



INSHORE FISHERIES
Sustainability Pilot

UK Inshore Fisheries Sustainability Project - Pilot Phase

'Navigating the Future' Developing Sustainable Inshore Fisheries

March 2010



Summary Report

Supporting Technical Reports I–III

March 2010



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Foreword

If we are to achieve the Government's vision of clean, healthy, safe, productive and biologically diverse oceans and seas there is an urgent need to assist inshore managers in developing fisheries management strategies that enable them to plan and make decisions aimed at achieving sustainable certification of local stocks.

The potential for using strategic fisheries management plans to deliver more coherent and effective fisheries management has been widely discussed, to the extent that the 1996 UN Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries clearly call for their development. Successful implementation of such a management plan will enable the inshore manager to:

- provide a strategic framework for management;
- move away from reactive management;
- plan any necessary stock assessments, management and practice changes in a structured, goal-orientated way.

Effective strategic planning will be central to the role of the Inshore Fisheries and Conservation Authorities.

Small-scale inshore fisheries constitute a unique sector that, despite scale enlargement and intensification in the fisheries sector throughout the second half of the 20th century, has been sustained throughout the UK and is thriving: in England and Wales this sector represents 76% of the active fleet and accounts for 29% of the total landings value; in Scotland 68% of the fleet is made up of small inshore vessels, catching 10% of the total landings value.

The inshore sector is important and provides an exclusive product that continues to stand for quality and freshness and with a strong tradition in fisheries this sector provides an important source of labour and income and defines a profound part of the social and cultural landscape. But being sustainable is not enough; certification of fisheries and labelling of products that come from sustainable sources are ever more becoming a requisite for processors and retailers when sourcing product to demonstrate sustainability credentials.

Increasingly, environmentally-minded consumers are seeking these assurances too. 'Net Benefits', the Prime Minister's Strategy Unit report on the UK fishing industry, prescribes that the '*Fishing industry should maintain and enhance its market opportunities by aiming to achieve Marine Stewardship Council (or equivalent certification) for all stocks of major interest to the UK by 2015*'.

Although the majority of UK inshore fisheries are being managed appropriately, and many are undoubtedly being harvested responsibly, it is not certain how many would currently reach the standards required to qualify for MSC certification.

Against this backdrop, the Sussex Sea Fisheries Committee has led a collaborative project with partners in the Shellfish Association of Great Britain and the Marine Stewardship Council. In coming together these organisations have explored the challenges and opportunities to inshore fisheries in the context of certification against sustainability criteria; they develop species and area specific fisheries management plans – the consolidated findings of the **UK Inshore Fisheries Sustainable Project**, and the Sussex area Pilot are reported on here.



Tim Dapling
Chief Fishery Officer & Clerk.
Sussex Sea Fisheries Committee



**The pilot programme
identified strategies for
improving management
into the future**

1 Introduction

The following document reports on the foundation work undertaken as part of the UK Inshore Fisheries Sustainability (IFS) Pilot, which examined marine fisheries in the area managed by the Sussex Sea Fisheries Committee (SSFC) against the Marine Stewardship Council environmental standard for well-managed fisheries. The pilot programme identified strategies for improving management into the future and examined the use of existing and new risk-based methodologies for the assessment of fisheries where information on biological stocks and the fisheries may be insufficient for established scientific assessment techniques.

The partnership initiative, led by the Sussex Sea Fisheries Committee (SSFC), involved organisations with global, national and local influence: the Marine Stewardship Council (MSC), the Shellfish Association of Great Britain (SAGB) and the South East Seafood Development Group (SESDG).

The work was commissioned by the Sussex Sea Fisheries Committee, with financial assistance from: the European Fisheries Fund, a Sustainable Fisheries Fund grant through the Resources Legacy Fund and support from the Co-operative.

The work was undertaken by the MSC-accredited Certification Body (CB) Food Certification International (FCI) in association with Nautilus Consultants¹ and was facilitated and supported by SSFC officers².

The report outlines:

- how the investigation was organised and conducted;
- how the fisheries of the Sussex SFC area fared against the MSC standard;
- how the information developed as a result of such assessments has pinpointed some systemic weaknesses in how fisheries are managed in the inshore zone; and
- how the information developed has assisted the Sussex SFC in drawing up a programme of work to bring about wide-scale improvements in both management and industry practice.

More detailed coverage of study progress and outputs is presented in the three project reports (Stages I, II & III). This summary report focuses on the many positive findings of the project – both in how to conduct such work as well as in the outputs and conclusions arising from such work – but also describes how this auditing process can be transferred to the review of management of other inshore fisheries in the UK, as advocated by the Advisory Group of the Sustainable Access to Fisheries (SAIF) project³.



1.1 Study objectives

The overall objectives of this study are twofold:

- to assist in the provision of the evidence base that will allow the good practices of industry and managers to be publicly recognised and fishermen rewarded for such good practice; and
- to develop strategies to strengthen practices so that more fisheries can achieve such public recognition.

Successful identification and implementation of management measures will enable the inshore managers to:

- provide a strategic framework for management;
- move away from reactive management; and
- plan any necessary stock assessments, management and practice changes in a structured, goal-orientated way.

Pre-assessment against the Marine Stewardship Council (MSC) standard shows that there can be reasonable expectation that all the fisheries reviewed could, in time, be brought to the point where they would meet the MSC standard. To achieve this objective in some cases will, however, require considerable resolve.

¹ the project team comprised Crick Carleton (Team Leader), Paul Medley, Tristan Southall, Fiona Nimmo and Martin Gill

² SSFC officers Tim Dapling, Robert Clark and Belinda Vause

³ see <http://www.defra.gov.uk/foodfarm/fisheries/documents/fisheries/saif-proposition.pdf>

1.2 The IFS Pilot intentions

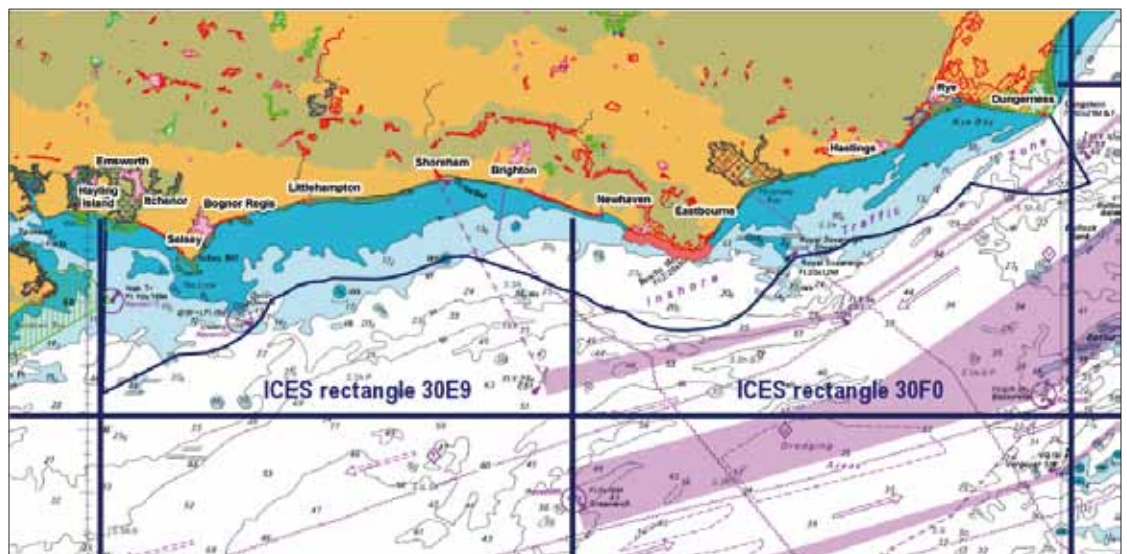
The focus of the project on the inshore sector is essentially borne out of necessity – in the UK significant change is underway in how the inshore fishery sector is managed, yet the pathway for such change is still under debate. In part this reflects the fewer resources that have been applied to improving fishery management at the small scale compared to the large scale, and in part systems formalised to recognise good management practice that seem ill-equipped to address conditions in the inshore sector. What is required are clear and transferable techniques for identifying both good and poor practice, mechanisms for recognising and rewarding good practice at this scale, and practical guidelines on how to bring poor practice up to the level of good practice.

In addition, the inshore marine area continues to take the brunt of human impacts on the aquatic environment – and effective management and mitigation of such impacts (including the impacts of fishing) is complex and will affect all marine users. For fishing, key drivers for change flow from the new Marine & Coastal Access Act 2009 and can be evidenced in:

- the integration of fisheries management and management of the marine environment under the one administrative structure, the newly formed Marine Management Organisation (MMO);
- a policy to establish a network of Marine Conservation Zones (MCZs) – which at the very least will require more focused management of fisheries within such zones – most of which will be located within the inshore zone; and
- the replacement of Sea Fisheries Committees (SFCs) with, in England, Inshore Fisheries and Conservation Authorities (IFCAs).

In this context the IFS Pilot is intended to address the practical ramifications of the changing focus of policy, and the institutional issues that arise in managing fisheries at a local level whilst remaining consistent with structures and legal jurisdictions that apply at national and international levels.

It is evident that the inshore fisheries along the Atlantic coast of western Europe have been subject to a more coherent management regime for a longer period of time than offshore fisheries, but as the Common Fisheries Policy of the European Union has evolved over the last 30 years or more it has been the offshore industrial-scale fisheries that have come to dominate the policy agenda. The offshore sector has been the focus of greater capital investment, commensurate with it also being the source of the larger part of commercial fish landings – but there are many more fishermen who gain a living from inshore fisheries, many more vessels that are used in these fisheries, and a much closer integration of inshore fishing into the culture of local coastal communities. And whilst the larger elements of the UK fleet continue to deliver the larger proportion of overall landings, an increasing proportion of this comes from inshore waters (hugely more if inshore is defined as the 12 mile territorial seas, as opposed to the present SFC / IFCA limits at 6 nautical miles adopted within this report), and shellfish from inshore waters figure more prominently in the overall value of landings. The IFS Pilot is intended to identify where some re-balancing may be required to establish better parity between inshore and offshore management regimes, and between small-scale and larger-scale economic and biological systems.



1.3 Broad study outputs

Overall the IFS Pilot has proved most useful, bringing into focus where fisheries are well managed and where they could be better managed, but also encouraging managers, industry members, environmentalists and fishery scientists to view management issues and possible solutions from a different perspective prompted by the rigour and systematic nature of the audit process used. But the outputs of the project have also taken us, the Sussex SFC, a long way towards drafting our programme of work for the coming years, and providing much of the framework for our four-year plan, as required as part of the transition to the new IFCA structure and including new public duties.

Pared down to its bare bones the Pilot has been able to demonstrate that:

- assessment of each species / gear combination against the MSC standard has clearly distinguished fisheries that would be expected to meet the standard with minimal additional work, others that would need some additional work (that could be completed within a 12- to 18-month period), and still others that would need considerable additional work (that could be completed within a period of between two and five years);
- this pre-assessment or audit process has been able to clearly identify systemic weaknesses in current knowledge or practice which, if remedied, will impact positively on the management of a wide range of fisheries; it has also been able to reveal strengths and weaknesses that might not otherwise be readily or normally considered by local managers;
- the nature of some of these systemic weaknesses has proved revealing, identifying:
 - at the local level, mismatches between the normal operations of the SFCs and the operations that might be required to meet best management practice;
 - at the wider level, inconsistencies in the roles played by industry, science, local managers (SFCs), national managers (MFA) and policy makers (Defra) in the management of local fish resources and fisheries;
 - a lack of adaptive management in many of the less commercially important species, meaning that it cannot be currently guaranteed that changes in stock status would be responded to by management in a sufficiently timely and appropriate way;
- some fish stocks can be effectively managed within a local regime (i.e. bounded by a six-mile seaward limit), but that for others such an approach lacks credibility;
- where whole stocks cannot be managed within a local regime, the *fisheries* might still be effectively managed locally such that they can be shown to comply with a responsible and precautionary approach to stock management, i.e. it should be demonstrable that if the local fishery management regime was applied globally, the stock would **not** be overfished;
- the audit has given focus to the strengths and weaknesses of the local management systems with respect to the structures used to involve stakeholders in policy formation, management procedures and decision-making, and the extent to which such processes are supported by and engage the economic actors in the industry.





Overall the Pilot has proved most useful at bringing into focus where fisheries are well managed and where they could be better managed.

2 MSC standard / assessment methodology

2.1 The standard

The MSC standard defines a set of conditions that it might be reasonable to expect a well-managed fishery to meet. The standard was developed over a three-year period in the late 1990s, based on technical input from specialists, and further informed by wide and transparent international consultation.

The standard addresses three core areas of good practice:

- precautionary management of the target fish stock;
- responsible management of the impacts of fishing on the other components of the marine environment; and
- the effective and demonstrable management of fishing activity in a planned, targeted and responsive manner.

The MSC assessment methodology in its simplest form focuses on a three-by-three grid:

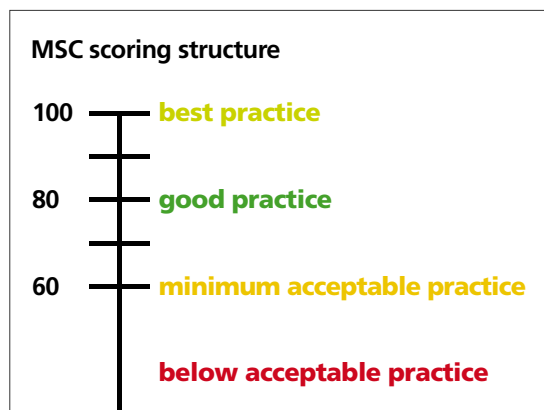
biological stock	impact on the environment	fishery management
status	status	rules
management	management	management
monitoring & feedback	monitoring & feedback	monitoring & feedback

The fisheries assessment methodology (FAM) scores a fishery against 31 Performance Indicators (PIs) that fall under three Principles and nine Criteria, as follows:

Principles	Criteria	Performance Indicators
Health of Fish Stock	Outcome	three
	Harvest Strategy (Management)	four
Impact on the Ecosystem	Retained Species	three
	Bycatch Species	three
	ETP Species	three
	Habitats	three
	Ecosystem	three
Management System	Governance & Policy	four
	Fishery Specific Management System	five

2.2 Scoring systems

Each Performance Indicator is scored out of 100 points, in units of 5. A score of 80 is set to represent the “good practice” required to meet the MSC standard, and a score of 60 is set as a level of practice that just meets the minimum that is considered compatible with the term “well-managed” and “sustainably managed”. It is quite possible for a “well-managed” fishery to reasonably score 100 under a number of Performance Indicators; a score of 100 is seen as representing “best practice” which cannot reasonably be expected to improve.



To achieve MSC certification, a fishery must have no scores below 60, and must score an average of 80 or above on each of the three Principles – stock management, environmental impact, and fishery management. Where a Performance Indicator is scored below 80, it is a requirement of certification that during the period of certification (five years) the client agrees to implement an agreed programme of work to bring about a raising of the score for that Performance Indicator to 80 or above. Full details of the standard, the default assessment tree, and guideposts for scoring each Performance Indicator are available for download from the MSC website (www.msc.org).

Key features measured in any assessment include the following:

Principle 1

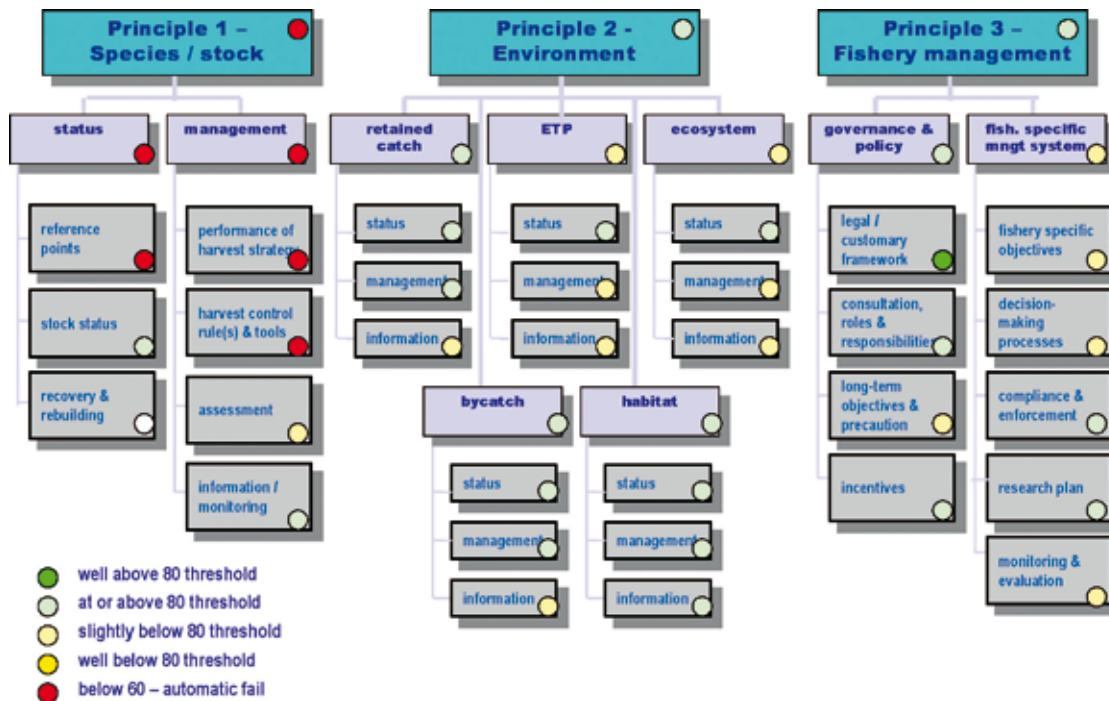
- there needs to be evidence that the stock is in good health or recovering to a condition of good health;
- the stock needs to be managed on the basis of science-based reference points; and
- management should be achieved according to a self-evident Harvest Control Rule (HCR), where for any particular stock condition managers and industry are expected to apply a pre-agreed set of harvest rules that are intended to maintain the stock in good health.

Principle 2

- strategies need to be in place to manage and minimise fishing impacts on other species caught within the fishery, with specific strategies for interaction with all Endangered, Threatened and Protected (ETP) species that may be impacted by the fishery;
- there needs to be evidence of the scale and nature of any interaction with other species; and
- there needs to be evidence of the scale and nature of any impacts on habitats and ecosystems.

Principle 3

- there needs to be clear identification of the institutions and processes employed in managing the fishery, including consultation and dispute resolution processes;
- there need to be explicit long- and short-term objectives for management of the specific fishery linked to evidence of how these are addressed within the management system applied to the particular fishery;
- there needs to be evidence that decision-making processes respond to changing circumstances in an appropriate, transparent and responsible manner; and
- there needs to be evidence that the intent and performance of management strategies and systems are subject to regular review, and periodic independent review.



2.3 Distinguishing between stock and fishery

A particular feature of the MSC assessment methodology that is important to understand is that Principle 1 applies to the whole stock of a species (or, where a stock can be effectively managed at a smaller scale, a recognisable sub-component of the stock), whereas Principles 2 and 3 apply to the particular fishery (fleet and fishing method) that is the subject of assessment. The distinction is significant. Even though a particular fishery may be shown to be managed in a precautionary and responsible manner, and shown not to contribute to any form of over-exploitation, if the activities of other fishers lead to the stock falling below acceptable performance standards then none of the fisheries can be certified as compliant with the MSC standard. Thus, for example:

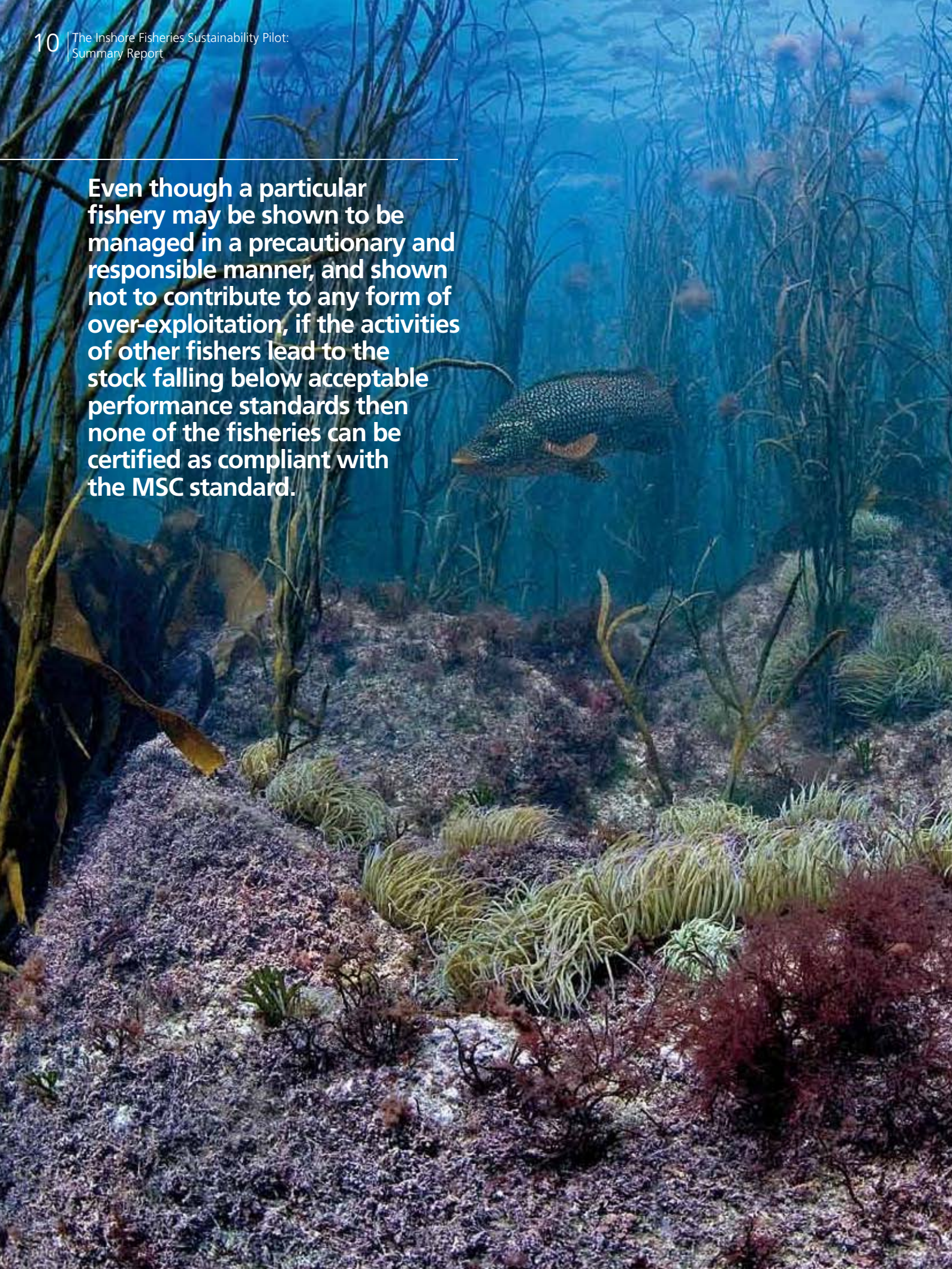
- whilst a Sussex tangle net fishery for a mobile and widely available fin fish species may be considered to have minimal effect on the overall stock status, reproductive health and recruitment, the impact of *all* commercial fishing activity in the wider area on the exploitation of the entire English Channel stock component may be considerable, meaning that that stock component may actually be assessed as being exploited outside safe biological limits, and thus the Sussex tangle net fishery and all other fisheries for the shared stock which sought certification would be deemed non-compliant with the MSC standard; but

- by the same token, it may be considered that the relationship between a Sussex fishery for less mobile shellfish species and the stock that is exploited are so closely connected that for management purposes a stock component equivalent to the area managed by the Sussex Sea Fisheries Committee may be used as the basis of assessment under Principle 1.

In the first example, the Sussex tangle net fishery might reasonably seek to gain recognition for its sustainable practices (P2 & 3), but it will not be able to achieve certification under the MSC standard unless the overall stock of which it exploits a small part can be shown to be in good health and managed responsibly and sustainably.

In the example graphic shown we indicate how the performance of a fishery against the MSC standard might be described as part of the audit or pre-assessment process. In this case, there are three Performance Indicators under Principle 1 where status or practice is considered to fall below the minimum expected, resulting in an automatic fail under Principle 1. If submitted for full assessment at this time, this fishery would be expected to fail, even though average scores above 80 would be expected under Principles 2 & 3.

Even though a particular fishery may be shown to be managed in a precautionary and responsible manner, and shown not to contribute to any form of over-exploitation, if the activities of other fishers lead to the stock falling below acceptable performance standards then none of the fisheries can be certified as compliant with the MSC standard.



3 Selection & pre-assessment of fisheries

3.1 Study components

The key elements of the IFS Pilot comprised the following:

- **Scoping exercise** – collation and preliminary analysis of available quantitative and qualitative information on the local fisheries, stocks exploited, and the marine environment in the Sussex SFC area
- **Selection of fisheries** – fisheries for inclusion in the pre-assessment / audit process were selected based on rankings of scale, economic value, fleet and gear participation, industry and management interest, and future potential
- **Documentation of fisheries** – preparation of a synopsis of each selected fishery – by species and by gear – based on published information, supplemented by available statistical data and information from interviews with representatives of industry and managers
- **Pre-assessment** – assessment of each selected fishery (species / gear combination) to provide a preliminary determination of how closely each fishery might match up to the MSC standard, identifying where status and practice was assessed as falling short of the minimum acceptable standard, falling within the scope of the standard but below “good practice”, and where it met or exceeded “good practice”
- **Ranking of fisheries** – the information generated by this process was then used to group the fisheries according to those ready for full assessment to the MSC standard, those that could be entered for assessment following relatively minor remedial work, those that could reasonably be entered for assessment in the medium term but following significant work, and those for which a longer term programme of work would be required if the fishery were to be expected to meet the standard
- **Identification of strategic issues** – capture of the strategic issues revealed as a result of the systematic auditing of fisheries against the MSC assessment framework
- **Outlining of research and development plan** – use of audit findings to draw up a programme of remedial work, together with elements of prioritisation based on need, benefit and costs.

3.2 Procedures for selecting fisheries

The first task was to prepare a matrix based on the main commercial species harvested in the area, and the main gear types and fleet components used. This was based on the compilation of the volume and value of landings to the area disaggregated by species, by vessel size, by gear type, and by port of landing.

Port of landings	Landings volume (ton)	Landings value (£'000)
Shoreham	1643.14	£2,215
Eastbourne	995.15	£1,454
Rye	565.37	£1,171
Newhaven	779.38	£1,135
Selsey	794.29	£746
Hastings	267.45	£645
Brighton	137.51	£453
Littlehampton	71.09	£123
Dungeness	28.61	£119
Bognor Regis	14.71	£43
Worthing	17.46	£29
Hayling Island	0.17	£1

This matrix was then populated by simple rough scaling of the economic importance of landings per fleet segment and gear type, the relative importance of each species to the operation of particular gear types, and the identification of those fisheries that would not otherwise rank highly but which might offer future economic potential.

Another matrix was prepared, showing main species along one axis and the MSC Principles along the other, with variants for Principles 2 (P2) and 3 (P3) dealing with static and mobile gear categories. This was populated by a crude indication of the ease with which each fishery might be expected to meet the MSC standard.

Selection of those fisheries that will be given full pre-assessment treatment - shown in dark blue

Units of certification	Gill Net (General)	Mixed Pots	Whelk Pots	Cuttle Trap	Rod And Line	Hand Line	Otter Trawl	Pair Trawl	Scallop Dredge	Beam Trawl	Oyster Dredge
flatfish											
sole	***					***###			###		
plaice	***					**###			###		
turbot	***					*#					
brill	***					*#					
lemon sole	*					**# P					
finfish											
bass	***			*P		*#					
cod	***					**					
whiting	**					***					
red mullet	***					*# P					
black bream	*						##				
elasmobranchs											
skates & rays	***					*					
smoothhound	**					*					
pelagic											
mackerel	**										
herring	P										
sprat	P										
cephalopods											
cuttlefish	**		**								
crustaceans											
lobster		***									
crabs		***									
bivalves											
scallop						**	***###				
native oyster								**			
gastropods											
whelks		***									

these fisheries included because they offer potential for further development

*** significant gear for this species ### significant gear for 10-14m fleet candidate for full pre-assessment
 ** moderate gear for this species ## moderate gear for 10-14m fleet for inclusion in management planning
 * minor gear for this species # minor gear for 10-14m fleet P offers development potential



Together, these two matrices provided sufficient information to allow selection of those fisheries to be subjected to pre-assessment. Once listed, the rationale for selection was then opened to discussion with representatives of the industry and managers to add further depth to the basis of selection, and to identify if there were other species / fisheries that should be considered for pre-assessment for reasons not captured within the two matrices.

The selection process was not inflexibly adhered to, and other fishery characteristics were used in arguing for or against a particular selection. These included issues such as the dependence of a port or ports on a particular fishery, whether it was possible to obtain sufficient evidence to demonstrate that a fishery was sustainable, or whether a fishery would require the extent of its interaction with a particular marine habitat type to be assessed.

The Fisheries selected pre-assessment (16 species, and 26 fisheries in all)

	target species
static gear	
gill nets (all types)	sole plaice turbot brill bass cod mackerel herring cuttlefish
mixed pots	lobster crab
whelk pots	whelks
cuttlefish pots	cuttlefish
rod and line	bass
handline	mackerel
mobile gear	
otter trawl	sole plaice turbot brill red mullet
pair trawl	black bream bass
beam trawl	sole plaice
scallop dredge	scallop
oyster dredge	oyster

3.3 Data sources and data handling

A wide range of data is available concerning fisheries and the environment in the Sussex SFC area.

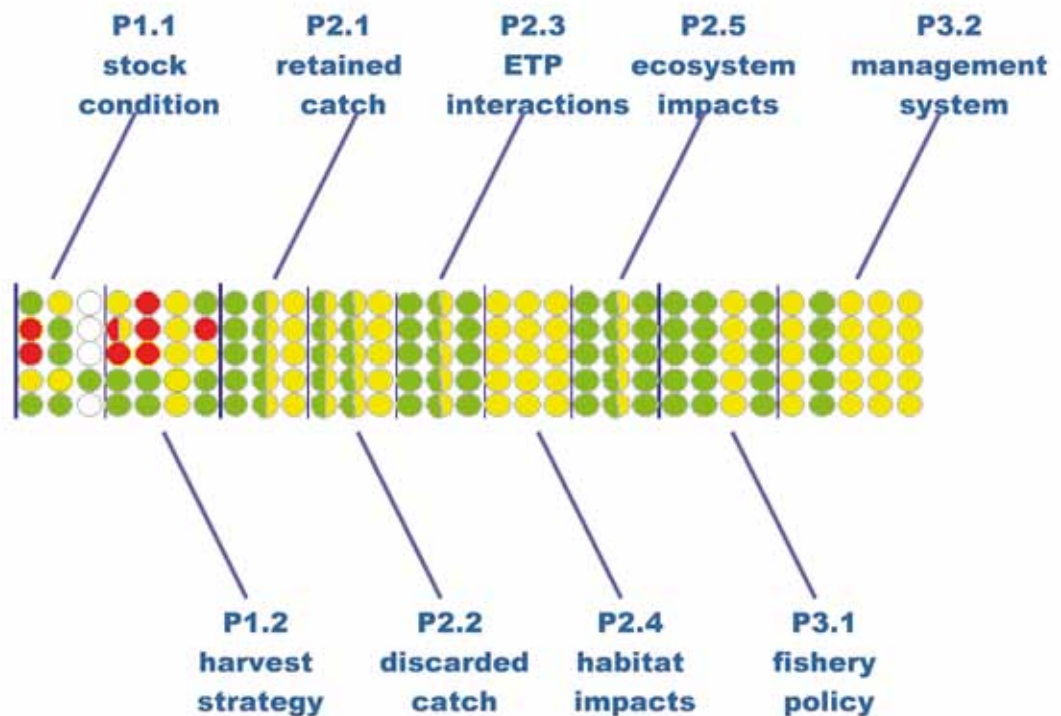
- For fleet and landings data, reliance is placed on the data-sets held by the MFA. For the over-10m fleet these draw on log-book landings returns corroborated by Registration of Buyers and Sellers (RBS) returns, and for the under-10m fleet relies heavily on RBS returns supplemented by information from monthly shellfish landings returns submitted as part of the shellfish licensing scheme. These data need to be treated with some caution – it is not possible to distinguish catches from inside and outside the six-mile limit of the SFC; data available for landings of quota species are of better quality than other data; the landings data for the over-10m fleet are of better quality than those for the under-10m fleet; and the accuracy of the allocation of landings by gear type for the under-10m is often poor.
- A wide range of spatial information is available for the area covered by the Sussex SFC, but it has not been consolidated in any one place or in any

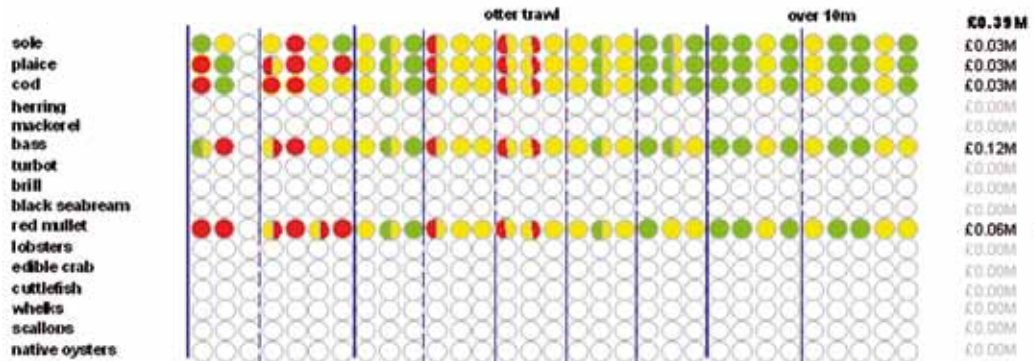
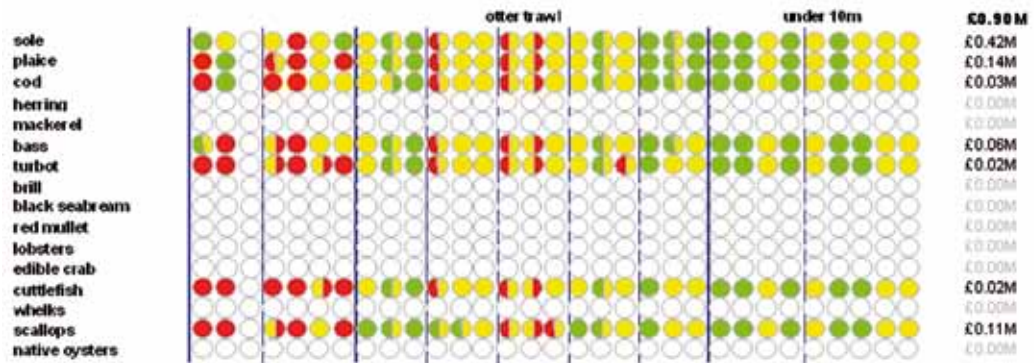
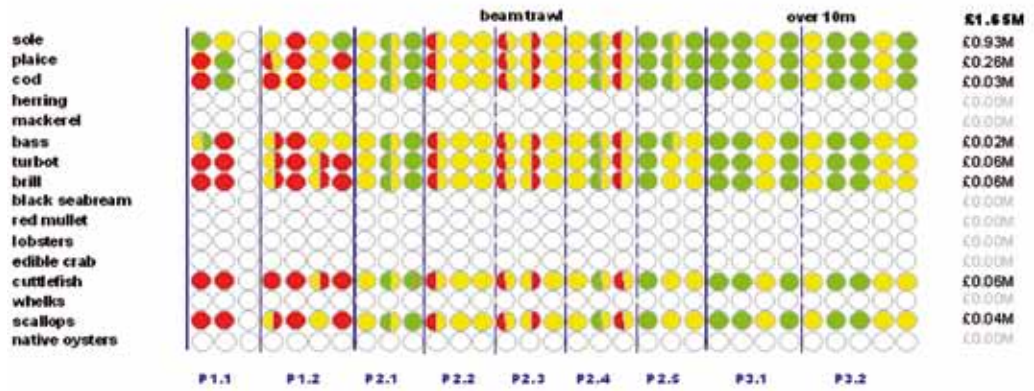
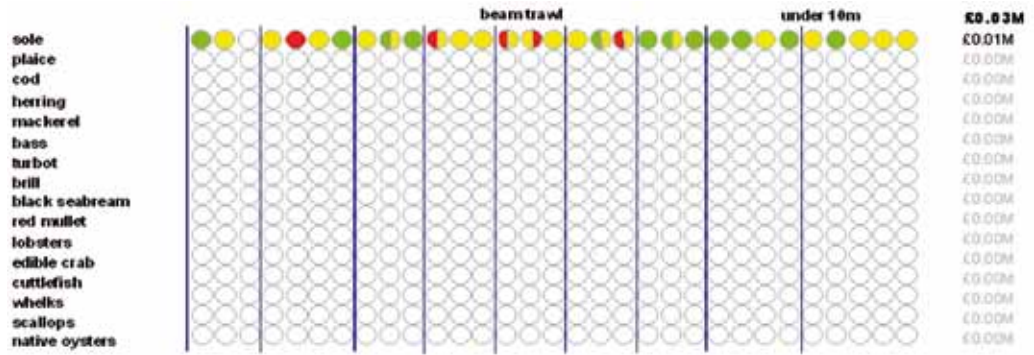
one form. It is suggested that the processes of management and assessment would be greatly simplified if such data were to be combined into a suitable GIS (Geographical Information System) format. A particular innovation established by the Sussex SFC has been the development of fleet effort distribution maps based on several years of at-sea observations by the SFC's fishery officers.

- Whilst there is a wide range of information on different environmental interactions from one source or another, from an assessment perspective this is both difficult to access and to interpret. A more focused and coordinated programme of data consolidation, gap analysis and needs-based programming would greatly assist fishery and environmental management in the inshore zone.

3.4 Generic level pre-assessment findings

The pre-assessment findings have been collated graphically by species, and sorted by fleet segment (over- and under-10m segments), and by gear type and category (static and mobile). Each of the assessments has been described and debated within the assessment (Stage II) report.





Scottish fly seine

Anywhere that **red** is shown in an assessment indicates that status and/or practice falls below the minimum acceptable standard, and would result in an automatic fail if that fishery were taken to full assessment. Areas of red indicate priority areas for remedial action.

Areas of **yellow** indicate where status and/or practice fall below “good practice”. These are areas where improvements should be made, and represent a secondary area for remedial focus. Should too many Performance Indicators score below “good practice” (the 80 mark), the overall rating for the fishery would be a fail against the standard.

It should also be noted that in the graphical representations of the pre-assessment scoring, the annual value of landings of target species by each fleet segment and gear is shown to the right of the graphic – adding a scaling factor to the findings.

The key patterns that emerge from these assessments are that, as matters stand:

status and practices below the minimum standards compatible with well-managed fisheries

- for most species exploited there is insufficient information available on stock status and reference points, and exploitation is not managed on the basis of clear harvest control rules – as a result most of these fisheries fall below the minimum standard of good practice for sustainable fisheries, and would automatically fail a full MSC assessment;
- for the dredge and trawl fisheries there is insufficient information available on the extent and composition of bycatch and discards in these fisheries, and explicit strategies to minimise such interactions are not in place – this places practice below the standard expected of a well-managed fishery, and in most cases these fisheries would automatically fail a full MSC assessment; and
- for those fisheries involving greatest interaction with the seabed – dredge fisheries and heavy beam trawling – insufficient information is available on the scale and nature of interaction of these gears with seabed habitat and ETP species, and there are no specific strategies in place to avoid and/or minimise such interactions – resulting in an automatic fail if these fisheries were to be submitted to full assessment.

status and practices that are above the minimum required practice but which fall short of “good practice” and thus might compromise certification under full assessment

- most fisheries are not managed on the basis of clear over-arching objectives or fishery-specific plans that would allow the success of such management to be easily monitored;
- there is no coherent needs-based research plan in place for these fisheries;
- there is no regular review process in place to evaluate the effectiveness of management plans (complicated by the absence of clear and explicit species / fishery-specific management plans), and management processes are rarely exposed to independent review;
- for gill net fisheries little information is available on the scale and nature of the interaction of these gears on the habitat, and therefore the habitat risks posed by this type of gear remain unclear; and
- for most static gears, relatively little research, compared to levels of research on mobile gears, has been undertaken in establishing the scale and nature of habitat and ecosystem interactions.

status and practices that meet or exceed the standard of “good practice”

- stock information tends to be well developed on fisheries that are managed by Total Allowable Catch and which have a trans-national component, although for the Eastern England Channel these fisheries are not always clearly subject to management in relation to reference points or on the basis of a clear harvest control rule;
- the use of static gears (gill nets and pots) generally fairs well in relation to seabed habitat interactions; and
- environmental interactions by vessels in the under-10m segment are generally benign and of a scale and nature compliant with “good practice”.

Whilst many of these findings may be deemed disappointing, it is clear that in most cases these weaknesses can be effectively remedied – in many cases simply through the process of focused and systematic data collection, analysis and documentation.

The absence of appropriate information to support stock assessments is a systemic problem for a large proportion of commercial species throughout UK & European waters and elsewhere throughout the world for small scale fisheries.

For the rest, none are considered close enough to meeting the MSC standard at the present time, each requiring significant additional work that might be expected to take between one and two years to complete. In the case of most of the mobile gears, issues relating to gear interaction with the seabed and seabed communities, and management / reduction of bycatch, may require significant additional work.

Our analysis suggests that a relatively small amount of work should bring up the P1 credentials of the **bass rod & line and pair trawl fisheries** to a point where full assessment could be considered, but further work is required in demonstrating / mitigating the impact of shallow-water pair trawling on the seabed.

For the **lobster fishery**, it might be necessary to collect further data over, for example, a 12-month period, but it is considered that this fishery is close to meeting entry requirements for full assessment.

The **crab and cuttlefish fisheries** are only slightly behind lobster, mainly because fishing on these same populations also takes place outside the area under the direct management of the SFC.

For **plaice**, stock status is not sufficient to warrant entry into full assessment, but in all other respects is likely to meet the standard.

For **cod**, stock status is rapidly, on current evidence, returning to a level compatible with “good practice”, but the raised national and international concern associated with the nearby North Sea stock of cod may make full assessment of this stock problematic in the short term.

For those species exploited by mobile gear (including pair trawling), there remains some way to go before it can be clearly demonstrated that the levels and impacts of gear / seabed interaction, and the management of such interaction, are compatible with the MSC standard. This is particularly so with respect to use of beam trawl and scallop dredge fisheries. Providing the evidence to demonstrate “good practice” will require significant and long-running research. Even then, it may not be possible to demonstrate that the nature of the impact of these gears on seabed communities is compatible with sustainable fishing. This said, almost any commitment to sustainable fisheries management requires that such impacts are measured, and practices changed to moderate such impacts – whether or not this can result in certification to the MSC standard – and therefore such work should be undertaken.



It is considered feasible that the specialist fisheries for **black seabream** and **red mullet** could be compatible with the standard – once suitable stock assessments and associated management measures had been undertaken, and the issue of seabed impacts resulting from shallow-water pair trawling quantified and mitigated.

The same might apply with respect to **turbot** (and possibly **brill**) – particularly in respect of the gill net fishery for these species (currently valued at £90k for turbot and £40k for brill).

In addition to the above, under P1, P2 and P3 there are practices that could and should be improved upon across the board – i.e. practices where Performance Indicator scores should be improved from below 80 to above 80, and in some cases from near 80 to 90 or higher.

The pre-assessment stage of the study examined 16 species and 11 fishing techniques – a combination resulting in 26 separate fisheries, or “units of certification”.



4 Correcting weaknesses in data and practice

4.1 Indications of how to approach P1 issues

By far the biggest impediment to wide-scale compliance with the MSC standard is the absence of stock assessment and harvest strategies for many locally exploited species. For those “quota” fisheries that are subject to management by Total Allowable Catch, stock assessment work is undertaken by national fishery laboratories, and international monitoring is coordinated through ICES – for example for sole, plaice, cod, herring and mackerel. In general these meet the formats required of the MSC standard, though there is some lack of clarity in the areas of reference points used and the detailing of harvest control rules.

For most of the other species assessed within this project the scale, value and/or geographic distribution of fisheries relegates them to positions at the periphery or outside the main assessment programmes of ICES. Significantly fewer resources are applied to the monitoring of these species:

- regular local monitoring is undertaken in respect of the bass and brown crab stocks and fisheries, and these have formed the basis of periodic *ad hoc* meetings convened by ICES, but these do not meet the scope or precision required of the MSC process;
- still less attention is given to other species audited within this project.

One option explored by the project was to use a new Risk-Based Methodology developed by the Marine Stewardship Council for data-deficient fisheries. This has clear potential use for Sussex fisheries and particularly for the many by-catch species where it is expected to be very useful. The method is more problematic for the target stock. On this latter point, it uses qualitative information to show whether a stock is robust to the exploitation being applied, by taking account of life history information, and any significant parts of the stock not subject to exploitation. If the stock is subject to exploitation over most of its range or life history or it has low productivity, it is assessed that there is a medium to high risk that the fishery could be being exploited unsustainably – and therefore more information is required to demonstrate that this is not the case.

In practice the Risk-Based Methodology can only be realistically applied to “target stock” assessment (i.e. under P1) where there is a demonstrably “low probability” that the stock is being exploited unsustainably – and thus it can only realistically be applied to stocks that are lightly exploited. For fisheries where there is a higher probability that the stock could be exploited unsustainably, a more conventional stock assessment is required as evidence that the fishery is being exploited and managed sustainably. In any case, the fishery would still be required to have in place a good harvest strategy, harvest control rule and relevant information – if not all at the start of certification, certainly as rapidly as possible afterwards. Also, even where a fishery has been certified as compliant with the MSC standard using the risk-based approach to assessment under P1, there is an expectation that when that fishery comes up for re-certification (i.e. after five years) that a more conventional stock assessment will have been completed, and the re-certification assessment will be based on the conventional assessment methodology.





In the case of the fisheries of the Sussex SFC that have been examined under Stages I & II of this project, none of the stocks are considered to be only lightly exploited, and thus none are considered to present a low probability of being exploited unsustainably (i.e. suitable for assessment using the Risk-Based Framework for small-scale and data-poor fisheries). For all these fisheries a more conventional stock assessment will be a prerequisite of entry into full assessment under the MSC certification process. In this context it will be necessary to develop stock assessments for lobster, crab, cuttlefish, black seabream, red mullet, whelks, native oysters and scallops.

However, even going down this more conventional route to stock assessment need not involve the 20 or so years of research that is more typical of those stocks annually monitored by ICES. Instead, the consultants have developed and tested a generic stock assessment methodology (illustrated in the Stage III report) that can be used with smaller datasets and time series than would be typically used in international assessments which, by drawing on a more risk-based assessment process, presents the necessary information and confidence in the analysis of that information to satisfactorily

address assessment of the P1 Performance Indicators dealing with “stock status”, and which can then be interpreted, in association with local fishery interests, to develop an appropriate and precautionary “harvest strategy” and “harvest control rule”.

The consultants recommend that this stock assessment procedure is applied to those stocks that are exploited in the fisheries of the Sussex coast and which are not otherwise assessed as part of wider international assessment programmes. They suggest that this approach can be applied to most of the species that are assessed under this project, and that a year's additional data – only slightly different to that already recorded – would be required as a minimum to add to the considerable relevant information that they consider is already held by fishers, traders, processors, scientists and managers. The tools for developing stock assessments sufficient to meet the MSC assessment requirements and to inform the development of suitable harvest control rules are available as open source statistical / software programmes, and allow the adoption of a more rigorous science-based approach to management at a small fraction of the cost of more conventional stock assessments.

4.2 Building a programme of remedial R & D

These outputs suggest the following provisional programme of remedial work should be considered as a means of bringing each of these fisheries into compliance with the MSC standard.

System improvements

improved data management systems within the SFC
 upgraded data collection on all species and gears – necessary prerequisite to the modelling of stocks
 collation of existing trade information on landing – weight, size, seasonality
 Installation and population of an integrated GIS
 consideration of the use of on-board data loggers to collect further information on fishing patterns

Projects

bycatch and discard monitoring programme – gill nets
 bycatch and discard monitoring programme – otter trawls
 bycatch and discard monitoring programme – beam trawls
 identification of existing conservation areas based on spatial arrangements of habitat type and fishing activity (from GIS)
 programme to develop a plan for management of interactions with sensitive species and communities (ETP species, and other species recorded as potentially subject to unsustainable impact)
 habitat impact assessment programmes – for beam trawl and for scallop dredge
 development of Ecosim modelling of Sussex SFC management area / Eastern Channel

Short-term inputs

development of basic Harvest Control Rule for sole gill net and trawl fisheries
 consolidation of bycatch and discard data for sole gill net and trawl fisheries

Stock assessments

sole	regularly monitored – ok
plaice	regularly monitored – currently below B_{pa}
cod	regularly monitored – currently below B_{pa}
herring	regularly monitored – ok
mackerel	regularly monitored – ok
bass	considerable data already available – needs some augmenting
black seabream	highly seasonal fishery – should be possible to extract data from past couple of years, plus data from next season
lobster	good data already available – need to collect new information for at least a further nine months
brown crab	need to collect new information for at least 12 months
cuttlefish	need to collect new information for at least 12 months
whelks	need to collect new information for at least 12 months
native oyster	need to collect new information for at least 12 months
red mullet	need to collect new information for at least 12 months
scallop	need to collect new information for at least 12 months
turbot	partial assessments already done for North Sea – but may need further local data
brill	partial assessments already done for North Sea – but may need further local data

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5 Momentum to improve management

In summary, the assessment of the fisheries of the Sussex SFDC area indicates that as a generality the fisheries are managed in a manner commensurate with the scale and nature of those fisheries and in line with the zonal nature of the management regime – 0-3nm and 3-6nm limits. Management reflects the diversity of the fleet, and the opportunist nature of much of the fisheries conducted – where many of the smaller vessels switch gear to meet seasonal fishing opportunities available to them.

The current approach to management is, at its core, pragmatic – a good thing – and has been built up steadily over time. But it falls down in that it is slow to identify and adapt to change. This has worked well in times where fleet capacity has been in line with resource availability, but recent decades have seen:

- conditions where many resources have become fully or over-exploited, and where fishing effort has been diverted from these to other fisheries, which themselves have become fully or over-exploited fisheries; and
- conditions where fleet effort has increased, despite significant overall reductions in vessel numbers – through increases in the size and scale of vessels, and improvements in the technologies employed and the efficiency of the gear used.

What is now required is a more responsive management regime – one that can articulate clear resource management objectives, assess ruling conditions against those objectives, and vary management according to the comparison of “state” against those objectives. Such management regimes are broadly in place for those species and fisheries managed by quota, but they do not currently exist for the many other species that are harvested within the Sussex Sea Fisheries District. Obligations on both the SFCs and Defra to responsibly manage what is a public resource require that managers adopt a strategic approach. Such an approach is at the core of the MSC assessment methodology, and use of this methodology as an audit tool provides a very clear and effective means of revealing where existing practice meets or falls short of industry “good practice”.

Assessment against this standard reveals two core weaknesses in the Sussex SFC management regime:

- The absence of species specific management plans for those fisheries that are not currently managed by quota; and
- The failure to systematically monitor important fishery and environmental parameters - information that would / could be routinely used to improve management of the fish stocks, and management of the impacts of fishing on the marine environment.

In turn, these findings prompt three high level strategic issues:

- To what extent is it sensible to contemplate undertaking stock modelling and management at the level of a single SFC (we know it is inappropriate for some stocks, and we know it is achievable for others, but there are some stocks for which the answer is less clear)? This has a fundamental bearing on how to approach Principle 1 issues.
- There is a wealth of environmental (and particularly spatial) data available for the Sussex SFC district; much is innovative and developed internally through focussed projects. Other useful material comes from a wide diversity of origins (different institutions, different funding mechanisms, different purposes). As a result, using and interpreting these data beyond their original purpose can, in their current form, be problematic. In addition, there is current focus on the increased use of zonal systems for the management of the marine environment (including fisheries) through a mosaic of fisheries and marine conservation areas – which are likely to incorporate the increased use of vessel tracking technologies. It therefore makes sense – leading to a multitude of benefits – to draw together all currently available information within a single GIS integrated with catch position and landings data sets (not routinely collected by the SFC). Whilst Principle 2 issues can be resolved through a programme of sub-projects, a more integrated approach would yield medium- and long-term advantages, not least in the area of costs.

⁵ Adaptive management not only learns from information gathered from the fishery, but will use/incorporate management actions to obtain information about the stock and fishery. This requires more sophisticated decision-making and better informed stakeholders than in traditional management systems.

- With the current remodelling of the SFCs as IFCAs (Inshore Fisheries and Conservation Authorities), and the incorporation of increased responsibilities for environmental monitoring and management, now is the time to clearly establish how the IFCAs can fully participate in the management of the fisheries under their jurisdiction using an “adaptive fishery management regime⁵”. At the very least this requires that the IFCAs have more ready access to landings and vessel-monitoring data, but also there needs to be greater clarification as to how decisions are to be made in the management of stocks / fisheries within the areas under the jurisdiction of the IFCAs. At present, Sussex SFC’s management of its fisheries is likely to score poorly on four out of the nine Performance Indicators under Principle 3 – four areas where improvements will be required under any certification.

These are:

- The setting of long-term (P3.1.3) and fishery specific management objectives and plans (P3.2.1) (in part to be derived from work to be done under P1 and P2)
- The structure and operation of decision-making systems (outstanding issues relate to clear and transparent allocation of responsibilities between national and regional structures, integration of fishery management responsibilities, and tightening up of co-management systems)
- The establishment of monitoring and evaluation systems to assess and re-assess the fishery management plans and systems against long-term and fishery specific management objectives.



6 Resourcing future management

The resource implications associated with proposed future management activities are significant and substantially exceed the current capacity of the Sussex Sea Fisheries Committee; an organisation with only six full-time staff, which is under constant pressure to restrict its expenditure and annual levy on local authorities. Amongst its existing activities the SFC runs two fisheries patrol vessels and, with considerable success, involves itself in various initiatives to improve local inshore fisheries and the marine environment.

To improve its capacity the organisation has been proactive in securing external funding opportunities for specific programmes, the UK Inshore Fisheries Sustainability Project being one. Future strategic planning does, however, require certainty, and opportunistic funding though extremely beneficial is no substitute for secure core funding.

The Marine & Coastal Access Act 2009 places clear statutory duties in relation to marine fisheries and conservation upon the new Inshore Fisheries & Conservation Authorities. Importantly, these obligations go well beyond the existing role of SFCs. Government has duly recognised the importance of adequate resourcing for IFCAs and intended funding arrangements for the new organisations include provision for Area Based Grant assistance from central Government, channelled through local authorities.

The UK Inshore Fisheries Sustainability Project has comprehensively assessed and identified activities required for the development of sustainable fisheries in the present Sussex SFC District and future Sussex IFCA District. Those activities can be identified within future IFCA plans according to available resources. Critically at this juncture in IFCA planning, the evidence can be used to determine the resources for future fisheries data and research needs.





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