

Summary: Intervention & Options

Department /Agency: Defra	Title: Marine Strategy Framework Directive (MSFD) Transposition Impact Assessment	
Stage: Consultation	Version: 3.0	Date: 30 October 2009
Related Publications:		

Available to view or download at:

<http://www.defra.gov.uk/corporate/consult/msfd-legal-framework/index.htm>

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What is the problem under consideration? Why is government intervention necessary?

Human activity has caused adverse changes to marine eco-systems, Those changes pose a threat to the balance and integrity of marine ecosystems, and their ability to deliver economic and other benefits (ecosystems goods and services). This results in an inefficient allocation of resources and the loss of some of the UK's environmental assets. Government intervention is necessary to ensure environmental quality is properly valued in deciding how best to make sustainable use of the UK's seas. However, marine pollution is often trans-boundary, so national action needs to be supported by a common framework to ensure action is taken across the EU, to help the achievement of UK objectives for our seas where these are influenced by the actions of other Member States. EU Member States must transpose this Directive by July 2010.

What are the policy objectives and the intended effects?

The EC's Marine Strategy Framework Directive sets the goal that Member States should achieve or maintain Good Environmental Status (GES) in their waters by 2020. Member States must produce a Marine Strategy for their waters, in collaboration with other Member States in their marine region. The strategy should consist of: an assessment of environmental status and a determination of what GES means for those waters; targets, indicators and a monitoring programme to measure progress; and a programme of measures to achieve or maintain GES. This IA focuses on the transposition of the MSFD. Future IAs will also look in more detail at the impacts of its implementation.

What policy options have been considered? Please justify any preferred option.

Option 1 describes the status quo (ie if the Directive is not transposed into UK law). This is the counterfactual baseline against which options 2 and 3 are assessed.

Option 2 is for Defra and each Devolved Administration to transpose the Directive separately.

Option 3 (the preferred option) is to transpose the Directive using a single UK-wide legislative instrument.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? A first review is expected in July 2018. However more information on the costs and benefits of implementation options will accompany each further step in implementation, most significantly the design and establishment of programmes of measures in 2014-15.

Ministerial Sign-off For SELECT STAGE Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister:

Huw Irranca-Davies

.....Date: 27 October 2009

Summary: Analysis & Evidence

Policy Option: 1

Description: Do not transpose the Marine Strategy Framework Directive (the 'status quo')

COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups' By definition there are no additional costs under the baseline option.
	One-off (Transition)	Yrs	
	£ 0	10	
	Average Annual Cost (excluding one-off)		
	£ 0		Total Cost (PV) £ 0
Other key non-monetised costs by 'main affected groups' The marine environment is expected to continue to face significant anthropogenic pressures which impact upon the provision of ecosystem goods and services and consequently human welfare.			

BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups' By definition there are no additional benefits under the baseline option.
	One-off	Yrs	
	£ 0		
	Average Annual Benefit (excluding one-off)		
	£ 0		Total Benefit (PV) £ 0
Other key non-monetised benefits by 'main affected groups' Marine resources are expected to be used in a more strategic way than in the past due to a range of planned legislation including the UK and Scottish Marine Bills and the Marine Policy Statement.			

Key Assumptions/Sensitivities/Risks The key risk associated with not transposing the Directive by 15 July 2010 is that the UK would be liable to infraction proceedings being brought by the European Commission, which could lead to a substantial fine.

Price Base Year NA	Time Period Years 11	Net Benefit Range (NPV) £ N/A	NET BENEFIT (NPV Best estimate) £ N/A
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What is the geographic coverage of the policy/option?		UK-wide		
On what date will the policy be implemented?		N/A		
Which organisation(s) will enforce the policy?		UK and DA Ministers ¹		
What is the total annual cost of enforcement for these organisations?		£		
Does enforcement comply with Hampton principles?		Yes		
Will implementation go beyond minimum EU requirements?		No		
What is the value of the proposed offsetting measure per year?		£ 0		
What is the value of changes in greenhouse gas emissions?		£ 0		
Will the proposal have a significant impact on competition?		No		
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	Yes/No	Yes/No	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices)			(Increase - Decrease)
Increase of	£ 0	Decrease of	£ 0
Net Impact			£ 0

Key: Annual costs and benefits: Constant Prices (Net) Present Value

¹ In Northern Ireland, unlike other parts of the UK power is vested in departments and not with Ministers. The Department of the Environment will enforce the policy in Northern Ireland.

Summary: Analysis & Evidence

Policy Option: 2

Description: Separate transposition of the Marine Strategy Framework Directive in England and each of the Devolved Administrations.

COSTS	ANNUAL COSTS		Description and scale of key monetised costs by 'main affected groups' It has not been possible to quantify the costs. The costs of transposition are anticipated to be minimal.
	One-off (Transition)	Yrs	
	£	0	
	Average Annual Cost <small>(excluding one-off)</small>		
	£	0	Total Cost (PV) £ 0
<p>Other key non-monetised costs by 'main affected groups'</p> <p>The key cost identified is the cost to stakeholders of engaging with the separate consultation processes for England, Scotland, Wales and Northern Ireland. The costs to government of transposing the Directive are considered 'business as usual' costs. The business as usual costs of option 2 are anticipated to exceed those of option 3. There are also expected to be costs in implementation but it is too early to quantify these, and they are expected to be significantly outweighed by the benefits</p>			

BENEFITS	ANNUAL BENEFITS		Description and scale of key monetised benefits by 'main affected groups' It has not been possible to quantify the benefits. The benefits of transposition are anticipated to be minimal.
	One-off	Yrs	
	£	0	
	Average Annual Benefit <small>(excluding one-off)</small>		
	£	0	Total Benefit (PV) £ 0
<p>Other key non-monetised benefits by 'main affected groups' Whichever transposition option is chosen, coordinated action to improve the marine environment should ensure environmental improvements do not erode competitiveness of UK businesses. There are also expected to be significant benefits in implementation but it is too early to quantify these, and they are expected to outweigh the costs.</p>			

Key Assumptions/Sensitivities/Risks Assumed that 4 sets of regulations would result in duplication of effort, increase complexity (& also costs) for administrations and stakeholders, and could increase risk of infractions relative to option 3, although this risk will be considerably reduced relative to the baseline. ²

Price Base Year 2009	Time Period Years 11	Net Benefit Range (NPV) £ 0	NET BENEFIT (NPV Best estimate) £ 0
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What is the geographic coverage of the policy/option?		UK-wide	
On what date will the policy be implemented?		15 July 2010	
Which organisation(s) will enforce the policy?		UK and DA ministers ³	
What is the total annual cost of enforcement for these organisations?		£ 0	
Does enforcement comply with Hampton principles?		Yes	
Will implementation go beyond minimum EU requirements?		No	
What is the value of the proposed offsetting measure per year?		£ 0	
What is the value of changes in greenhouse gas emissions?		£ 0	
Will the proposal have a significant impact on competition?		No	
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium Large
Are any of these organisations exempt?	Yes/No	Yes/No	N/A N/A

Impact on Admin Burdens Baseline (2005 Prices)		(Increase - Decrease)	
Increase of £ 0	Decrease of £ 0	Net Impact	£ 0

Key:

Annual costs and benefits: Constant Prices

(Net) Present Value

² Under this option infraction proceedings would result only if the UK were judged not to have fully transposed the legislation

³ In Northern Ireland the Department of Environment NI will enforce it.



Summary: Analysis & Evidence

Policy Option: 3	Description: Transpose the Marine Strategy Framework Directive using a single UK-wide legislative instrument (the preferred option)
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COSTS	ANNUAL COSTS	Description and scale of key monetised costs by 'main affected groups' It has not been possible to quantify the costs. The costs of transposition are anticipated to be minimal.		
	One-off (Transition) Yrs			
	£ 0			
	Average Annual Cost (excluding one-off)			
	£ 0	Total Cost (PV)	£ 0	
Other key non-monetised costs by 'main affected groups' The key cost identified is the cost to stakeholders of engaging with the consultation processes for the UK transposition. The costs to government of transposing the Directive are considered 'business as usual' costs. The business as usual costs of option 3 are anticipated to be less than those of option 2. There are also expected to be costs in implementation but it is too early to quantify these, and they are expected to be significantly outweighed by the benefits.				
BENEFITS	ANNUAL BENEFITS	Description and scale of key monetised benefits by 'main affected groups' It has not been possible to quantify the benefits. The benefits of transposition are anticipated to be minimal.		
	One-off Yrs			
	£ 0			
	Average Annual Benefit			
	£ 0	Total Benefit (PV)	£ 0	
Other key non-monetised benefits by 'main affected groups' Whichever transposition option is chosen, coordinated action to improve the marine environment should ensure environmental improvements do not erode competitiveness of UK businesses. There are also expected to be significant benefits in implementation but it is too early to quantify these, and they are expected to outweigh the costs.				
Key Assumptions/Sensitivities/Risks - It is assumed that this option will be less resource-intensive (and therefore less costly) for administrations and stakeholders, and will reduce the risk of infractions relative to option 2 and reduce the risk considerably relative to the baseline. ⁴				

Price Base Year 2009	Time Period Years 11	Net Benefit Range (NPV) £ 0	NET BENEFIT (NPV Best estimate) £ 0		
What is the geographic coverage of the policy/option?			UK-wide		
On what date will the policy be implemented?			15 July 2010		
Which organisation(s) will enforce the policy?			UK and DA ministers ⁵		
What is the total annual cost of enforcement for these organisations?			£ 0		
Does enforcement comply with Hampton principles?			Yes		
Will implementation go beyond minimum EU requirements?			No		
What is the value of the proposed offsetting measure per year?			£ 0		
What is the value of changes in greenhouse gas emissions?			£ 0		
Will the proposal have a significant impact on competition?			No		
Annual cost (£-£) per organisation (excluding one-off)		Micro	Small	Medium	Large
Are any of these organisations exempt?		Yes/No	Yes/No	N/A	N/A
Impact on Admin Burdens Baseline (2005 Prices)			(Increase - Decrease)		
Increase	£ 0	Decrease	£ 0	Net	£ 0

⁴ Under this option infraction proceedings would result only if the UK were judged not to have fully transposed the legislation.

⁵ In Northern Ireland the Department of Environment NI will enforce it.

Evidence Base (for summary sheets)

[Use this space (with a recommended maximum of 30 pages) to set out the evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Ensure that the information is organised in such a way as to explain clearly the summary information on the preceding pages of this form.]

1. INTRODUCTION

- 1.1 This is a draft Impact Assessment of the options for transposing the EU Marine Strategy Framework Directive (2008/56/EC) into UK law. The UK-wide costs and benefits of the options for transposing the Directive are compared to the counterfactual baseline of not transposing the Directive.
- 1.2 This document should be treated as a draft which will be completed following a public consultation on the draft Statutory Instrument that will transpose the Directive into UK law. **Defra and the Devolved Administrations would welcome comments on the content of this impact assessment as part of your response to the public consultation.**
- 1.3 The impacts of transposition itself are relatively small. This is because the Marine Strategy Framework Directive (MSFD) is a framework directive and its transposition involves establishing a high-level legal framework in the UK. Details of what actions will be needed for implementation will be decided at later stages. This document should therefore be seen as a first step in the Impact Assessment process for the eventual implementation of the Directive.
- 1.4 This Impact Assessment (IA), as well as the accompanying consultation document, does however outline current thinking on how we might approach the implementation process including the determination of GES and the monitoring arrangements and programmes of measures necessary to deliver GES by 2020 [see section 4] which will be examined in more detail in future Impact Assessments. This information does not form part of the formal consultation on the transposition regulations. However the intention is to lay the foundation for further IAs, and evidence and input from consultees are welcomed to help us develop an evidence-based approach towards implementation.
- 1.5 The evidence base is structured as follows:
- Section 1: Introduction
 - Section 2: Policy rationale and objectives
 - Policy rationale
 - Policy objectives: an overview of the Directive
 - Policy objectives for the initial transposition
 - Section 3: Policy options for the initial transposition (by July 2010)
 - Option 1: Do not transpose the Marine Strategy Framework Directive (the 'status quo')
 - Option 2: Separate transposing regulations in England and each of the Devolved Administrations
 - Option 3: Transpose the Marine Strategy Framework Directive using a single UK-wide legislative instrument (the preferred option)
 - Section 4: Towards implementation of the Directive
 - Overview

- Initial Assessment (by July 2012)
- Determination of GES, and associated targets and indicators (by July 2012)
- Establishing a monitoring programme (by July 2014)
- Developing (by 2015) and implementing (by 2020) programmes of measures
- Analytical approach to assessing the costs and benefits of implementation

Section 5: Specific impact tests

2. POLICY RATIONALE AND OBJECTIVES

Policy rationale

- 2.1 The marine environment is subject to a range of changes as a result of human activity. These changes can include the loss or degradation of biodiversity and changes in its structure, loss of habitats, contamination by dangerous substances and nutrients, and the possible future effects of climate change.
- 2.2 The UK Government and Devolved Administrations already recognise the need for enhanced intervention, in order to achieve their overall vision of clean, safe, healthy, productive, and biologically diverse oceans and seas. This is why we are committed to putting in place better systems for delivering sustainable development of marine and coastal environment, through the UK Marine and Coastal Access Bill, the Scottish Marine Bill and the proposed Marine Bill in Northern Ireland. Nevertheless, marine pollution can be trans-boundary in nature and national measures are not necessarily sufficient in themselves to achieve our objectives for our seas where these are influenced by the actions of other countries.
- 2.3 The EU Marine Strategy Framework Directive requires all Member States to take the coherent and collaborative action necessary to protect Europe's seas. It aims to promote sustainable use of the seas and conserve marine ecosystems, covering all human activities that have an impact on the marine environment, by putting in place a transparent and coherent common legislative framework for action across the EU.
- 2.4 Along with other Member States, the UK must transpose the Directive by 15 July 2010 or we will be liable to infraction proceedings.

Policy objectives: an overview of the Directive's requirements

- 2.5 The key requirement of the Directive is for Member States to put in place measures aimed at achieving or maintaining Good Environmental Status (GES) in their marine waters by 2020. Environmental status will be assessed against the following eleven descriptors set out in Annex 1 of the Directive:

- 1: Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
- 2: Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
- 3: Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.
- 4: All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.
- 5: Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
- 6: Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.
- 7: Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
- 8: Concentrations of contaminants are at levels not giving rise to pollution effects.

9: Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.

10: Properties and quantities of marine litter do not cause harm to the coastal and marine environment.

11: Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

2.6 Criteria and methodologies that Member States must use to assess their marine waters against these indicators are currently being developed for agreement at European level during 2010. Once criteria and methodologies are available, Member States must use them to assess their marine waters by 2012. Each Member State must determine what constitutes GES for its own waters and draw up a strategy for achieving or maintaining it. The Directive anticipates Member States using an ecosystem approach to the management of the marine environment. The precise requirements of an ecosystems approach is the subject of academic debate but it broadly involves integrating and managing the range of demands on the natural environment in such a way that it can indefinitely support essential services and provide benefits for all.

2.7 Achieving such an integrated approach to marine management will involve close coordination between each of the UK administrations, as well as with other neighbouring Member States. For this reason the Government and the Devolved Administrations are taking a closely coordinated approach to the implementation of this Directive. Ministers have taken a decision to transpose the Directive using one set of Regulations covering the whole of the UK and this consultation exercise is a process conducted jointly by the UK Government, the Scottish Government, the Welsh Assembly Government and the Department of the Environment in Northern Ireland. This IA assesses the costs and benefits of this approach, while the consultation document sets out the thinking behind this decision, and invites views on the transposing regulations.

2.8 In order to deliver GES by 2020 the Directive requires that Member States must produce a Marine Strategy for their waters, in collaboration with other Member States in their marine region. A Marine Strategy is broken down into the following elements:

- An initial assessment of the current environmental status of a Member State's marine waters (to be completed by July 2012);
- A determination of what GES means for those waters (to be completed by July 2012);
- Establishment of targets and indicators designed to show whether a Member State is achieving GES (to be established by July 2012);
- Establishment of monitoring programmes to measure progress towards GES (to be established by July 2014);
- Establishment of programmes of measures designed to achieve or maintain GES (to be developed by 2015 and made operational by 2016)

2.9 Each of these steps in implementing the Directive will involve further public consultation and impact assessment, as the detailed requirements of each step become clearer. In particular the concept of GES is critical to the implementation stages. While the Directive does set out 11 high-level descriptors of GES, it leaves it to the Member State concerned (in coordination with other neighbouring countries) to determine detailed targets and indicators for GES, following pan-European criteria and standards which the European Commission hopes to agree by Summer 2010. This level of uncertainty makes it impossible to say at this stage exactly what achieving GES will involve and what its impact will be, both on marine ecosystems and on businesses and other users operating in the marine environment.

Policy objectives for the initial transposition

2.10 This Impact Assessment focuses on the draft regulations to transpose the Directive. The regulations cover all the UK's marine waters, including territorial waters in Wales, Scotland and Northern Ireland. The purpose of the regulations is to transpose the Directive by establishing a high-level legal framework that ensures that each obligation which it places on the UK is assigned to a competent authority, and those competent authorities are given the necessary powers to carry out their roles. The draft regulations aim to transpose the Directive and, in particular, set out:

- the geographical scope of the legislation - the area over which the UK Marine Strategy/Strategies will apply;
- the bodies that will be responsible for implementing the Directive in different parts of the UK's marine waters (i.e. which bodies will act as competent authorities for the Directive) and put duties on those bodies to deliver each of the Directive's requirements to the required timetable;
- an appropriate legal framework to ensure that the Government and each of the Devolved Administrations work together effectively to implement the Directive in a consistent and co-ordinated way across the UK;
- appropriate provisions to ensure that all public authorities which take decisions or carry out activities affecting the marine environment will be required to play an appropriate role in ensuring that the requirements of this Directive are delivered;

2.11 The draft regulations will not set out:

- *the detail of what GES means for UK seas* – the UK determination of GES and the associated targets and indicators cannot be developed until appropriate EU-wide parameters for GES have been agreed – these are expected to be finalised in 2010.
- *the UK monitoring programmes for GES* – monitoring programmes for GES are required by 2014 and will be developed once it is clear what GES means for UK waters.
- *the UK programmes of measures for achieving GES* - programmes of measures for GES are required by 2015. Again, at this stage it is too early to set out what measures will be needed to achieve GES.

3 POLICY OPTIONS FOR THE INITIAL TRANSPOSITION

3.1 The options at this stage are limited. It is a requirement of EC law that the Directive must be transposed by 15 July 2010. The status quo option of not transposing the Directive is outlined in this Impact Assessment and should be considered to be the hypothetical baseline against which options 2 and 3 are assessed.

Option 1: Do not transpose the Marine Strategy Framework Directive (the status quo)

3.2 This section describes the hypothetical scenario in which the UK does not transpose the MSFD. This is not considered a viable option as the UK is legally committed to transposing the Directive and would face the risk of substantial infraction proceedings if the regulations are not transposed by 15 July 2010. The costs of transposition (as opposed to implementation) are low compared to the possible level of fines for non-transposition. This option is therefore included solely for the purpose of providing a baseline for comparison.

3.3 By definition, continuing under the status quo would result in no additional costs or benefits from the MSFD. However, even under this option it is anticipated that between now and 2020 marine resources will be used in a more strategic way than they have been in the past. This will be due largely to the Marine and Coastal Access Bill, the Scottish Marine Bill and the proposed Marine Bill in Northern Ireland which will introduce a number of measures including new systems of marine planning, streamlined regulatory processes, the creation of strategic delivery bodies in the marine environment, and the commitment to create a network of Marine Conservation Zones/Marine Protected Areas. In addition, a Marine Policy Statement will be consulted on in 2010 and is due for publication in 2011. It is intended that this will set out in one document the UK Government and Devolved Administrations' policies for the sustainable development of the UK marine area and will provide clarity for stakeholders with an interest in the use of the seas. This clarity will benefit businesses and enable marine users to plan for the future with more certainty⁶. Other policies anticipated to impact upon marine environmental policy include the EC Birds and Habitats Directives which aim to conserve marine biodiversity, and reform of the Common Fisheries Policy which aims to improve the sustainability of European fish stocks and secure a stable source of income for European fishers. The Water Framework Directive which requires Member States to achieve Good Ecological Status in their terrestrial water bodies is also expected to deliver environmental improvements in coastal areas⁷. The combined impact of this legislation is anticipated to deliver a baseline of improving environmental quality in UK marine waters (relative to the counterfactuals set out in the Impact Assessments for those policies) and it is against this baseline that any measures to be introduced under the Marine Strategy Framework Directive should be considered.

3.4 Despite the increased clarity and environmental improvements expected to result from the legislation described above, it is anticipated that the marine environment will continue to face significant anthropogenic pressures. These pressures will impact upon the provision of ecosystem goods and services - and as a result have a direct impact on the welfare of UK citizens. There is significant uncertainty as to how the marine environment will evolve between now and 2020 under the status quo and the impacts of climate change are particularly difficult to anticipate. In future Impact Assessments a range of scenarios will be presented to reflect this uncertainty. Table 1 below provides example scenarios for each of the descriptors of Good Environmental Status.

Table 1: Illustrative baselines scenarios of evolution of environmental quality under the status quo, between now and 2020

⁶ For more detail see <http://www.defra.gov.uk/environment/marine/documents/legislation/marinebill-ia.pdf> for the UK Bill and <http://www.scotland.gov.uk/Publications/2009/04/29130759/0> for the Scottish Bill.

⁷ For more detail see <http://www.defra.gov.uk/environment/quality/water/wfd/documents/pdf-ria-draft/ria-wfd-annex1.pdf> , and for Scotland: <http://www.scotland.gov.uk/Topics/Environment/Water/WFD/WEWSAct>

GES descriptor	Illustrative baseline		
	Lower	Medium	Higher
Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions (GES1)	Biodiversity loss is reduced but not fully halted	Biodiversity loss is halted	Biodiversity loss is halted and there is recovery of impacted areas and mobile species
Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems (GES2)	New introductions of non-indigenous species are reduced but some ecosystem impacts remain at national scale	Introductions of non-indigenous species are significantly reduced to limit ecosystem impacts at a national scale	Introduction of new species is minimised and existing non-indigenous species managed to avoid ecosystem damage at a national scale.
Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock (GES3)	Fish stocks remain lower than safe biological limits but decline in stock levels is halted. Species abundance maintained to recent historic levels and fish sizes remain low	Populations of all commercially exploited fish and shellfish within safe biological limits but size and age class structure adversely affected when populations are assessed at the level of the whole of the UK's marine area	Populations of all commercially exploited fish and shellfish are at maximum sustainable yield, within safe biological limits with no significant distortion of size and age class structure when populations are assessed at the level of the whole of the UK's marine area.
All elements of the marine food webs, to the extent that they are known, occur at normal abundances and diversity levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity (GES4)	Marine food webs affected by human activity. In particular, fishing still affecting top predators and evidence of 'fishing down the food chain' remains	Maintenance of food webs but minor impacts to top predators from fishing activity still evident. No loss of key functional groups	Structure and function (biomass within different trophic levels) of marine foodwebs being maintained across the UK Continental Shelf when assessed at the level of the whole of the UK's marine area.
Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and	Risk from point source discharges sufficiently low but diffuse pollution will remain a significant source of nitrate and phosphate	Point and non-point source nutrient inputs into the estuarine and marine environments minimised to the extent that eutrophication does not occur at a Regional Sea scale	No significant adverse effects on biodiversity or the marine ecosystem which can be attributed to human induced eutrophication when assessed at the level of the whole of

oxygen deficiency in bottom waters (GES5)			the UK's marine area
Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected (GES6)	Benthic ecosystem structure and function shift into an alternative steady state with adverse effects on benthic structure and function as a whole.	Bed disturbing activities (all forms of dredging including fisheries) are subject to spatial management, matching the disturbance potential of each activity with the resistance/resilience of target substrate. Loss of the most sensitive habitats is halted; damage to the most important habitats (ie. key to maintaining ecosystem function) is reduced. Measures introduced for all UK waters, including coastal, shelf (to 200m depth) and deep sea (>200m depth)	Sea floor integrity is adequately protected when assessed at a national scale. Management paradigm shifts from the concept of 'Protected Areas within an exploited environment' to 'Exploited areas within a Protected Environment'
Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems (GES7)	Adverse impacts on marine ecosystems from permanent alteration of hydrographic conditions within 1 and 3nm are prevented (with the exception of some heavily modified water bodies) unless for reasons of overriding public interest	No permanent alteration of hydrographical conditions which results in significant effect on marine ecosystems	No permanent alteration of hydrographical conditions which results in significant effect on marine ecosystems
Concentrations of contaminants are at levels not giving rise to pollution effects (GES8)	Contaminants persist within marine environments; including offshore	Concentrations of contaminants are at levels not causing pollution in sensitive areas	Concentrations of contaminants at levels not causing pollution in any component of the marine environment when assessed at the level of the whole of the UK's marine area.
Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards (GES9)	Exceedence of contaminant levels set by community legislation continues in some shellfish harvesting areas and fish farms (inadequate microbiological quality of waters)	Contaminant levels not exceeding community legislation	Contaminant levels not exceeding community legislation
Properties and quantities of marine litter do not cause harm	Marine litter levels stay the same or increase. Adverse impacts in	Marine litter levels are reduced and adverse impacts in marine and	Marine litter is reduced to levels that does not have adverse impacts

to the coastal and marine environment (GES10)	marine and coastal environment continue	coastal environment decline	in the marine and coastal environment
Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment (GES11)	Noisy development activities and introduction of other forms of energy (including electromagnetic fields) continue at current trend	Noisy development activities and introduction of other forms of energy (including electromagnetic fields) are controlled at a national level to reduce the harm to cetaceans and key fish species	All sources of energy introduction are adequately controlled resulting in minimised impacts on cetaceans and key fish species

Source: based on information in an unpublished consultants' report to Defra

Note: these scenarios are for illustrative purposes only

3.5 UK policy is to transpose EU Directives on time, in accordance with our obligations as a Member State. The key risk associated with option 1 is that the UK would be liable to infraction proceedings being brought by the European Commission as a result of not transposing the Directive. Failure to meet our obligations could eventually result in a fine being imposed on the UK. Whether to impose a fine – and if so, the level of fine - would be determined by the European Court of Justice. This could involve both a lump sum and a periodic payment. The magnitude would be likely to depend on: the seriousness of the breach, including the importance of the Community rule infringed and the effects of the infringement; the duration of the breach; and the Member State's ability to pay and the weighting of its votes in Council (intended to ensure the penalty has a deterrent effect). For example, in a recent French case (on EU fisheries policy), a lump sum of 20 million Euros was imposed, together with a penalty of over 57 million Euros for each six-month period that France failed to implement the law (although that case – involving repeated non-compliance with fisheries conservation - may not be directly comparable to the straightforward non-transposition considered here). However, the European Court of Justice would consider each case on its individual merits.

Option 2: Separate transposition of the Marine Strategy Framework Directive in England and each of the Devolved Administrations.

3.6 Transposition of the Directive will create a high-level legal framework for the implementation of the Directive. This section explores the implications of England, and the Devolved Administrations for Scotland, Wales and Northern Ireland each transposing the MSFD independently for their areas of jurisdiction.⁸ It should be noted that the choice of a single set or four sets of transposing regulations does not affect how the Directive is implemented

3.7 Under this option Defra and the Devolved Administrations would make four separate sets of regulations which, collectively, achieved full transposition of the Directive. Defra's regulations would transpose those obligations which can only be carried out at UK level – principally, the determination of what constitutes GES for UK waters – as well as transposing the remaining obligations in respect of England. Each of the devolved administrations would make regulations requiring itself to assess and monitor its own waters, to contribute information to assist the Secretary of State with his determination of GES, and to draw up appropriate targets, measures and monitoring programmes. There would need to be appropriate

⁸ Although Welsh Ministers do not currently have a general designation which would enable them to make regulations transposing the MSFD in Wales either alone, or on a composite basis, they could apply for a specific designation to do so.

provision in all three sets of regulations for coordination and cooperation between the UK Government and the Devolved Administrations, and between the different Administrations.

3.8 The principle advantage of this option is that it would require transposition to be scrutinised in each of the Devolved Administrations as well as in the UK Parliament, thus allowing for discussion and debate in each of the parliaments concerned, which may be illustrative in drawing out specific issues for Scotland, Wales and Northern Ireland. The principle drawback is that it would entail using four sets of regulations to achieve what could be achieved through just one, making the process much more complex and affecting the confidence of stakeholders who are likely to prefer a consistent approach. It would also quadruple the effort required from those stakeholders with UK-wide interests to keep track of the transposition process – which would involve little substantial difference in approaching the issues between the various administrations. Moreover, separate transposition processes could increase the risk of infraction given that the Directive provides for implementation on the basis of regional waters rather than according to political boundaries.

COSTS

Costs to the environment

3.9 No environmental costs associated with transposition of the Directive have been identified at this stage.

Costs to Government (central and wider)

3.10 This option would require UK Government and the Devolved Administrations each to prepare a set of regulations, a consultation document and an Impact Assessment, and to consult with its stakeholders. Although the additional costs are included in the “business as usual” costs of running Government, they would be anticipated to exceed the cost of producing a single set of transposing regulations as per option 3 due to the duplication of effort across the UK administrations.

3.11 All of the activities in para 2.10 are considered business as usual activities for governments and at this stage no costs to government that are additional to the baseline have been identified.

Costs to business and other stakeholders

3.12 The key cost that has been identified at this stage is the cost to stakeholders of engaging with the consultation process for transposition. This would clearly be greater in respect of multiple transpositions than for a single transposition.

3.13 While it has not been possible to estimate fully how much time businesses and other stakeholders are likely to spend on this, a straw poll of stakeholders suggests that they will devote between 10 and 2,600 hours responding to and influencing the MSFD’s public consultation on transposition. The range reflects the differential effort between small local interest groups and industry bodies representing multiple private companies⁹. Stakeholders are invited to indicate more accurately their time commitment as part of their consultation responses. It seems reasonable to conclude that the cost to stakeholders of dealing with four separate consultations would be greater than dealing with just one consultation, bearing in mind that many of the issues raised in the separate consultations would be the same.

3.14 In addition some marine stakeholders may choose to undertake research and build upon the evidence base available for the transposition and later the implementation of the Directive. Approximately a third of stakeholders indicated that they may undertake such research in the informal poll undertaken by Defra and the Devolved Administrations. Stakeholders estimated that this research would cost between £2,500 and £25,000 with the anticipated cost to most organisations falling at the lower end of this spectrum. The extent to which this research would have been undertaken anyway, rather than being commissioned

⁹ The representative industry body devoting 2,600 to the transposition process represents more than ten organisations who on average may be expected to devote approximately 200 hours each to the process

specifically to develop thinking on the MSFD is not clear. In any event it seems unlikely that such research relates specifically to the method of transposition, although the event of transposition may act as a driver for research intended to inform the implementation phase.

- 3.15 There may also be some additional uncertainty generated for businesses in the time before the programmes of measures are announced and before any other implications of the Directive are clarified. To minimise this risk the government will adopt a transparent approach to policymaking and will proactively engage with stakeholders (see Section 4 for more details).

BENEFITS

Benefits to the environment

- 3.16 No environmental benefits associated with transposition of the Directive have been identified at this stage, although further down the line the implementation of the Directive is likely to result in both costs and benefits to the environment (see section 4).

Benefits to Government (central and wider)

- 3.17 The only potential benefit to Government would be that each of the Devolved Administrations' legislative bodies would have the opportunity to scrutinise its own legislation, rather than a UK-wide set of regulations. It is not possible to quantify this benefit. Transposing using a UK-wide set of regulations would not affect implementation – as this depends on the content of those regulations, including the roles and responsibilities of the competent authorities, including those in the devolved administrations.

Benefits to business and other stakeholders

- 3.18 Transposition of the Directive by the UK and other Member States will result in a stronger legal framework for coordinated action to improve the marine environment within Europe than exists at present. This could yield benefits to business by levelling the playing field compared to the status quo, under which consistent management of marine waters across Europe is not achievable. However there are no specific benefits to business as a result of transposing the Directive separately.

Option 3: Transpose the Marine Strategy Framework Directive using a single UK-wide legislative instrument (the preferred option)

- 3.19 Transposition of the Directive will create a high-level legal framework for the implementation of the Directive. This section explores the implications of using a single UK-wide legislative instrument to transpose the Marine Strategy Framework Directive. It should be noted that the choice of a single or four sets of transposing regulations does not affect how the Directive will be implemented.

- 3.20 This option involves a single set of regulations covering transposition for the whole of the UK. The regulations will assign relevant duties and powers to each of the UK Government and the Devolved Administrations and enable a single consultation to take place across the UK.

- 3.21 Option 3 is the preferred option of the UK government and the Devolved Administrations and the draft Regulations have been prepared on that basis.

COSTS

Costs to the environment

- 3.22 No environmental costs associated with transposition of the Directive have been identified at this stage

Costs to Government (central and wider)

- 3.23 Transposing through a single set of regulations would involve the UK Government and Devolved Administrations in preparing regulations, a consultation document and an Impact Assessment. These costs fall within the business as usual costs of Government but are expected to be lower than those associated with preparing three separate sets of documents as per Option 2.
- 3.24 All of the activities described in paras 2.10 are considered business as usual activities for governments and at this stage no costs to government that are additional to the baseline have been identified. However, it would be reasonable to assume that this option would be less resource-intensive than option 2 since some duplication of effort across Defra and the Devolved Administrations would be eliminated. This could free up some resources, particularly in the Devolved Administrations, to be used elsewhere on business as usual activities.

Costs to business and other stakeholders

- 3.25 The impact of the transposition of the Directive on businesses will be small, although further down the line the implementation of the Directive is likely to result in both costs and benefits to businesses (see section 4).
- 3.26 The key cost that has been identified arising from the transposition process is the cost to businesses of engaging with the consultation. As described in para 3.13, a straw poll of stakeholders suggests that they will devote between 10 and 2,600 hours responding to and influencing the MSFD's public consultation on transposition. The range reflects the differential effort between small local interest groups and industry bodies representing groups of private companies¹⁰. This cost would be lower under option 3 than option 2, because businesses with UK-wide interests would only have to engage with a single consultation process and set of regulations, instead of four. It has not been possible to estimate fully how much time businesses are likely to spend on this [and stakeholders are invited to indicate more accurately their time commitment as part of their consultation responses].
- 3.27 In addition some marine stakeholders may choose to undertake research and build upon the evidence base available for the transposition and later the implementation of the Directive. As detailed in para 3.14 approximately a third of stakeholders indicated that they may undertake such research in the informal poll undertaken by Defra and the Devolved Administrations. Stakeholders estimated that this research would cost between £2,500 and £25,000 with the anticipated cost to most organisations falling at the lower end of this spectrum. The extent to which this research would have been undertaken anyway, rather than being commissioned specifically to develop thinking on the MSFD is not clear.
- 3.28 There may also be some additional uncertainty generated for businesses in the time before the programmes of measures are announced and before any other implications of the Directive are clarified. To minimise this risk the government will adopt a transparent approach to policymaking and will proactively engage with stakeholders (see section 4 for more details).

BENEFITS

Benefits to the environment

- 3.29 No environmental benefits associated with transposition of the Directive have been identified at this stage, although further down the line the implementation of the Directive is likely to result in both costs and benefits to businesses (see section 4).

Benefits to Government (central and wider)

¹⁰ The representative industry body devoting 2,600 to the transposition process represents more than ten organisations who on average may be expected to devote approximately 200 hours each to the process

3.30 Government will benefit from the economies of scale involved in producing a single set of regulations rather than four sets. This saving will be relative to option 2 rather than to the baseline. This benefit to government, which has not been monetised, will make resources available for other business as usual activities.

Benefits to business and other stakeholders

3.31 The impact of the transposition of the Directive on businesses will be negligible. The choice of transposition instruments is unlikely to have a material impact on businesses or other stakeholders.

3.32 By adopting a transparent approach to policymaking and proactively engaging with stakeholders government will provide a clear legal framework for the Directive. This will minimise any uncertainty faced by business and over time will provide additional clarity which will benefit businesses and enable marine users to plan for the future with more certainty.

3.33 Transposition of the Directive by the UK and other Member States will result in a stronger legal framework for coordinated action to improve the marine environment within Europe than exists at present. This could yield benefits to business by levelling the playing field compared to the status quo, under which consistent management of marine waters across Europe is not achievable.

4 TOWARDS IMPLEMENTATION OF THE MSFD

Overview

4.1 As a framework directive the MSFD articulates broad principles and actions. The timetable for these to be agreed and carried out is set out in para 2.8 and it is a requirement of EC law that the Directive must be implemented by Member States according to this timetable. The Directive requires Member States (in coordination with the other countries in their marine region) to determine detailed targets and indicators for GES. To inform this process the European Commission will publish pan-European criteria and standards which are expected in Summer 2010.

4.2 Whichever transposition instrument is chosen (i.e. whether option 2 or 3 is pursued) the intention is that the competent authorities for implementing the Directive will be as follows:

- The Secretary of State should act as competent authority for the Directive in English waters and in the UK offshore area (with the exception of the Scottish offshore region);
- Scottish Ministers should act as competent authority for the Directive in Scottish territorial waters and in the Scottish offshore region;
- Welsh Ministers should act as competent authority for the Directive in Welsh territorial waters;
- The Department of the Environment in Northern Ireland should act as competent authority for the Directive in Northern Ireland's territorial waters.

As a result, the choice of transposition instrument will not impact upon the implementation of the Directive.

4.3 Implementation will involve consideration of, and consultation on, more substantive options for each stage of the Directive including more detailed consideration of the associated costs and benefits. As a guideline, it is expected that further consultations will take place according to the following timetable, though this may change as work develops:

- Consultation on an initial assessment of the current environmental status of the UK's marine waters is expected by July 2011;
- Consultation on the determination of what GES means for UK waters, as well as targets and indicators is also expected by July 2011;
- Consultation on the establishment of monitoring programmes to measure progress towards GES is expected by July 2013;
- Consultations on the programmes of measures to achieve or maintain GES are expected by July 2014

4.4 The information below outlines the current thinking on our intended approach to implementation. While these steps do not relate to the transposition of the Directive, this information is provided for the sake of transparency and to encourage the early engagement of stakeholders to help inform this approach.

Initial Assessment (due by July 2012, with consultation expected by July 2011)

4.5 The Directive requires an assessment of marine waters in respect of each marine region or sub-region. It is expected that the main elements of the initial assessment will be delivered through Charting Progress 2, the second integrated assessment of the state of UK seas, which is due to be published in May 2010. Led by the UK Marine Monitoring and Assessment Strategy (UKMMAS),¹¹ it will provide extensive information on developments

¹¹ See: <http://www.defra.gov.uk/environment/marine/science/ukmmas/index.htm>

since the first report (Charting Progress 1) in 2005, the pressures and impacts on the marine environment and will place the work within the wider political, social, economic and environmental context. UKMMAS and Charting Progress 2 meet the statutory evidence requirements of a range of existing legislation, taking an integrated and coordinated approach that prevents duplication and ensures cost-effectiveness. Charting Progress 2 will be a key tool for policymakers in developing measures aimed at protecting the marine environment and will be written with the requirements of the Directive in mind. Charting Progress 2 promotes the ecosystem approach which provides a more holistic framework for protecting the environment than considering component factors and their impact separately.

- 4.6 Defra has invested more than £3 million so far in the production of Charting Progress 2 and the associated evidence base. In total, Defra spends close to £20million per annum on essential marine monitoring activities (including activities in Northern Ireland and Wales). There is also a large amount of in-kind contribution from members of the UKMMAS community who have provided their time and resources without cost to government. Board members may give several weeks of their time per year to attend meetings which drive the UKMMAS process forward, review key documents and provide policy direction.
- 4.7 For 2008/2009, the costs of monitoring of Scottish seas undertaken by Marine Scotland Science, Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH), Scottish Association for Marine Science (SAMS) and Sea Mammal Research Unit (SMRU) was a total of about £7.86 million..The Scottish Government, through Marine Scotland, is also planning to publish a State of Scotland's Seas report in 2010. This will analyse the data from Charting Progress 2 and emphasise in more detail the situation in the Scottish seas, and will provide a baseline as Scottish marine policy develops. It will be more detailed than the work required for the MSFD initial assessment although will give background to the initial assessment from a Scottish perspective. The costs of the work will be in the range of £50,000 to £100,000. Fisheries Research Services (FRS, now Marine Scotland Science) have also undertaken some initial investigation of the various GES descriptors for Scottish Government. Their reports were published in early 2009.¹²
- 4.8 The Government and Devolved Administrations are currently considering what further evidence might be needed to address any gaps in our current monitoring and assessment activities and how this can be developed by 2012. Between now and 2011 we intend to undertake research, work with scientists, and consult with experts and stakeholders, to inform the assessment in order to strengthen the marine evidence base and meet the requirements of the Directive. We anticipate consulting on this initial assessment in summer 2011 and the views of stakeholders will be welcomed.
- 4.9 One further area where more work will certainly be necessary is in developing the socio-economic assessment required by the Directive. The Directive refers to the use of the ecosystems approach¹³. At present we lack a clear understanding of many of the linkages between observed environmental quality at a point in time and changes in the provision of ecosystem services (and consequently human welfare) into the future – although work has been done on marine ecosystem service provision in the Impact Assessment for the UK Marine and Coastal Access Bill.¹⁴ Ongoing work includes exploring the options for Benefits Transfer¹⁵ and Defra will publish guidelines on the use of Benefits Transfer in policy and

¹² See: http://www.frs-scotland.gov.uk/Delivery/Information_resources/information_resources_view_documents.aspx?resourceId=31136&parentId=37&parentName=Reports

¹³ See <http://www.defra.gov.uk/wildlife-pets/policy/natural-environ/eco-approach.htm> for an introduction to the methodology

¹⁴ See <http://www.defra.gov.uk/environment/marine/documents/legislation/marinebill-ia.pdf>

and also <http://www.defra.gov.uk/environment/marine/legislation/research.htm> for the research that informed the Marine Bill's evidence base

¹⁵ Benefits Transfer is a pragmatic way of estimating values for environmental or social tradeoffs when there is limited time or funding available to carry out primary research. It is a process whereby values from previous valuation studies are used to calculate approximate values in a new context and provides a quick way of making a broad assessment of environmental costs

project appraisal by the end of 2009. Charting Progress 2 will include some information on the economic and social use of the UK's marine waters, but further consideration is needed on the inclusion of ecosystem services (to capture the value of marginal changes in environmental quality) and on how to meet the requirement to analyse the cost of degradation of the marine environment. The UK and Scottish Governments plan to take forward further work on this, both at National and EU-level.

Costs/benefits to government

- 4.10 It is not possible at this point to estimate the additional costs of assessment in the MSFD. It will involve: a) time from policy-makers and other organisations involved in UKMMAS to assess gaps in Charting Progress 2 and how to fill them; b) some expenditure to fill those gaps by putting in place additional research or monitoring; and c) time from policy makers and other UKMMAS organisations to re-profile the Charting Progress 2 evidence into whatever format the Commission requires for the initial assessment. It remains to be seen whether these activities would be classified as business as usual costs or would be directly attributable to the MSFD as additional costs.

Costs/benefits to business and other stakeholders

- 4.11 There will be costs to businesses and stakeholders of engaging with and influencing the implementation process. Information will be sought, for example, as evidence for inclusion in a socioeconomic analysis, and where stakeholders choose to provide this information there is likely to be a cost involved for them. There may be associated costs if businesses and industry are reluctant to provide data which would enable a reliable socio-economic analysis to be carried out. The initial assessment could potentially provide benefits to the private sector by improving the quality of the marine environment evidence base on which they make business related decisions. This is particularly true where Charting Progress 2 is highlighting future trends within the marine environment. Businesses can plan better if they are aware of current and likely future state of the seas.

Costs/benefits to environment

- 4.12 There are unlikely to be any significant costs to the environment of carrying out additional assessment. However, as above, this work should lead to a greater understanding of the marine environment and ecosystem service provision and potentially support the development of more effective techniques for environmental management.

Determination of GES and associated targets and indicators (by July 2012, with consultation expected by July 2011)

- 4.13 The Directive requires the UK to determine what GES means for UK waters, using the 11 descriptors in the Directive, and – as part of this - to develop an associated set of targets and indicators to guide progress towards achieving it. Linked to this is EU-level work, which is already underway, to develop common criteria and methodological standards to ensure a level playing field across Europe. Most of the costs of this work will fall on government. Both UK and EU aspects of this work will require the involvement of a number of officials and scientists, as well other stakeholders.

Costs/benefits to government

- 4.14 The main costs associated with this stage in the implementation process will fall to government. They include: a) Cost to policymakers and delivery bodies of engaging in the EU-level process of identifying EU wide parameters for GES – between now and mid-2010; b) Cost to policymakers and delivery bodies of taking forward a process to develop UK determination of GES and associated targets and indicators – between 2010 and 2012; and

c) Commissioning research to support this process (see para 4.26 for details). In addition a research project by CEFAS will look at possible targets and indicators and the effects these could have, both on the marine environment and in socio-economic terms. Government will benefit from a clear framework within which clear environmental targets and indicators can be established, leading to better targeting of policies, as well as the potential to exploit synergies between policy areas to achieve environmental benefits.

Costs/benefits to business

4.15 The way in which GES is determined will have significant implications for businesses and organisations that operate in the marine environment, but there will be no significant costs to business at this stage, other than costs involved in engaging with the process of developing targets and indicators for GES. These include: a) UK stakeholders’ time in engaging in the EU-level work to develop parameters for GES, both through their EU-umbrella organisations, and through engagement with the UK government (not quantified at this stage); and b) Engaging with UK government consultation process on UK targets and indicators – which is expected to take place between mid-2010 and early 2012. Benefits to business would derive from the longer-term certainty that clear targets and indicators for GES would provide, as well as a level-playing field involved in EU-wide efforts to achieve it.

Costs/benefits to the environment

4.16 There are unlikely to be any significant costs to the environment of developing targets and indicators for GES. However this work should lead to development of a more effective framework for environmental management.

Key uncertainties

4.17 The Directive leaves it to Member States, in co-ordination with other neighbouring countries, to determine what GES means in more detail for their waters and to set clear targets and indicators to support it (by 2012). However in practice, the UK Government will not have total freedom to determine GES in any way we want. The European Commission is currently working to develop some criteria and methodological standards which will underpin the descriptors of Good Environmental Status and set clear parameters which will need to be applied by Member States. The Commission has asked the Joint Research Centre and the International Council for the Exploration of the Sea (ICES) to lead some scientific work to develop proposals for what these criteria and methodological standards should be. The initial outcome of this work is likely to be available in late Autumn this year. It is expected that common EU criteria will be agreed in 2010, and at that stage, the process of determining GES will begin in the UK, in coordination with neighbouring Member States who share the same regional waters. Table 2 provides an indication of the range of outcomes that may be considered for each of the descriptors of Good Environmental Status.

Table 2: Illustrative scenarios of environmental quality outcomes that may be required under the Marine Strategy Framework Directive, 2020

GES descriptor	Illustrative outcome		
	Lower	Medium	Higher
Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic,	Biodiversity loss of important (i.e. listed) species and habitats is halted, with some recovery within protected areas.	Biodiversity loss is halted and significant recovery to favourable status of important (i.e. listed) species and habitats in UK waters	Biodiversity loss is halted and recovery to favourable status for all species and habitats in UK waters

geographic and climatic conditions (GES1)			
Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems (GES2)	New introductions are minimised and new and existing non-indigenous species are managed to limit the most significant ecosystem impacts	New introductions of non-indigenous species are significantly reduced and existing non-indigenous species are managed to avoid ecosystem damage	New introductions of non-indigenous species are significantly reduced and existing non-indigenous species reduced to a level which does not significantly impact the natural ecosystem structure
Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock (GES3)	Populations of all commercially exploited fish and shellfish are within safe biological limits for the majority of the time but variability results in frequent returns to outside of the limits	Populations of all commercially exploited fish and shellfish are consistently within safe biological limits but stock production below optimum, age and size structure impaired.	Populations within safe biological limits consistently and stock production optimum; age and size structure appropriate.
All elements of the marine food webs, to the extent that they are known, occur at normal abundances and diversity levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity (GES4)	Structure and function indicators (biomass and productivity within different trophic levels) of marine foodwebs show no evidence of major imbalance	Structure and function (biomass within different trophic levels) of marine foodwebs maintained across UK waters	Restore populations of large top- predators (mammals and fish) to within fully sustainable thresholds
Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters (GES5)	Human induced eutrophication does not lead to significant adverse effects on biodiversity or ecosystems	Human induced eutrophication is minimised in all areas.	Nutrient inputs are controlled to the extent that eutrophication does not occur.
Sea floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected (GES6)	Pressures that lead to habitat loss and damage are minimised within areas containing the most sensitive (as distinct from important) habitats leading to some restoration of seafloor integrity within those sites	Human induced benthic impacts are prevented within areas containing the most sensitive habitats (within protected areas only) and a proportion of representative habitats to support benthic ecosystem function at a	Pressures causing habitat loss and damage are minimised across UK waters and benthic habitats restored where practicable.

		national level.	
Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems (GES7)	Alteration of hydrographic conditions does not cause significant adverse effects within the marine ecosystem outside of areas where they support sustainable human use activities	Alteration of hydrographical conditions does not cause significant adverse effects within the marine ecosystem outside of highly modified water bodies	Alteration of hydrographical conditions does not cause significant adverse effects within the marine ecosystem
Concentrations of contaminants are at levels not giving rise to pollution effects (GES8)	Inputs of contaminants into the marine environment are reduced; areas where contaminant threshold limits are exceeded continue to fall	Concentrations of contaminants at levels not causing pollution in any component of the marine environment when assessed at a Regional Seas scale	Concentrations of contaminants are at levels not causing pollution in any component of the marine environment at a national level
Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards (GES9)	Contaminants in fish and other seafood do not affect human health	Contaminants in fish and other seafood for human consumption are not sufficiently high to lead to bed closures; closures due to harmful algal blooms are reduced.	Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.
Properties and quantities of marine litter do not cause harm to the coastal and marine environment (GES10)	No significant increase in the quantities or detrimental effects of marine litter	Overall reduction in the quantities or detrimental effects resulting from litter in the marine environment	Litter reduced to levels deemed not to cause detrimental effects to the coastal and marine environment
Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment (GES11)	Existing levels of noise are maintained, unless shown to cause significant adverse impacts on cetaceans and key fish species	Levels of noise are reduced to a level that significantly reduces the risk of adverse impacts to cetaceans and key fish species	Noise throughout the marine environment is reduced to a level which does not have a significant adverse effect

Source: unpublished consultants' study to Defra

Note: these scenarios are for illustrative purposes only

Establishment of a monitoring programme (by July 2014, with consultation expected by July 2013)

4.18 The UK Marine Monitoring and Assessment Strategy (UKMMAS), informed by the results of Charting Progress 2, will play a key role in establishing a monitoring programme to assess progress towards GES. The UKMMAS evidence collection groups will be tasked with developing or amending monitoring programmes in response to the recommendations from Charting Progress 2. The higher level UKMMAS group, Marine Assessment Reporting Group (MARG) overseeing the Marine Assessment Policy Committee (MAPC) will review the proposed programmes and ensure they will help the UK to meet the requirements of the Directive. As the UK already carries out significant monitoring and assessment of the marine environment, it is anticipated that this will very much be about filling gaps in existing programmes and adding to them where necessary.

4.19 It is not yet clear whether current monitoring activities will be sufficient to inform the programme of work outlined in para 2.8 or whether additional arrangements may be required. Although much of the work of UKMMAS consists of in-kind contributions, the main costs of both developing and implementing any additional monitoring programmes needed for the Directive are likely to fall to Govt, the Devolved Administrations and delivery bodies. Costs/benefits to business will mainly be engagement in the development of the monitoring programmes, but we may also want to look at how we can make better use of the monitoring data and information which businesses collect themselves (i.e. are there ways we could encourage them to share it with gov't). Business will probably benefit from any additional monitoring info which Gov't publishes. Costs/benefits to environment – no obvious costs, benefits of improving the evidence base for marine management.

Development (by 2015) and entry into operation (by 2016) of the programmes of measures (Consultation on their development expected by July 2014)

4.20 The final stage of implementation of this Directive is the design and delivery of programmes of measures for achieving Good Environmental Status. Member States are required to develop programmes of measures by the end of 2015 and have put these in place by the end of 2016. The development of the programmes of measures is expected to build on all the previous stages of implementation, using the information gathered from the initial assessment and enabling Member States to meet the targets and indicators they have set for GES. Member States are also required to carry out a full cost-benefit analysis of the programmes of measures they propose.

4.21 It is important to note that the Directive specifically calls on Member States to ensure that measures are cost-effective and technically feasible, and shall carry out impact assessments prior to the introduction of any new measure. The UK Government and the Devolved Administrations will ensure that this applies in all cases. The Directive also lists exceptional circumstances under which GES cannot be achieved within the timetable, and if identified, these instances must be included in the programme of measures. These would include action where the UK is not responsible, natural causes, and alterations to the physical characteristics of the marine waters brought about by actions taken for reasons of overriding public interest which outweigh negative impacts on the environment. Where necessary, these exceptions will also be taken into consideration by the UK Government and the Devolved Administrations.

4.22 At this point, before the earlier stages of implementation have been carried out, and because of the uncertainties highlighted in section 4.17, it is not possible to give a clear indication of what the programmes of measures for GES might look like. Due to the broad-ranging nature of the Directive the measures are likely to be varied and potentially impact on a wide range of activities which affect the marine environment.

4.23 It is also too early to provide a credible estimate of the costs of the measures which may be required as part of the UK's programmes of measures since GES is itself a highly uncertain concept at this stage. However, a preliminary, unpublished scoping study carried out by consultants ABP Mer has modelled three scenarios in an attempt to estimate the costs which may be entailed over and above the effect of existing policies. The counterfactual in all three scenarios is what policy would deliver in the absence of the MSFD. The difference between the three scenarios is that the "low cost" one assumes that existing policy would deliver more, and also that the demands of GES would be less, than the other two. The middle scenario is a best estimate, whilst the high cost scenario assumes both that existing policy would not deliver as much as expected, and that the effort required by GES would be very high. ABP Mer's estimates of cost range from £100m to £11 billion depending both on the degree to which existing policy is expected to deliver compliance, and also on what compliance may entail, but do not take account of the fact that the directive does not require

the UK to take measures whose costs exceed their benefits, provided there is no deterioration. At least £4 billion of the cost estimated by ABP Mer in their high cost scenario is not justified by estimates of corresponding benefits, although overall ABP Mer have estimated that benefits will substantially outweigh costs.

4.24 As stated above, any programmes of measures identified would be subject to rigorous analysis to ensure that the benefits of any intervention exceeded the costs and to ensure that similar outcomes could not be achieved more effectively through the pursuit of alternative policies. The UK Government and Devolved Administrations will assess each individual measure for cost effectiveness, costs and benefits, and intend to take full advantage of the provisions for exceptions within the Directive. The Government and Devolved Administrations will be in a much stronger position to determine the costs and benefits of specific measures by the time they are required in 2015,

4.25 In addition, it is too early to say which organisations will have the most significant role in implementing the programmes of measures, or which businesses operating in the marine environment will be most affected. It is probably reasonable to assume, however, that all organisations which are currently involved in managing activities which can affect the marine environment will have some kind of role to play.

Analytical approach to assessing the costs and benefits of implementation

4.26 Each step in implementing the Directive will require a careful assessment of costs and benefits, according to the timetables contained in paras 2.8 and 4.3. The intention is that each Impact Assessment published will provide more detail on the anticipated impacts of the Marine Strategy Framework Directive and it may be expected that in each IA advances will be made in the identification and quantification of the costs and benefits.

4.27 As it is too early to provide quantified information about the costs and benefits of implementation at this stage, the framework we intend to use is outlined below:

- Identification of the environmental baseline. This should account for the impacts of currently announced and funded policies expected to impact upon environmental quality between now and 2020, natural variations in environmental quality and the anticipated impact of climate change. Table 1 provides examples of the ways in which these scenarios may be articulated in future Impact Assessments. Initial research is underway looking at a range of plausible baselines and due for publication in early 2010;
- Assessment of the costs of degradation of the marine environment, as required by the Directive. Research is underway on the current state of European understanding on this issue and due for publication in early 2010;
- Identification of the required environmental outcomes (ie the GES targets). Table 2 provides examples of the ways in which these scenarios may be articulated in future Impact Assessments. Initial research is underway looking at a range of plausible outcome scenarios and pan-European criteria and methodological standards are due for publication in summer 2010;
- Identification of the expected gaps between the environmental baseline and the targets. Illustrative research is underway and due for publication in early 2010;
- Identification of potential policy and regulatory interventions that will deliver the necessary improvements in environmental quality. This will take into account the time lags necessary for policy changes to translate into environmental outcomes and the implications and behavioural responses of users of the marine environment. Initial research into this issue is underway;
- Estimation of the costs and benefits of the range of potential policy interventions, including an assessment of any interventions that may be deemed to result in disproportionate costs to the UK. Research is underway on the costs and benefits of

illustrative policy interventions and is due for publication in early 2010. Experience from the implementation of the Water Framework Directive will be useful in framing thinking on disproportionate costs; and

- Assessment of the uncertainty associated with the above analysis. This may involve an assessment of the robustness of the results to sensitivity analysis with respect to a) the baseline used, b) the targets used and c) the time lags necessary to deliver changes in environmental outcomes. Sensitivity analysis is embedded in all of the research outlined above.

4.28 In addition to the requirements set out in the preceding sections, the Directive also requires Member States to submit an interim review of the Programme of Measures in July 2018 - three years after their establishment. By the same date, Member States are expected to review the initial assessment of marine waters, the determination of GES and associated targets and indicators. We anticipate that these reviews will also include a further assessment of the full costs and benefits of implementing the Directive.

5. SPECIFIC IMPACT TESTS

Competition Assessment

Transposing the Directive is not expected to have any impact on competition. It is not clear at this stage if there will be any such impacts in the later stages of implementation, but this will be addressed in Impact Assessments at those stages, particularly in developing and implementing any programmes of measures.

Small firms impact test

We do not anticipate any significant impact on small businesses at the transposition stage. However there may well be impacts at later stages when programmes of measures are designed and implemented (in 2015-2020). Potential costs for small businesses will be addressed by ensuring that small businesses are engaged in the process of implementing the Directive, so that such costs can be identified and mitigated as far as possible in preparation for that stage.

Legal Aid

We do not anticipate any impact on legal aid.

Sustainable Development

This Directive is concerned with the sustainable use of the seas by using an ecosystems approach to management of marine resources. It should also promote the integration of environmental considerations into all relevant policy areas.

Carbon Assessment

We do not anticipate any impact on carbon emissions as a result of transposing this Directive.

Other Environment

The aim of this Directive, and its implementation, is to achieve Good Environmental Status in European marine waters. Details are included in the evidence base.

Health Impact Assessment

At the transposition stage there are no impacts on human health, though implementing the Directive is likely to have some impacts in this regard.

Race/Disability/Gender Equality

We do not anticipate any impact on race, disability or gender equality.

Human Rights

We do not anticipate any impact on human rights from the transposition of this Directive.

Rural Proofing

At the transposition stage there are no impacts on the rural economy, though this will be revisited at later implementation stages.

Specific Impact Tests: Checklist

Use the table below to demonstrate how broadly you have considered the potential impacts of your policy options.

Ensure that the results of any tests that impact on the cost-benefit analysis are contained within the main evidence base; other results may be annexed.

Type of testing undertaken	<i>Results in Evidence Base?</i>	<i>Results annexed?</i>
Competition Assessment	Yes	No
Small Firms Impact Test	Yes	No
Legal Aid	Yes	No
Sustainable Development	Yes	No
Carbon Assessment	Yes	No
Other Environment	Yes	No
Health Impact Assessment	Yes	No
Race Equality	Yes	No
Disability Equality	Yes	No
Gender Equality	Yes	No
Human Rights	Yes	No
Rural Proofing	Yes	No