory change in their role to require them to take account of social and economic factors would ensure that these issues can be addressed. Meanwhile, global experience suggests that a requirement to conduct socio-economic impact assessments of decisions relating to MPAs can enable the systematic consideration of socio-economic implications of decisions. An increased role for SFCs would require a concurrent increase in their financial resources.

By changing the socio-economic emphasis of the values underpinning management structures and decisions, and by improving communication, resources and opportunities to collaborate, a great deal can be done by all parties to work together to find balanced solutions that accommodate the requirement to protect designated features *and* the needs of industry.

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APPENDIX 1 – EU AND UK LEGISLATION GOVERNING EUROPEAN MARINE SITES

The Habitats Directive

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Article 2
1. The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.
2. Measures taken pursuant to this Directive shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest.
3. Measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics.

Article 6
1. For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.
2. Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.
3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.
4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

UK Habitats Regulations

The Conservation (Natural Habitats, &c.) Regulations 1994

Article 48: Assessment of implications for European sites
1. A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-

(a) is likely to have a significant effect on a European site in Great Britain (either alone or in combination with other plans or projects), and
(b) is not directly connected with or necessary to the management of the site,
shall make an appropriate assessment of the implications for the site in view of that site's conservation objectives.
2. A person applying for any such consent, permission or other authorisation shall provide such information as the competent authority may reasonably require for the purposes of the assessment.
3. The competent authority shall for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority may specify.
4. They shall also, if they consider it appropriate, take the opinion of the general public; and if they do so, they shall take such steps for that purpose as they consider appropriate.
5. In the light of the conclusions of the assessment, and subject to regulation 49, the authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site.
6. In considering whether a plan or project will adversely affect the integrity of the site, the authority shall have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given.
7. This regulation does not apply in relation to a site which is a European site by reason only of regulation 10(1)(c) (site protected in accordance with Article 5(4)).

Article 49: Considerations of overriding public interest
1. If they are satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which, subject to paragraph (2), may be of a social or economic nature), the competent authority may agree to the plan or project notwithstanding a negative assessment of the implications for the site.
2. Where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either-
(a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment, or
(b) other reasons which in the opinion of the European Commission are imperative reasons of overriding public interest.
3. Where a competent authority other than the Secretary of State desire to obtain the opinion of the European Commission as to whether reasons are to be considered imperative reasons of overriding public interest, they shall submit a written request to the Secretary of State-
(a) identifying the matter on which an opinion is sought, and
(b) accompanied by any documents or information which may be required.
4. The Secretary of State may thereupon, if he thinks fit, seek the opinion of the Commission; and if he does so, he shall upon receiving the Commission's opinion transmit it to the authority.
5. Where an authority other than the Secretary of State propose to agree to a plan or project under this regulation notwithstanding a negative assessment of the implications for a European site, they shall notify the Secretary of State.
Having notified the Secretary of State, they shall not agree to the plan or project before the end of the period of 21 days beginning with the day notified to them by the Secretary of State as that on which their notification was received by him, unless the Secretary of State notifies them that they may do so.
6. In any such case the Secretary of State may give directions to the authority prohibiting them from agreeing to the plan or project, either indefinitely or during such period as may be specified in the direction.
This power is without prejudice to any other power of the Secretary of State in relation to the decision in question.

The Wadden Zee Judgement

Judgment of the Court (Grand Chamber) of 7 September 2004 in Case C-127/02

Directive 92/43/EEC - Conservation of natural habitats and of wild flora and fauna - Concept of 'plan' or 'project' - Assessment of the implications of certain plans or projects for the protected site

1. Mechanical cockle fishing which has been carried on for many years but for which a licence is granted annually for a limited period, with each licence entailing a new assessment both of the possibility of carrying on that activity and of the site where it may be carried on, falls within the concept of 'plan' or 'project' within the meaning of Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

2. Article 6(3) of Directive 92/43 establishes a procedure intended to ensure, by means of a preliminary examination, that a plan or project which is not directly connected with or necessary to the management of the site concerned but likely to have a significant effect on it is authorised only to the extent that it will not adversely affect the integrity of that site, while Article 6(2) of that directive establishes an obligation of general protection consisting in avoiding deterioration and disturbances which could have significant effects in the light of the Directive's objectives, and cannot be applicable concomitantly with Article 6(3).

3. (a) The first sentence of Article 6(3) of Directive 92/43 must be interpreted as meaning that any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects.

(b) Pursuant to the first sentence of Article 6(3) of Directive 92/43, where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project.

4. Under Article 6(3) of Directive 92/43, an appropriate assessment of the implications for the site concerned of the plan or project implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities, taking account of the appropriate assessment of the implications of mechanical cockle fishing for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.

5. Where a national court is called on to ascertain the lawfulness of an authorisation for a plan or project within the meaning of Article 6(3) of Directive 92/43, it can determine whether the limits on the discretion of the competent national authorities set by that provision have been complied with, even though it has not been transposed into the legal order of the Member State concerned despite the expiry of the time-limit laid down for that purpose.

APPENDIX 2 – OVERVIEW OF GOVERNMENT POLICY

Policy Document	Socio-Economic – Environmental Balance	Socio-economic objectives	Practical policy proposals
Safeguarding Our Seas Defra 2002	"We depend on the oceans and seas to help meet our economic and social needs. At the same time, they contain unique habitats and diverse forms of life." (5)	Aquaculture: "sustainable use of the marine and rural environment and the prosperity of the economies and communities in associated areas." (59)	An ecosystem approach Integrated coastal zone management
Net Benefits PMSU 2004	A sustainable fisheries policy has multiple goals: "helping secure the commercial future of the fishing industry", "supporting vibrant fishing communities" and "managing fisheries inside the broader marine environment." (10)	Help secure the commercial future of the fishing industry Support vibrant fishing communities Manage fisheries inside the broader marine environment Promote safety (4)	Set clear social objectives in fisheries policy Integrate with rural policy Involve stakeholders (14, 20, Ch. 7)
Securing the Benefits Defra 2005a *Charting A New Course* Defra 2005b	The UK's fisheries administrations' vision is: "Clean, healthy, safe, productive and biologically diverse oceans and seas." And the stated aim is: "A fishing sector that is sustainable and profitable and supports strong local communities, managed effectively as an integral part of coherent policies for the marine environment." (STB:13-14; CANC:1)	Secure the management of fish stocks as an important renewable resource, harvested to optimise long term economic returns. Promote sustainable fisheries consistent with a diverse and resilient marine environment. Enable long-term profitability and promote high levels of confidence in the fishing industry that lead to long term investment in innovation and technology. Tackle social exclusion and promote long term prosperity in communities traditionally dependent on the fishing industry. (STB:13-14; CANC:1)	Develop policy based on the best available biological, economic and socio-economic evidence. For example by assessing socio-economic implications of policies. (STB:8-9, 13-14)
Securing the Future Defra 2005c	"We want to live within environmental limits and achieve a just society, and we will do so by means of a sustainable economy, good governance, and sound science."	Create sustainable communities in England that embody the principles of sustainable development at the local level: - balancing and integrating the social, economic and environmental components of their community - meeting the needs of existing and future generations, and - respecting the needs of other communities in the wider region or internationally to make their communities sustainable. (121)	An ecosystem approach: "We need to consider ecosystems as a whole, taking into account social, economic and environmental objectives." Integrate the delivery of social, economic and environmental goals. (99, 119)
A Sea Change – The Marine Bill White Paper Defra 2007	"Activities in the marine area must be managed effectively, to deliver the right balance between protection of the environment and social and economic needs." (13)	The Marine Bill will provide "an integrated approach to sustainable management and the enhancement and use of the marine natural environment for the benefit of current and future generations. It will help deliver economic, social and environmental objectives with a strategic, progressive and effective approach." (2)	Develop "the tools that we need to balance conservation needs with the demands that we place on the marine area to meet social and economic requirements." Create a strategic marine planning system Introduce sustainability assessments and consideration of socio-economic factors in site selection for protected areas. Marine Conservation Zones (2, 18, 31, 73)

APPENDIX 3 – UK RECOMMENDATIONS FOR USING SOCIO-ECONOMIC INFORMATION

Recommendations	Shellfish Sector	Sea Fisheries Committees	Nature Conservation Advisors
Emphasise grassroots and small business value	✓		
Improve the scientific process, including clarifying the use of the precautionary principle	✓	✓	
Improve communication and build relationships between industry, managers and nature conservationists	✓	✓	✓
Introduce local-scale institutional arrangements and supports, which are sensitive to local circumstances	✓		✓
Work collaboratively, via voluntary agreements, identifying common ground and reasonable accommodation of both socio-economic and environmental considerations	✓	✓	✓
Broaden the agenda of European Marine Sites to include socio-economic aspects	✓	✓	
Improve socio-economic knowledge			✓
Make socio-economic analysis and consideration the statutory responsibility of, for example, SFCs or national marine laboratories		✓	✓
Allocate resources for socio-economic analysis and consideration		✓	✓

NB: Appendix 3 indicates that a suggestion was made by any respondent within the subsets industry, SFCs and NCAs. It does not indicate that all respondents in the subset proposed the suggestion. And, as suggestions were raised during general discussion, the above table does not rule out the existence of more support from different groups for any of the suggestions.