Marine Management Organisation

Review of the Marine Planning Monitoring and Evaluation Framework and Development of Baselines

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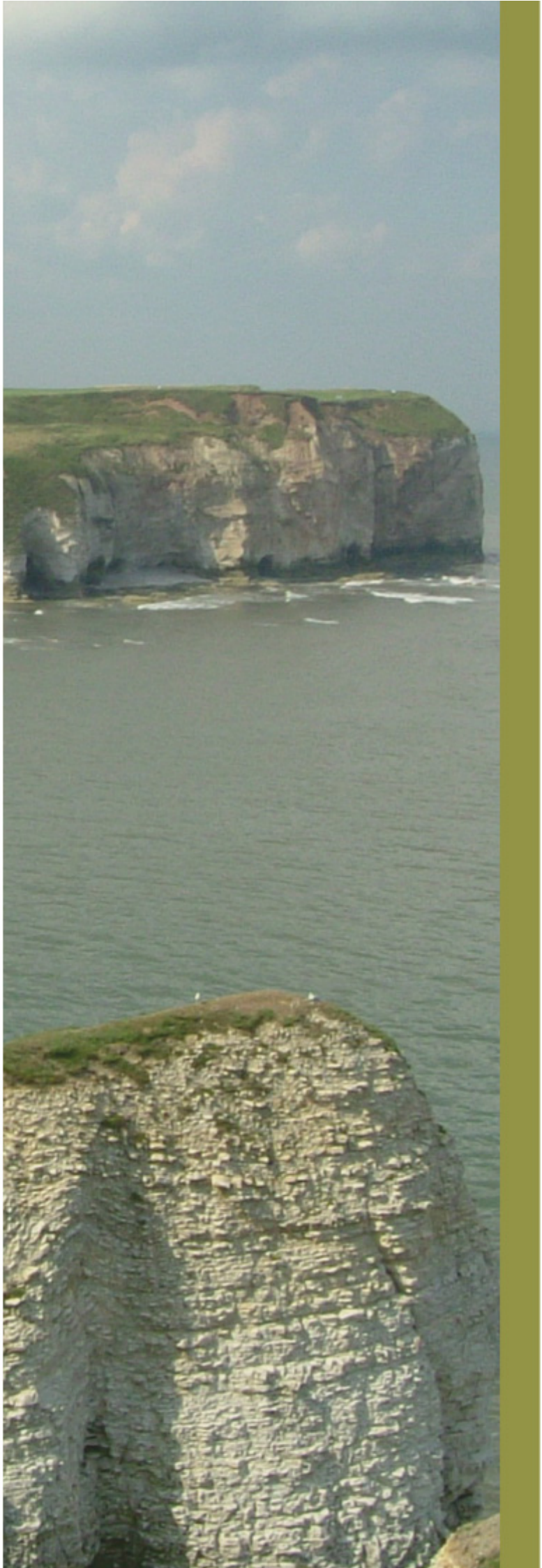

Review of the Marine Planning Monitoring and Evaluation Framework and Development of Baselines

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Abbreviations

DM	Decision Makers
GVA	Gross Value Added
HLMO	High Level Marine Objective
HRA	Habitat Regulations Assessment
IA	Impact Assessment
IMP	Implementation and Monitoring Plan
MCZ	Marine Conservation Zone
MMO	Marine Management Organisation
M&E	Monitoring and Evaluation
MPS	Marine Policy Statement
PA	Public Authorities
QA	Quality Assurance
SA	Sustainability Appraisal
SIC	Standard Industrial Classification
The Act	Marine and Coastal Access Act (2009)

Executive Summary

Introduction

ICF Consulting Services Ltd, in association with ABP Marine Environmental Research Ltd, was commissioned by the Marine Management Organisation (MMO) with funding from Defra to undertake a review of the proposed marine planning monitoring and evaluation (M&E) framework. This review is based on the version set out in the East Inshore and Offshore Marine Plans (henceforth, East marine plans) Implementation and Monitoring Plan (IMP).

The aim was to review the M&E framework to assess whether it is fit for purpose and could be utilised for subsequent marine plans, and where necessary make recommendations for improvements. A key area in this regard was the counterfactual[1] and how this might be used for marine plan impact evaluation. The project research was undertaken in two parts. Part A undertook a detailed review of the M&E framework, testing it against a set of six criteria and providing key recommendations which could improve the performance of the framework against each criterion. The criteria, identified by the MMO, were; relevance, completeness, robustness, evidence and data, governance and resources and wider applicability.

Part B undertook a short literature review of the potential approaches for defining counterfactuals and provided conclusions on their relevance, the implications of this for the overall evaluation approach, and how counterfactuals might be better incorporated into the current framework.

The Magenta Book (HM Treasury, 2011) promotes the use of logic models as a route to establish an overall theory-driven framework for evaluation. Logic models describe the causal pathways linking policy inputs, activities and effects. A good logic model should be able to explain how the linkages work – so that it represents the causal theory. It should be supported by information on the key contextual and external factors of relevance and the assumptions being made at each link in the model.

The marine plan monitoring and evaluation framework sought to use logic models in this way. However the review identified a number of weaknesses in how the logic models were constructed and represented which would be expected to limit their usefulness for monitoring and evaluation. Recommendations to improve the use of logic models include:

- The framework included a series of individual logic models, each designed to represent the impact pathway for a single plan objective. It did not include an overarching logic model that represented the overall impact pathways for the plan.
- Omitting an overarching logic model means that important synergies and feedback loops between individual policies/objectives may not be adequately represented in the theory of change. As such, monitoring and evaluation may

[1] A counterfactual describes the situation that would occur had the policy intervention not taken place.

miss important causes and effects and provide only a partial understanding of how the plan is effecting change.

- If a large number of individual logic models are developed, there is a temptation to develop a correspondingly large number of monitoring indicators and evaluation questions. This is likely to stretch monitoring and evaluation resources to the point that the evaluation framework either cannot be delivered, or cannot explore issues in sufficient depth to make enable robust evaluation conclusions to be drawn.
- The specification of 'activities' and 'outputs' in the framework logic models deviated from the standard definition provided in the Magenta Book (HM Treasury, 2011). In the majority of logic models presented, the 'activities' were defined as the activities of marine users and hence the logic models describe how the activities of marine users cause effects and contribute to objectives, not how the plan itself does. Gross value added (GVA), one of the selected output indicators, is clearly an output of economic activity, but it cannot be considered a direct output of marine planning activities.
- As a result the majority of logic models presented do not provide a representation of how the plan (and its policies) are being implemented and supported. In particular this limits the usefulness of the logic model for investigation of implementation issues through process evaluation.
- This is particularly relevant in contexts where multiple organisations (not only the plan owner) are responsible for implementing plan policies, as well as when the plan has other non-policy driven functions as a co-ordinating framework and communication tool (i.e. joining together pre-existing disjoined policy initiatives and communicating information, views of the future/shared visions and decision-support tools).
- The logic model specification meant that there were particularly large steps required to move through the impact pathways of the logic model(s). Each step therefore required a number of significant assumptions on both plan-controlled factors and external factors.
- Such a situation may arise when plan policy signals are weak compared to external factors, and/or when the objectives to which the plan is working are particularly distant or high level.
- A result of this is the logic model may be of limited use in supporting evaluation of why an anticipated effect has or has not occurred (and hence providing information on how the plan may need to be revised) or of the extent to which the effects witnessed were influenced by the plan (and hence drawing conclusions about causality and attribution).

The Magenta Book (HM Treasury, 2011) notes that the key characteristic of a good impact evaluation is that it recognises that most outcomes are affected by a range of factors, not just the plan. To test the extent to which the plan was responsible for the change (the extent of attribution), it is necessary to estimate what would have happened in its absence. This is known as the counterfactual. There are a number of approaches for developing counterfactuals – of which some are considered to be 'strong' approaches (experimental and quasi-experimental approaches) and some 'weak' approaches (non-experimental approaches).

However in many evaluations it may be difficult to use ‘strong’ approaches – this is typically the case where the plan influence is weak and suitable comparison groups cannot be found. In such instances it may be difficult to conclude on the extent to which the plan, rather than other external factors, has been the cause of the observed effect. Recommendations to enhance the use of counterfactuals include:

- The monitoring and evaluation framework (and its supporting evidence) made little explicit reference to what external factors may be influencing the impact pathways and provided no means of monitoring them.

  Where policy signals are weak and non-experimental counterfactual approaches are employed, the importance of explicitly accounting for external factors (e.g. other policies, market forces, environmental factors, etc.) is heightened. A poor understanding of what these external factors are, how significant they are and how they have changed over the period under evaluation will limit the extent to which conclusions can be draw on causality and attribution.

- The monitoring and evaluation framework proposed a set of stakeholder surveys in order to elicit information on particular effects. However the phrasing of the survey questions does not always clearly attempt to draw out information on the role of the plan, or may result in stakeholders overstating the role of the plan in delivering certain effects. As such the usefulness of the data collected in informing conclusions about causality and attribution may be more limited than it otherwise could be.

1. Introduction

ICF Consulting Services Ltd, in association with ABP Marine Environmental Research Ltd, were commissioned by the Marine Management Organisation (MMO) with funding from Defra to undertake a review of the proposed marine planning monitoring and evaluation (M&E) framework, based on the version set out in the East Inshore and Offshore Marine Plans (henceforth, East marine plans) Implementation and Monitoring Plan (IMP)[2] and to provide recommendations and guidance on the development of counterfactuals for marine plan M&E[3]. This report assumes that the reader has read and is familiar with the contents of MMO (2014a)

1.1 Project aim

The primary aim of this project was to review the M&E framework presented in the MMO's East marine plans IMP to assess whether it is fit for purpose and provides a framework that can be utilised for subsequent marine plans, and where necessary make recommendations for improvements. A key area in this regard was the counterfactual. The project specifically reviews the options for counterfactuals, considered their appropriateness and provided guidance on how counterfactuals may be utilised in a marine plan evaluation.

By establishing a robust M&E framework at this stage, the analytical structures, data needs and processes can be considered well in advance of both undertaking the evaluations and developing other marine plans. This has two distinct benefits. Firstly it enables forward planning for the evaluation, helping to ensure that the information will be available to allow the preferred evaluation methodologies to be employed. Secondly, it enables a consistent framework to be utilised across all marine plans, aiding efficiencies in evaluation processes and improving the extent to which marine plan effects can be contrasted and aggregated – thus helping to satisfy the requirements of the Marine and Coastal Access Act (2009) (henceforth, the Act).

1.2 Study approach

The study consisted of two parts. Part A undertook a structured review of the East marine plan M&E framework by exploring a defined set of research questions, set out under six review criteria, which respond to the project objectives and incorporate best practice thinking on M&E frameworks. The approach sequentially addressed each of these research questions to understand where there may be weaknesses and how these may be addressed in order to ensure that East marine plans can be successfully reported on in 2017. The review criteria, as defined by the MMO, were:

- **Relevance**: how well the M&E approach represents its stated requirements, the requirements in The Act and expectations of stakeholders.
- **Completeness:** whether the M&E framework and its underlying logic models cover all of the relevant objectives and issues in a way that will enable the M&E questions to be explored.

[2] https://www.gov.uk/government/publications/east-inshore-and-east-offshore-marine-plans
[3] For an explanation of counterfactuals please refer to Part B of this report

- **Robustness**: the degree to which the M&E framework is able to adequately capture and reliably measure the main effects of the marine plans are the certainty that can be placed on the outputs expected.
- **Evidence and data**: the evidence and data needed to implement the framework, and the adequacy of the systems in place to collect them.
- **Governance and resources**: the sufficiency of the governance arrangements and resources available for M&E.
- **Wider applicability**: whether the framework can be applied more widely across the other marine plans and to the effects on the High Level Marine Objectives (HLMO) objectives.

Part B reviewed possible approaches for baselines and counterfactuals and provided conclusions on their relevance for marine plan evaluation. It considered the implications for the overall evaluation approach of the counterfactual options and provided recommendations on how counterfactuals might be enhanced within the current M&E framework.

Drawing on experience gained by delivering this project and the challenges encountered, as well as broader Defra evaluation needs, a short article has been developed, focussed on developing and reviewing M&E frameworks and plans. The article, intended for internal use, is not included in this report.

The study has benefited from ongoing feedback and meetings with the project Steering Group, which consisted of MMO and Defra staff, on key interim and draft outputs.

1.3 Report structure

The reporting from the project is set out under two separate parts:

- Part A presents the outputs of the Stage 1 exploratory review of the M&E framework, including recommendations. It is structured around the six criteria and the specific research questions are presented at the beginning of each section.
- Part B presents a discussion and recommendations from Stage 2 of the research on counterfactual options and the implications for the evaluation approach.

1.4 A note on monitoring and evaluation and the IMP

Monitoring and evaluation are different concepts that are defined in the Magenta Book (HM Treasury, 2011) as follows:

- Monitoring seeks to check progress against planned targets and can be defined as the formal reporting and evidencing that spend and outputs are successfully delivered and milestones met.
- Evaluation is the assessment of the policy effectiveness and efficiency during and after implementation. It seeks to measure outcomes and impacts in order to assess whether the anticipated benefits have been realised

The East marine plans IMP states that it includes a ‘monitoring framework’; it refers to monitoring and not evaluation. However, its ambition is clearly to deliver, or provide the information necessary for, evaluation in the sense that it is designed to respond to The Act) which includes a need to report on certain evaluation questions e.g. the contribution of a plan to securing its objectives. Further, it is stated elsewhere that the IMP’s purpose is to set out ‘a monitoring framework to enable the success of the marine plans to be evaluated’ (MMO, 2014, a). The IMP also talks about the types of evaluation to be undertaken and includes a number of elements relevant to an evaluation framework.

This project is explicitly tasked with reviewing the M&E framework – the IMP provides the only basis for this and as such is taken to be the current state of play with regards both monitoring and evaluation. For consistency through this report therefore, the East marine plans IMP is considered to represent the M&E framework.

PART A: Review of the Monitoring and Evaluation Framework

2. Relevance of the monitoring and evaluation framework

2.1 Introduction

This section provides a review of the relevance of the M&E framework. That is, how well the M&E approach represents its stated requirements, the requirements in the Act and expectations of stakeholders. It responds to the following specific research questions:

- What are the M&E requirements and needs? Does the M&E approach respond to them?
- What are the specific IMP evaluation questions? Do they align with the specific M&E needs? Are there relevant questions which are not being addressed?
- Does the framework have wider ownership outside of MMO, and is its relevance recognised by stakeholders?
- Is how the outputs will be used to inform decisions on future plans and policies clear?

2.2 Relevance assessment

2.2.1 Responding to the M&E requirements and needs

Impact and process evaluation

The principal driver for M&E of marine plans is Section 61 of the Act, which places a duty on the Secretary of State as the Marine Plan Authority to monitor and report on any marine plans it has prepared and adopted. This duty was delegated by the Secretary of State to the MMO[4]. Specifically, the matters that must be considered are:

- The **effects** of the policies in the marine plan.
- The **effectiveness** of those policies in securing that the objectives for which the marine plan was prepared and adopted are met.
- The **progress** being made towards securing those objectives.
- The **progress** being made towards securing the **High Level Marine Objectives**, (HLMOs) for which the Marine Policy Statement (MPS) was prepared and adopted, in that marine plan area.

The Act refers to 'monitoring and reporting'. However based on the Magenta Book (HM Treasury, 2011) definitions, to satisfy the above requirements both monitoring and evaluation are required.

The requirements of the Act imply the need for an impact evaluation. Impact evaluations attempt to provide an objective test of *what* changes have occurred, and the extent to which these can be attributed to the policy impact evaluations.

Further, Section 61 requires that as part of the required reporting process, intentions to amend a marine plan must be reported on. Whilst understanding the effects of a plan is a necessary input to deciding on potential amendments, understanding of

[4] https://www.gov.uk/government/publications/delegation-of-functions-relating-to-marine-plans

why changes have occurred in relation to the plan are also important. As such, whilst not explicitly stated in the Act, process evaluation is also necessary. Process evaluations test *how* the intervention was delivered and *why* changes occurred. These elements have particular importance due to the status of the East marine plan as the first UK marine plan.

Regular reporting

There are two key reporting duties under the Act: a *three-yearly* progress report, which should address each of the requirements identified above; and a *six-yearly* progress report, providing an update on the marine planning system in England as a whole. The three-yearly report is most directly linked to the monitoring requirements and would be expected to inform the six-yearly report.

In addition to these reporting requirements IMP notes that, as the East marine plans were the first marine plans, there may be a need to review and amend the plans sooner than previously anticipated e.g. if there are significant changes to the evidence base supporting the marine plans, or other relevant considerations such as new legislation. The M&E approach will therefore need to be able to respond to this.

It is notable that many of the beneficial impacts associated with marine plans (i.e. those drawn from the HLMOs) may be expected to occur over the medium-to-long term. That is, outside of the initial three and six year reporting periods. Such time lags are one of three key issues that make impact evaluation of marine plans challenging (Carneiro, 2013) and are common issues for many environmental policies. It raises the importance of being able to understand the intermediate effects being generated by the plan and whether it can be considered to be working when undertaking evaluation over the short-to-medium term. To this end, a clear understanding of the intermediate effects of the plan is important. This point is returned to later in discussion on logic models.

Other monitoring requirements

Other monitoring requirements stem from the East marine plans' Sustainability Appraisal (SA) and Habitats Regulations Assessment (HRA). For example, the SA identifies and predicts likely significant economic, environmental and social effects of marine plans and suggests possible actions to avoid or minimise these effects and maximise sustainability. Monitoring is required to test the effects of the marine plans against the predicted effects. The M&E framework must therefore respond to the requirements of the SA and HRA. As they require the monitoring of anticipated effects, they are directly relevant to the requirements laid out under The Act.

Other evaluation criteria

The requirements laid out in The Act primarily focus on what is commonly termed 'effectiveness'. That is, exploring what the effects of the intervention are, how they relate to the objectives within the marine plan and the HLMOs and to what extent any changes can be attributed to the intervention.

There are a wide variety of other evaluation criteria which can be considered. It was confirmed in the project inception meeting that 'efficiency' is also likely to be a relevant criterion for marine plan review decision making. Efficiency is explored through an economic evaluation, taking into account the costs of an intervention in order to explore its cost-benefit or cost-effectiveness. In this sense it helps to demonstrate whether the outcomes justify the policy.

The IMP

The approach adopted in the IMP is based on the programme theory, depicted as a logic model, with an aim of enabling impact and process M&E, including adoption of relevant baselines (counterfactuals). A logic model describes the relationship between an intervention's inputs, activities, outputs, outcomes, and impacts (see the Magenta Book (HM Treasury, 2011) for further discussion on logic models).

In this regard the M&E framework satisfies the fundamental requirements of the Act in adopting an approach that allows for consideration of the effects, effectiveness and contribution of the East marine plan as well as an understanding of how and why effects occurred.

The basic structure of the framework draws necessary linkages between the East marine plan policies and objectives and the HLMOs, providing a basis for M&E of progress towards the two sets of objectives.

The IMP sets out what will be reported on and when, in line with the reporting requirements of the Act.

The monitoring requirements of the Habitats Regulation Assessment (HRA) and Sustainability Appraisal (SA) are subsumed into the overall framework, with signposts to where the requirements HRA and SA indicators are picked up.

The approach does not provide reference to economic M&E or understanding the efficiency of marine plan policies. Whilst there are qualitative questions that touch on these points within the East marine plan monitoring survey presented in the IMP, these are likely to provide insufficient data on their own to enable analysis of economic evaluation questions.

2.2.2 Relevance and comprehensiveness of the evaluation questions

Evaluation questions articulate the main issues that will be explored by the evaluation. They provide a focus to the evaluation to guide the analysis and to guide the planning process, including data gathering and methods to be used. Ideally they should reflect the views of all stakeholders and provide findings that are relevant to feed back into the marine planning process in order to improve the plan.

Evaluation questions are often categorised depending on the particular logic chain relationship or other issue that they are focussed on. Drawing on The Act and the IMP the following categories of evaluation questions can be considered most relevant:

- Effectiveness: whether the anticipated effects occurred, the extent to which the plan caused the effects, progress made in achieving the objectives and the factors influencing why something was successful or why it has not yet been achieved. In addition the evaluation should try to consider whether there were any unintended effects.
- Efficiency: the costs involved (to the MMO and other stakeholders) in implementing and because of the East marine plan, whether the costs involved can be considered to be proportionate and whether the outcomes justify the costs.
- Relevance: whether the objectives of the East marine plan remain relevant to the local needs and the HLMOs.
- Coherence and complementarity: the extent to which the plan is coherent with and supports other marine and terrestrial policies; and the extent to which the plan policies combine to deliver upon the objectives.

The IMP does not set out a clear, coherent set of evaluation questions. However a number of evaluation questions are set out or implied in the IMP. The IMP sets out the following generic questions with regard to the process evaluation:

- Are the East marine plans being implemented as intended and if not, why not?
- How has implementation affected people's work?
- Why have the East marine plan objectives been / not been met?
- How do the East marine plans need to be revised in the future?

For the impact evaluation no explicit evaluation questions are set out. However through the discussion included in the IMP (e.g. on the requirements of The Act and on logic models and baselines), and the layout of the logic models with mapped indicators, it can be inferred that the basic evaluation questions being proposed include:

- What are the effects of the plan?
- Are the East marine plan and HLMO objectives being delivered?
- What was the contribution of the East marine plan to delivering a particular effect?[5]

Other elements of the IMP imply other evaluation questions that are considered relevant:

- The internal coherence between plan policies (Section 3.3, paragraph 2 and implied through the structure of the logic models and indicators).
- The external coherence of the plan with regards to other high level policy drivers e.g. the National Planning Policy Framework (Section 4.1.3).
- The characteristics of the plan making process, including stakeholder input (which relates to the desire for a participatory approach to marine plan making) and usefulness of commissioned research.

[5] Evaluation of the 'contribution' is also explicitly stated in Section 3.4 of the IMP.

Based on the above, it can be concluded that the M&E framework includes a broad set of relevant evaluation questions. These focus primarily on effectiveness, which is in line with the main thrust of the requirements set out in The Act. However, there are no explicit or implied evaluation questions which seek to address issues of efficiency, relevance and coherence.

2.2.3 Ensuring ownership and stakeholder recognition of the M&E framework

Based on the information presented in the IMP, the following mechanisms were used to engage stakeholders in the development of the M&E framework:

- MMO-led decision-maker workshops
- Stakeholder Focus Group (SFG), a focus group of national stakeholders that provide comment, input and advice on MMO work areas
- Consultation with other decision-makers and data owners
- Establishment of a Monitoring Advisory Group, consisting of a select group of decision makers (Natural England, Environment Agency, English Heritage, Joint Nature Conservation Committee, Defra, The Crown Estate, Local Government Authority Coastal Special Interest Group, Tourism England, Eastern Inshore Fisheries Conservation Authority, Lincolnshire County, Centre for Environment, Fisheries and Aquaculture Science), to advise on how best to monitor the East marine plan, who will continue to play an advisory role during the monitoring and review process.
- A twelve week open public consultation on the East marine plan, including its IMP.
- Consultation with certain data owners as part of commissioned research e.g. the Office for National Statistics.
- Marine plan SA, HRA and Impact Assessment processes.

The engagement mechanisms undertaken with respect to decision-makers and data owners appear to have provided significant scope for their input to shape the approach and detail of the M&E framework.

The Monitoring Advisory Group provides a sensible mechanism for technical oversight. It will directly contribute to recognition of the framework by those organisations on the group and any of their affiliates and potentially a wider group of stakeholders. By providing a visible technical oversight body contribute to improving wider stakeholder recognition.

A full public consultation was undertaken on the draft East marine plans, including the IMP, providing an opportunity for input from all interested stakeholders. However the IMP document consulted on was an outline document only, with the full IMP not being published until after the consultation. A review of the responses to the public consultation identifies only a small number of responses (e.g. see RSPB, reference number 1014in (MMO, 2014b) that highlighted the lack of detail available on the monitoring arrangements at the time of consultation. The consultation response summary suggests that changes to the M&E framework following the consultation were relatively minor (including text on general principles of implementation of plan policies, information on the development of the Marine Information System and inclusion of a stronger text on evidence under Objective 11 of the framework), which may reflect the extent of available information on M&E at the time of the consultation.

As such, the level of buy-in and recognition for the M&E framework from those organisations and individuals not represented on the decision-makers workshops or Monitoring Advisory Group may be less than could otherwise have been the case.

2.2.4 Clarity on use of M&E outputs

The basic requirement for use of M&E outputs is laid out in The Act. It includes reporting on the effects, effectiveness and progress towards achieving objectives on a three yearly basis and reporting on the status of marine plans, intentions for their amendment and for future plans.

The IMP (Chapter 1) implies that it will deliver upon these requirements by stating that they are a legal obligation and distinguishes between the roles of the three and six yearly reports. It identifies that the report will be laid before Parliament and that decisions on amendment or replacement of the plan will rest with the Secretary of State.

The IMP provides detail on the style of the reports and their basic content and implies that they will be made available to stakeholders, including any supporting evidence assessments. The IMP sets out for illustrative purposes possible actions that may be identified in the report e.g. a partial review of one or more of the East marine plan policies, which provide an indication of how the M&E outputs may be used to inform plan amendment.

Whilst some further detail on the processes for publishing and acting upon outputs could be included in the IMP, in particular any MMO internal processes, the information provided is generally considered to be sufficient.

2.3 Summary of findings and recommendations

The approach adopted in the IMP is to undertake a theory-based impact and process evaluation with the adoption of relevant baselines and counterfactuals with three yearly reporting. As such, the approach adopted satisfies the basic M&E requirements of The Act. Further, the monitoring requirements of the SA and HRA are subsumed into the overall framework.

However the approach does not provide explicit reference to economic evaluation or understanding the efficiency of marine plans and does not appear to be set up to satisfy such evaluation questions.

Recommendation: *the framework should be extended to include economic evaluation. This should include consideration of the relevant evaluation questions and establishment of inclusion of appropriate indicators in the data collection.*

Evaluation questions articulate the main issues that will be explored by the evaluation, providing a focus to guide the analysis and M&E planning process, including data gathering and methods to be used. Drawing on the Act and the IMP the following categories of evaluation questions can be considered most relevant: effectiveness; efficiency; relevance; coherence and complementarity. The IMP does not set out a clear, coherent set of evaluation questions. However a number of

evaluation questions are set out or implied in the IMP. These focus primarily on effectiveness (which is the main thrust of the requirements set out in the Act). Two primary gaps can however be identified: there are no explicit or implied evaluation questions which seek to address issues of efficiency and relevance.

Recommendation: *the framework could include evaluation questions that relate to efficiency and relevance.*

Efficiency questions could include: Were the costs involved justified, given the changes/effects which have been achieved? What factors influenced the achievements observed. These costs could be assessed against the overall benefits delivered by a marine plan or broken down into specific elements and judged against the more specific, attributable changes that were achieved.

Relevance questions could include: To what extent do the plan objectives remain in line with the plan area needs? Notably this question is more relevant to periodic evaluation rather than regular monitoring and therefore may be best addressed through review procedures that examine the objective of the plan in relation to needs and changing circumstances, with little or no requirement for monitoring data.

Recommendation: *a more coherent and explicit statement of the evaluation questions would provide greater clarity on the focus of M&E activity and whether there are any gaps in the monitoring data.*

A range of mechanisms were used to engage stakeholders in the development of the M&E framework. The engagement mechanisms undertaken with respect to decision-makers and data owners appear to have provided significant scope for their input to shape the approach and detail. As the East marine plan public consultation took place when the IMP was only available in outline form, opportunity for input from the wider stakeholder group has been more limited, which may have an effect on their buy-in and support for the approach adopted.

Recommendation: *some form of engagement with the broader stakeholder base may be beneficial for attaining a higher level of support for the M&E framework. In particular it is recommended that a more complete M&E framework for future plans is published at the time of the plan public consultation in order to improve the engagement with the wider stakeholder group.*

The East marine plan was published in April 2014 so is currently one year into its initial three year review period. Given this, options for seeking broader input and feedback may be appropriately undertaken either (i) at the point of the three year review, which may also review the appropriateness of the M&E framework; and/or (ii) as a part of the detailed scoping for the review (i.e. evaluation) analysis, in particular on the evaluation questions that the review is responding to.

Consultation on a more complete plan would be beneficial. However it should also be noted by stakeholders that the IMP is not a statutory document. It is not subject to any ‘tests of acceptance’ and its primary purpose is to aid decision makers and those contributing to monitoring.

The IMP implies that it will deliver upon the reporting requirements of the Act and highlights the possibility of early review. It identifies that the report will be laid before Parliament and that decisions on amendment or replacement of the plan will rest with the Secretary of State. It provides indications of the reporting style and its accessibility and how the M&E outputs may contribute to amendment of a plan. Whilst some further detail on the processes for publishing and acting upon outputs could be included in the IMP, in particular any MMO internal processes, the information provided is generally considered to be sufficient.

3. Completeness of the monitoring and evaluation framework

3.1 Introduction

This section provides an assessment of the completeness of the M&E framework. That is, assessing whether the M&E framework and its underlying logic models cover all of the relevant objectives and issues in a way that will enable the M&E questions to be explored. It responds to the following specific research questions:

- What elements are included in the logic models and how are they defined? Are all relevant objectives represented? Are the costs of the plans, to government and stakeholders recognised?
- Are there appropriate linkages between objectives, effects and indicators? Are these presented at appropriate levels (i.e. objectives/results as strategic/impacts, specific/ outcomes, operational/outputs)? Are the HLMOs included within the framework and are there appropriate linkages to them?
- Are the elements specified in a way that enables the impact pathways to illuminate the extent to which effects might be credited to the intervention?
- Does the framework enable expected and unexpected effects to be identified?
- Does the set of indicators proposed cover each relevant element of the logic model? Does it cover the full range of expected effects and stakeholder groups?
- Have baselines/counterfactuals been specified? Are external influences recognised?

3.2 Relevance assessment

3.2.1 The inclusion and specification of logic model elements

A logic model describes the underlying the rationale, theory and assumptions for what the plan is expected to deliver. It provides a theoretical causal pathway of how the plan will instigate effects that will deliver on the objectives and satisfy the intervention need. Whilst there are a number of common descriptions and definitions for the elements of a logic model, it should be recognised that there is no single model and that models should be developed to reflect the relevant situation for the plan and its M&E objectives.

The logic models presented within the IMP include the following elements:

- **Context**: an overview of the wider **context** including the social, economic, environmental and policy factors that have influenced the development of each objective.
- **Rationale**: explains why in the absence of the plan the objectives will not be secured and what the driving market or institutional failures are.
- **Theory of change:** a qualitative description of how the plan will overcome the market/institutional failures and through the plan polices encourage activities that will be in line with the plan objectives. This provides, at a general level, the key assumptions being made on why the policies will deliver the effects that will secure the objectives.

- **Inputs:** the activities and processes that will deliver and support the delivery of the plan and its policies.
- **Activities:** the actual activity (i.e. marine and coastal users as opposed to marine planning activities) that the plan encourages/discourages through application of its policies e.g. energy generation.
- **Outputs:** the immediate products or benefits that the activities will deliver.
- **Outcomes**: the effects of the outputs on the wider social, economic, environmental and governance characteristics of the East marine plan area.
- **Indicators:** quantitative data that provide an indication of the delivery/attainment of the outputs and outcomes.

Outputs and outcomes represent the gross effects of the plan. Whilst not explicitly stated, the IMP implies (MMO, 2014c) that 'impacts' are defined as the effect that can be attributed to the plan i.e. the net effect of the plan when compared to the counterfactual.

The IMP recognises that a policy may contribute to multiple East marine plan objectives (and similarly, that more than one policy may contribute to a given objective) and that there can be direct and indirect pathways i.e. that one policy may have a strong influence with regard to an objective and another may have a weak influence. The logic model for each East marine plan objective identifies the policies which influence the achievement of the objective (and these are presented in Table 1 of the actual East marine plan document). In addition, Table 1 of the IMP summarises the direct and indirect pathways between the plan objectives and the plan outcomes. Table 1 also demonstrates how the plan outcomes and plan objectives map onto the HLMOs and therefore the pathways through which the East marine plan will contribute to the HLMOs.

Based on the definitions and explanations provided in the IMP it can be said that the elements of the logic models are clearly defined, all relevant objectives are identified and the main linkages between them are articulated. However there are some issues which are apparent.

- The logic model does not appear to provide any allowance for the financial resources required to deliver the plan. An understanding of the financial resources is an important component of enabling economic evaluation and consideration of efficiency. This refers to the financial costs of delivering the various items identified in the logic chains under inputs.
- The specification of activities does not facilitate understanding of how a plan creates effects and hence explain the logic of how the plan is influencing the wider outcomes (this point is returned to later in the report), and in this way deviate from the Magenta Book (HM treasury, 2011) definition of what constitutes activities in the context of a policy intervention[6] i.e. for Objective 1 the activities are defined as economic activities and hence the logic model described how the marine activities contribute to economic performance, not how the plan contributes to economic performance. GVA, the output indicator, is clearly an output of economic activity, but it cannot be considered a direct output of marine planning activities.

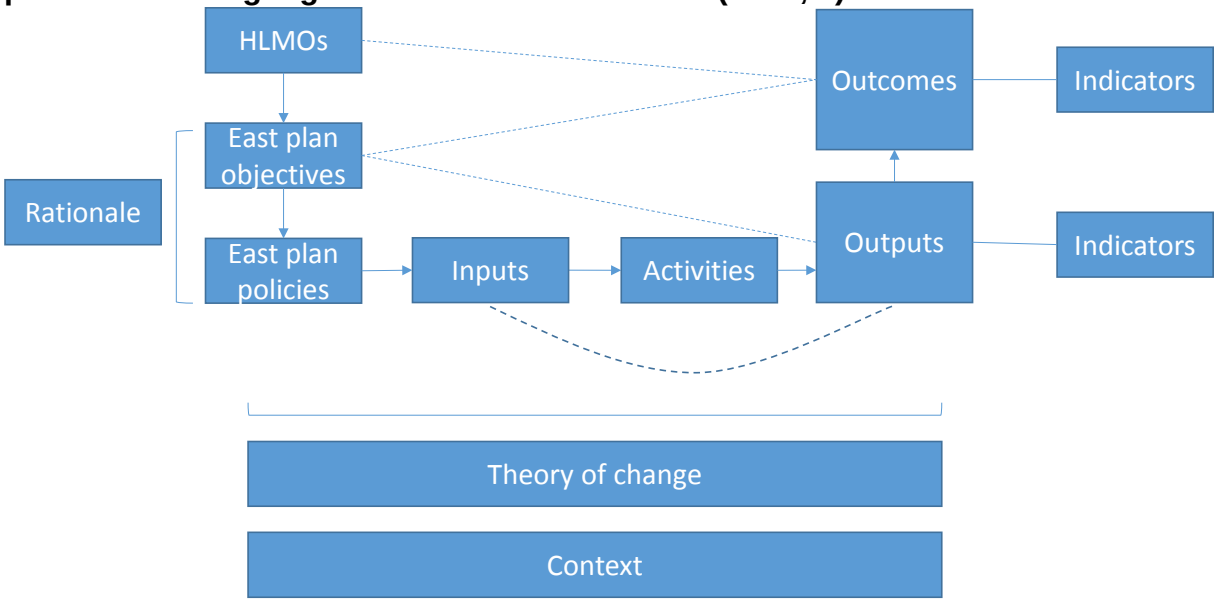
[6] See Table 2.A on page 22 of HM Treasury (2011), Magenta Book

Within the individual logic models there is some deviation from the predefined logic model terms, including:

- For Objectives 10 and 11 the 'activities' element deviates from the IMP's definition. For Objective 10 the activities are written as if they were an effect ("all activities which affect marine plans are undertaken in accordance with marine plans"). For Objective 11 the 'activities' refer to specific marine evidence activities e.g. commissioning research. It is noted that Objectives 10 and 11 are framed somewhat differently to other objectives as they hold a particular role in supporting delivery of the other objectives. Notably the logic models for these Objectives do try to articulate how the plan is causing effects and the outputs are much more closely tied to marine planning activities.
- Objectives 1 to 9 include outputs on whether decision makers took particular policies into account. Based on the IMP logic model definitions, these relate to the inputs rather than the activities.
- Objective 9 includes the outputs "Marine sectors are more resilient to potential impacts of climate change" and the outcome "Action on climate change adaptation and mitigation is facilitated". Intuitively it seems that these should be the other way around i.e. by facilitating action on climate change adaptation, marine sectors become more resilient.

3.2.2 Linkages between, and levels of, objectives, effects and indicators

Figure 1: Reconstruction of the East Plan overarching logic model East marine plan overarching logic model taken from MMO (2014, a).



It is useful at this stage to draw together the logic model elements and supporting tables/discussion presented in the IMP into an overarching model for the East marine plan. This is presented in Figure 1. In particular it illustrates the linkages between the objectives, effects and indicators and the levels at which these linkages are made.

Broadly speaking these linkages and levels can be considered reasonable, however there are a number of issues that occur and these are addressed in the remainder of this section. These are highlighted in Figure 1 by the dashed lines which show how

the basic linear form and one-to-one relationships expected in a logic model do not hold.

For some objectives (e.g. 1, 2, 6 & 9), the outputs relate to what the economic sector activities produce – the activities as defined in the IMP i.e. employment is provided by renewable energy activities. For other objectives (e.g. 5), the outputs relate to what the plan implementation activities produce – the inputs as defined in the IMP i.e. decision making is taken in line with the plan.

The inclusion of both of these types of effects in the model is good. However their inclusion under a single logic model element is incompatible with the linear form of the model and suggests the need for a change in how the model is specified. The two effects can be considered to be in sequence i.e. the application of the policies via licensing and other decision making processes results in decisions which favour (or disfavour) certain activities e.g. energy generation. In turn, more or less of those activities (e.g. energy generation) and their benefits is expected to occur. The former is the initial effect of applying the policy and the latter is a secondary effect of that. This point is built on later in this section with regard to crediting effects to plans.

Objective 3 appears to have an incorrect theory of change, possibly a typographical error.

3.2.3 HLMOs and outcomes

The HLMOs are appropriately located within the logic model. They link directly with the outcomes, the definition of which (and indicators) are shared with the East marine plan objective. This is shown in Table 1 of the IMP, which also implies that the outcomes have been retrofitted to the HLMOs rather than identified with any direct consideration of the HLMOs.

This approach draws on the fact that the plan-level objectives are directed to be a local-level interpretation of the HLMOs. As such, it can be considered that the East marine plan objectives "should be considered as typical of the broad objectives that marine plans will contain given that they are reflective of what the higher MPS objectives[7] seek. At the marine plan level it is the *relative* importance, and thus weight, given to each that is likely to vary, depending on local needs and thus priorities" (MMO 2014, c). However, the Marine Policy Statement (Section 2.2.2) suggests that plans do not need to cover all elements of the HLMOs and may consider matters not covered by the HLMOs.

The HLMOs themselves are broad and visionary and require an element of 'translation' in order for them to useful for the purposes of evaluation. Carneiro (2013) is particularly disparaging about the HLMOs as a basis for impact evaluation – both in relation to the ability to derive discriminatory measures to evaluate against and the ability to attribute the effect of marine plans to them.

Regardless, it is clear that any set of HLMO indicators that are drawn from the East marine plan objectives rather than from an analysis of the HLMOs may not be an optimal reflection of the detail of the HLMOs. This has implications for the quality of

[7] Which are synonymous with the HLMOs.

indicator sets being used for the HLMOs. Given the importance of the HLMOs – as the overarching objectives for the marine environment – to all marine sectors and activities, it is likely that agreement on how these are translated into more specific measures feasible for evaluation may be necessary from the broader marine community - or at least being true to the nature in which the HLMOs were originally established.

3.2.4 Illuminating effects that might be credited to the East marine plan

The IMP recognises that because of the broad number of external (i.e. non-plan) factors that affect activity in the marine area attributing observed changes to the plan will be challenging, and in some cases impossible.

Generally speaking, as one moves from left to right through the elements of a logic model, the ability to attribute change to the plan becomes harder as more external factors come into play and more assumptions are included in the theory of why the intervention has caused a particular change.

Given the anticipated difficulty in attributing change in relation to the plan objectives (as recognised in Carneiro, 2013), it is important for marine plans that the lower level effects (i.e. the left hand end of the logic chain) are well specified and illuminate the more immediate effects that are more readily attributable to marine plans and enable them to contribute to the higher level effects.

The effects set out in the East marine plan logic models are primarily higher level effects i.e. to the right hand end of a typical logic chain that present the changes on the wider society/environment. In this regard, it is noticeable that the two types of output effects are very different when considering the ease with which one can attribute any changes to the plan. The effect on policy making decisions is potentially easier to attribute to the plan than the subsequent increase in sector activity.

This stems largely from the definition of ‘activities’ in the logic model which is focussed on the marine users as opposed to marine planning activities. By way of example, for Objective 1 the activities are defined as economic activities and hence the logic model describes how the marine activities contribute to economic performance, not how the plan contributes to economic performance. GVA, the output indicator, is clearly an output of economic activity, but it cannot be considered an output of marine planning activities.

It would be useful to build into the model a deeper understanding of how the application of a plan can influence activity and hence cause changes in the outputs (as currently specified).

How the plan will influence activity is in part illustrated through the ‘inputs’ element of the East marine plan logic model, which across Objectives 1 to 9 identifies the following set of inputs which are primarily geared towards competent authority decision making. The items currently included in inputs for Objectives 1 to 9 include:

- Marine licensing and other authorisation instruments.
- Non-marine plan policies.
- Use of particular assessment frameworks

- Research providing improved evidence base e.g. improved habitat maps
- Research providing improved understanding
- Provision of guidance and particular advice packages

These primarily relate to the mechanisms through which plans will have effects and may be more appropriately considered as the activities.

A slightly different interpretation of how marine plans will influence activity is presented in MMO (2014) Analysis of the East Inshore and East Offshore Marine Plans. This sets out how the East marine plan "will enable sector growth that would not occur at the same levels in the absence of marine plans by:

- Increasing certainty in what sort of developments are likely to gain consent and where, making potential developments more attractive to investors
- Reducing transaction costs incurred by businesses that may arise in the absence of the clarity afforded by the marine plans i.e. the plan may aid improved applications and decision making, earlier award of consent and commencement of operations.
- Signposting to help ensure that developments mitigate negative impacts on each other thus avoiding the administrative and frictional costs that arise from conflict between sectors
- Signposting the need to consider activities which fall outside of existing licensing or management measures (e.g. some marine recreation activities) by highlighting the importance of co-location and the issue of displacement, contributing to the growth of these smaller sectors alongside the larger industries
- The inclusion of policies signposting fledgling sectors/technologies and encouraging consideration by other sectors of areas which might be needed for these fledgling sectors/technologies in the future (e.g. Carbon Capture Storage and Wave Energy)".

It is these intermediate effects that demonstrate how a plan is influencing activity. Effects of this nature are likely to be more readily attributable to the East marine plan and will be important steps in understanding the extent to which higher level effects might be attributable to the plan.

This raises a question of whether the inputs, activities and outputs elements of the logic models should be redefined in order to try to better capture the specific effects of marine plans i.e. those effects that are more immediate and easier to attribute to the plans. This may be beneficial when subsequently trying to determine the contribution of marine plans to the broader economic, environmental and social outcomes and objectives.

It is noted that the logic model for Objective 10 (MMO 2014, a) goes some way to capturing these more immediate effects. However it is focussed on only particular aspects (i.e. those most relevant for the Objective) and the points on how a plan enables change are therefore not comprehensively covered.

3.2.5 Unexpected effects

Unexpected effects are those which occur as a result of the plan which were not envisaged based on its underlying theory of change. They may be considered as

positive or negative effects. In some cases it may be possible to identify potential unexpected effects at the planning stage and identify them in the logic model. In others it is necessary for the M&E framework to enable exploration of possible unexpected effects.

The IMP does not specify unexpected effects within the logic model. However it does provide some potential for their identification through the 'exploratory questions for the Customer Insight Group monitoring focus group' in Section 7 of the IMP. This includes questions for decision-makers and applicants on any 'issues', which may provide an opportunity for exploring unexpected effects at the implementation stage. It is noted that this is given due importance in the IMP, particularly as a means for monitoring and potentially amending plan policies in the short term (i.e. inside the 3 year reporting cycle) and that this is important given that the East marine plan is England's first marine plan.

3.2.6 Does the set of indicators proposed cover each relevant aspect of the logic model?

The IMP, through Table 2 (MMO 2014, a) and in each individual logic model, clearly sets out the indicators that will be used to measure each output and outcome identified in the logic models. The IMP identifies Objectives 1 to 9 as relating to the impact effects and Objectives 10 and 11 as relating to the process effects and in this sense provides a framework for identifying impact and process indicators.

3.2.7 Specification of baselines, counterfactuals and external factors

The logic models outline summary qualitative baseline (i.e. current) contexts of each objective and give some consideration to the counterfactual position through discussion under the rationale for intervention. External influences are largely reflected within the description element of the baseline, where a range of parallel policies and plans, as well as wider trends and developments, are outlined. However, there appears to be little reflection of external influences (asides from non-marine policy drivers) within the later stages of the logic models.

Significantly greater consideration is given to these points in the supporting analysis documents for the East marine plan and South marine plan[8]. In general these documents provide a quantitative and qualitative discussion of the baseline (i.e. the current situation), a qualitative consideration of the main issues facing particular sectors / domains and a qualitative description of the potential future trends (as a form of counterfactual). They provide useful information, however the detail is likely to require further specification when taken forward for use in M&E. Further consideration is not given to this point at this stage, but will be taken forward in the next stage of this project.

The IMP acknowledges that there may in many cases be difficulties in attributing effects to the intervention, due to the many external influencing factors. Whilst indicative options have been identified for developing a counterfactual[9], no decision has yet been made on what options may be taken forward. By delaying more

[8] E.g. MMO (2013). Economic Baseline Assessment of the South Coast. MMO Project No. 1050; MMO (2014). Analysis of the East Inshore and East Offshore Marine Plans; MMO (2014). South Inshore and South Offshore Marine Plan Areas: South Plans Analytical Report

[9] IMP section 2.3

detailed consideration and decisions on how to define a counterfactual there is a risk that the options available at the time of undertaking detailed analysis for the purpose of the reporting cycles may be severely constrained due to a lack of appropriate monitoring data. In part this may be mitigated by the fact that many of the indicators being utilised are drawn from existing sources, but the issue may be significant in regard to the primary data collection methods being utilised.

This point is to be returned to and considered in more detail during the second phase of this M&E review project.

3.3 Summary of findings and recommendations

Based on the definitions and explanations provided in the IMP it can be said that the elements of the logic models are clearly defined, however the definitions are not as useful as they might be. All relevant objectives are identified and the main linkages between them are articulated, although there are some issues in the mapping of those linkages. The key issues are summarised below:

- The logic model does not appear to provide any allowance for the financial resources required to deliver the plan. An understanding of the financial resources is an important component of enabling economic evaluation and consideration of efficiency. This refers to the financial costs of delivering the various items identified in the logic chains under inputs.
- Within the individual logic models there is some deviation from the predefined logic model terms.
- In some instances the outputs are linked to the inputs and in others they are linked to the activities. The inclusion of both of these types of effects in the model is good. However their inclusion under a single logic model element is incompatible with the linear form of the model and suggests the need for a change in how the model is specified.
- The HLMOs are appropriately located within the logic model. They link directly with the outcomes, the definition of which (and indicators) are shared with the East marine plan objectives. This approach draws on the fact that the plan-level objectives are directed to be a local-level interpretation of the HLMOs. However it is not clear that the outcomes specified provide a sufficient representation of the outcomes associated with the HLMOs, or that establishing them based on analysis of the East marine plan will ensure their continued applicability as more plans are developed.

The IMP recognises that because of the broad number of external (i.e. no-plan) factors that affect activity in the marine area attributing observed changes to the plan will be challenging, and in some cases impossible. Generally speaking, as one moves from left to right through the elements of a logic model, the ability to attribute change to the plan becomes harder as more external factors come into play and more assumptions are included in the theory of why the intervention has caused a particular change.

The specification of the effects in the IMP focusses primarily on higher order effects as they relate to the economy, environment or society. There is very little included in the logic model that illuminates how the East marine plan will influence people and

activities in order to create change. What the plan is actually doing is not therefore well articulated and this is likely to create problems in understanding and demonstrating attribution and contribution. Whilst the logic model for Objective 10 goes part way to picking up these points it cannot on its own be considered sufficient; and further, it does not expressly tie into any of the other logic models.

In large part this stems from the specific of 'activities' in the logic model which is focussed on the marine users as opposed to marine planning activities. By way of example, for Objective 1 the activities are defined as economic activities and hence the logic model describes how the marine activities contribute to economic performance, not how the plan contributes to economic performance. GVA, the output indicator, is clearly an output of economic activity, but it cannot be considered an output of marine planning activities. The 'inputs' as currently specified may be more appropriately labelled 'activities'.

This raises a question of whether the inputs, activities and outputs elements of the logic models should be redefined in order to try to better capture the specific effects of marine plans, i.e. those effects that are more immediate and easier to attribute to the plans. This may be beneficial when subsequently trying to determine the contribution of marine plans to the broader economic, environmental and social outcomes and objectives.

Recommendation: *redefine the inputs, activities and outputs elements of the logic model to better reflect how marine plans can influence activity, which will bring the model more in line with Magenta Book guidance[10]. This will aid understanding of how marine plans affect the higher order indicators and provide a basis for articulating the contribution that they have to the achievement of plan objectives and HLMO objectives.*

[10] See Table 2.A on page 22 of tHM Treasury (2011), Magenta Book

4. Robustness of the monitoring and evaluation framework

4.1 Introduction

This section provides a review of the robustness of the M&E framework. That is, the certainty that can be placed on the outputs expected from the M&E. It responds to the following specific research questions:

- How 'long' is the link between each element (i.e. how big are the assumptions required to move through the logic model)?
- Are the assumptions made to link the intervention logic elements well evidenced?
- What indicators are selected to represent the effects? How good is the 'fit'? Is there consistency in the scale and nature of related indicators? Are reasons for indicator choices (selection/rejection) clear?
- How have external influences been recognised and counterfactuals established?
- Can the effects of the policies be isolated from other influencing factors, in order to assess the value added by the plans?
- How are the indicators and baselines to be used and interpreted? Will the approach enable triangulation of data/evidence?
- Are there quality control measures in place and do they appear sufficient?

4.2 Relevance assessment

4.2.1 How long is the link between each element (i.e., how big are the assumptions required to move through the logic model?)

The magnitude of the assumptions underpinning the logic models differs between objectives but is generally fairly large. The larger the steps between each element of the logic model, the larger the assumptions that have to be made to allow one to move from left to right through the model. In this sense, the larger the gap and assumptions, the greater the likely influence of external factors and hence the harder it will be to assign any level of attribution.

By way of example Objective 4 is discussed below utilising the terminology and evidence presented in the IMP its supporting research. The IMP logic model for Objective 4 states the following:

- *"Output:* Full consideration of health/wellbeing impacts in plans and decisions (incl. provision/access to recreation, which leads to
- *Outcome:* Reduced deprivation and improved health and wellbeing"

The implied assumptions here include that by fully considering such impacts in plans and decisions, there will be a fundamental change in provision/access; that by providing that change there will be a related change in people's participation in marine and coastal recreation and leisure, and that in turn this will positively affect their health and wellbeing resulting in a general improvement in the situation for coastal communities.

The distance between output and outcome could potentially be shortened. By including an additional step, the number of assumptions made between each step is

reduced and therefore the ability to claim a level of attribution (or at least, contribution) at each stage is potentially increased. The East marine plan vision document (MMO, 2012) recognises that "marine planning can only facilitate opportunities to improve social benefits and address the location or nature of activities, and subsequent opportunities for engagement with the coastal area". That is, it can facilitate opportunity, but cannot force people to take it up. In recognition of this, the inclusion of such an additional step in the logic chain is of increased importance.

However, as discussed in Section 3, there remain issues about the basic specification of the logic model elements, most notably activities and outputs which would also need to be addressed in order to improve the linkages between the elements in order to aid evaluation.

4.2.2 Are the assumptions made to link the logic elements well-evidenced?

The IMP itself purposefully presents a simplified picture of reality and, as one would expect, does not provide extensive links to underpinning evidence. However an increasing volume of research has been commissioned and utilised by the MMO to inform plan design[11] and this and other research is drawn on in documents that detail the East marine plan objectives and how they have been designed.

4.2.3 What indicators are used to represent effects? How good is the 'fit'? Is there consistency in the scale and nature of related indicators? Are the reasons for indicator choices clear?

Most of the logic models use numeric indicators to address effects, usually through numeric or percentage changes in survey responses, quality ratings, and other quantitative data. This approach appears to have been chosen to ease comparability of scores between indicators (and changes over time) and to ease and simplify the process of data collection and measurement.

It is considered that in general the indicators have a good fit with the stated effects that they represent. Those considered to have weaker relationships are identified below:

- There is a slight mismatch under Objective 4 which includes the output 'Full consideration of health/wellbeing impacts in plans and decisions' and an output indicator 'Decision makers report improved consideration of provision for access to marine recreation activities'. Whilst the objective does link provision/access to recreation and health/wellbeing, they do not represent the same thing. Given that the indicator is drawn from a bespoke survey it is expected that it should closely match the desired output.
- Objective 4 includes the output indicator 'Increased numbers of people engaged with natural environment'. However, given how Objective 4 outputs and outcomes have been defined this would appear to be appropriately categorised as an outcome indicator.

[11] For a list of MMO commissioned research see https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/457302/Evidence_Projects_Register_240815.pdf

- Objectives 6 and 7 include the following sentence under their output indicators: 'This will be coupled with a quality check of assessments for larger proposals'. This could be a potentially useful indicator, although from the wording of the IMP it is not clear that it will be used as such.
- Objective 9 includes an output indicator and an outcome indicator that are both based on 'decision makers reporting more consideration of X'. This would not appear to be an appropriate outcome indicator.

The IMP states that the indicators used within the marine plans have been developed with input from decision-makers in the East marine plans area, with a series of criteria developed to indicator selection (rationale, source, soundness, robustness and spatial scale). These criteria provide suitable justification for the inclusion of different indicators. There is no summary score or conclusion on the overall satisfaction any of the indicators, which could be a useful addition.

In addition, discussion put forward in earlier sections of this report found that the East marine plan logic models did not provide sufficient articulation of how a plan instigates change and what those more immediate effects are. By extension, one can also say that the selected indicators do not help in illuminating the more immediate effects of a plan – although there are some relevant questions included in the Customer Insight Group and Monitoring Focus Group questions presented in the IMP.

4.2.4 External influences, counterfactuals and isolating plan effects from other influencing factors

As the IMP underlines, there are many practical issues in attributing effects and impacts to the interventions in the plans, owing to the range of other external influences at work. In this regard, some consideration is given to the influence of other plans within inputs (e.g. 'non-marine plan policies', but these could be more clearly defined. Similarly, counterfactual statements are partially developed implicitly within the logic models through the 'rationale' for intervention section.

Section 2.3 of the IMP explains that indicator data is being collected (or collated if from a non-MMO dataset) in order to establish baselines. It goes on to state that the purpose of the baseline is to establish a threshold against which progress can be measured and that it will/should be forward looking. Section 2.3 goes on to discuss counterfactuals and baselines and it is not clear from the text whether there is some misinterpretation of the nature of baselines and counterfactuals. From the IMP one can surmise that the following is being considered:

- Baseline data of the indicators prior to plan implementation.
- Observed changes in the indicators during the plan period.

The IMP discusses potential methods for establishing counterfactuals, including using comparison groups. However it does not appear to take these further at this stage.

4.2.5 Triangulation of evidence and data

Triangulation of data is a technique used to add confidence to the evaluation findings by exploring a particular research question in more than one way. The more

commonly used methods[12] of triangulation are: (1) data on an effect is drawn from multiple stakeholder groups, and (2) data on an effect is drawn from a single stakeholder group using multiple methods.

The IMP allows for triangulation in a number of instances. This is most notable with regards to the primary survey data that is proposed for collection which includes a number of similar or related questions to be answered by decision makers and by applicants.

4.2.6 Are there quality control measures in place and do they appear sufficient?

Reliance on established or standardised data and/or monitoring sources helps support quality control within the M&E framework.

The IMP does not discuss the quality control measures for the primary data collection tools. However it refers to the MMO's existing data management and quality control tools. MMO employ a number of data handling protocols which are well articulated on the MMO website.

4.3 Summary of findings and recommendations

The existing framework provides a basis for ongoing monitoring of the high level effects that represent the plan objectives and HLMOs. However it is unlikely to provide monitoring data to be collected, and evaluation to be undertaken, that seeks to explore issues of attribution and/or contribution.

There are some issues in the flow and linkages between elements of the logic model (as discussed in Section 3). This results in particularly long links between each element which require significant assumptions on the effect of a plan to be made. This would be expected to make it difficult to robustly evaluate whether plan are having any immediate effects and to what extent any higher order effects could be attributed to a plan.

Whilst the indicators identified match the specified effects reasonably well, if the above critique on the logic models holds then by extension one can conclude that there is also a missing set of indicators and supporting data collection measures. The set of indicators and data collection methods utilised provide the potential for triangulation of evidence which will aid the robustness (and credibility) of evaluation findings.

The IMP provides for collection of baseline effect indicators. It discusses counterfactual options, but does not appear to define a preferred approach. This may have implications for data available , most notably for those data which are being collected via the MMO survey.

Recommendation: *the distance between each element of the logic model could be usefully shortened in order to reduce the scale of assumptions required to move from left to right (from outputs to impacts) through the logic model. In particular to reduce*

[12] Although more are identified in HM Treasury (2011),Magenta Book

the scale of assumptions made to understand how the plan affects the outputs of activities.

***Recommendation**: articulate the potential/likely counterfactual approaches that are expected to be taken with regards the different effects and thereby identify whether there are any additional data collection needs because of this.*

5. Evidence and data use in the monitoring and evaluation framework

5.1 Introduction

This section provides a review of the use of evidence and data within the M&E framework. That is, the evidence and data needs and the systems in place to collect them. It responds to the following specific research questions:

- What data collection systems are proposed?
- Has maximum consideration been given to the use of existing datasets and data collection systems? Is the use of primary data collection justified?
- Are the data collection systems robust i.e. based on sound data collection methodologies? Is consideration given to the counterfactual period/group? Is the sampling size/structure appropriate? Are data collection protocols in place?
- Are the data collection systems deliverable? Has implementation of them to date been in line with system plans?
- With what frequency are the datasets to be collected and what time periods will they reflect? Are these appropriate for the marine plan reporting cycle?
- Will the data collection systems work for other marine plans?

5.2 Relevance assessment

5.2.1 Data collection systems and use of existing datasets and systems

The M&E framework draws heavily on non-MMO sources, in particular national datasets which enable disaggregation to appropriate regional/local spatial scales (for example, data collected by the Office for National Statistics). Whilst this approach sacrifices some degree of precision in ensuring the relevance of data to local conditions, it also helps mitigate some of the burden and resource costs of monitoring and strengthens the validity and comparability of data between plans. A series of MMO research reports have included extensive exploration of available datasets and the extent to which they are appropriate for use in marine plan monitoring[13].

In addition to the use of existing datasets the MMO includes three primary data collection tools: East marine plan monitoring survey, Annual Customer Survey, and Customer Insight Group. The IMP justifies the use of such data collection tools by focussing them on the process elements of plan implementation, which are heavily linked the ‘outputs’ component of the logic models. From the sample questions provided in the IMP, these primary surveys are clearly likely to add value to M&E and will provide important information on which to evaluate plan performance and effects. It does not appear feasible that any secondary source data could be expected to perform a similar role.

Notably there is no information provided on the Annual Customer Survey, who it goes to or what sort of questions have been asked in the past or could be asked in

[13] The MMO’s evidence register and links to evidence reports are available at: https://www.gov.uk/government/collections/evidence-register-and-reports

the future. As such it is not possible to understand the role the survey plays in supporting the indicators and evaluation and whether its use is being maximised. One would expect a sample set of questions (as for the other primary research tools) to be included in the IMP.

In addition to the non-MMO data sources and the MMO primary research tools, the IMP also outlines a range of internal MMO data capture tools that will be modified and used to support the monitoring of the East marine plans, such as the Marine Case Management System (MCMS).

5.2.2 Data collection methodologies

Where secondary source data is being utilised, the IMP presents a summary of the data source appraisal, which includes consideration of its technical robustness. The sources stated in the IMP are considered to be robust.

Limited information is provided in the IMP on the methodologies for carrying out the primary data collection. Whilst a detailed specification of the methodologies and sampling strategy would not be expected to be included in the M&E framework, some further information on target groups and target sample sizes could be included, either in the IMP or in other marine plan related material.

No explicit consideration is given to the counterfactual position in the IMP with regards data collection. There is an implicit consideration of the counterfactual in many of the questions presented for the primary data tools e.g. by asking whether consideration of competing activities has improved. This creates a form of ex-post counterfactual.

If a comparator group (see section 9.1)was to be used to define a counterfactual (which is identified as an option in the IMP) then it may be desirable to collect similar survey data for them. This is not likely to be an issue where secondary source data is being used as time-series data at various spatial scales across England is generally available.

Similarly, where particular MMO Key Performance Indicators[14] are to be used the IMP notes that modifications to the system have been incorporated. It is assumed from the wording that these systems will have been modified across the MMO as a whole and therefore will be relevant for all plan areas and hence could be used for compactor groups defined as areas without a marine plan.

5.2.3 Data collection protocols

Section 4.3 of IMP highlights the MMO's evidence quality assurance and data storage process and provides a link to further information[15]. These processes are generally considered to be robust and anecdotal evidence from consultation with the MMO indicates that their processes have been successful in ensuring the quality of collected and stored data and, importantly, its future use and reinterpretation.

[14] Key Performance Indicators can be found within the MMO Corporate plan available at https://www.gov.uk/government/publications/corporate-plan--4

[15] http://webarchive.nationalarchives.gov.uk/20140108121958/http://www.marinemanagement.org.uk/evidence/gathering.htm

5.2.4 Deliverability of data collection systems

Based on the data requirements and collection systems presented in the IMP there does not appear to be any fundamental obstacles to their successful delivery. A number of elements of the data collection systems have been put into place but it is too early to assess their implementation thus far.

5.2.5 Frequency of data collection and indicator datasets

Datasets are primarily based on annual data collection, which aids comparison of indicators and analysis of changes over time from the baseline. Some data sets are available on a more frequent basis. Notably this includes data from the MMO's Customer Insight Group which it is proposed will be collected every three to six months.

Annual datasets are considered to be appropriate given that many of the effects of marine planning may not emerge over the short-to-medium term. The reporting cycle is every three years, with the six-yearly report being more comprehensive. Annual data is considered to be sufficient for these purposes.

The increased frequency of the data collected from the Customer Insight Group is sensible, enabling a more qualitative exploration of plan implementation progress to be undertaken. In this sense it provides an avenue to identify in the short term any major problems with marine plans and their implementation and should over each reporting cycle provide an extensive qualitative evidence base from which to draw.

5.2.6 Appropriateness of data collection systems for other plan areas

All of the secondary source datasets can be utilised in other marine plan areas. There does not appear to be any reason why the primary research tools could not be applied to other marine plan areas.

Where MMO primary research tools are gathering opinion from national stakeholder groups, care will need to be taken when designing questions once multiple plans are in place. Each of the marine plans may require bespoke questions in order to satisfy their relevant output indicator needs and national stakeholder bodies will need to be able to consider performance with regard that indicator/question just for the relevant plan area. This may present challenges in survey design.

5.3 Summary of findings and recommendations

Most of the data collection systems and indicators are based on annual reporting, which appears appropriate given the three and six yearly reporting cycles.
The M&E framework draws heavily on non-MMO sources, in particular national datasets. Whilst this approach sacrifices some degree of precision in ensuring the relevance of data to local conditions, it helps mitigate some of the burden and resource costs of monitoring (with due regard to anticipated resource constraints for M&E) and strengthens the validity and comparability of data between plans. It is clear that extensive efforts have been put into identifying possible social and economic datasets, but it is not clear that similar effort has been put into environmental datasets. In addition to the use of existing datasets the MMO includes three primary data collection tools. The IMP justifies the use of such data collection tools by focussing them on the process elements of plan implementation and from

the sample questions provided in the IMP, these primary surveys are clearly likely to add value to M&E.

Where secondary source data is being utilised, the IMP presents a summary of the data source appraisal, which includes consideration of its technical robustness. Limited information is provided in the IMP on the methodologies for carrying out the primary data collection. Whilst a detailed specification of the methodologies and sampling strategy would not be expected to be included in the M&E framework, some further information on target groups and target sample sizes could be included, either in the IMP or in other marine plan related material. Notably there is no information provided on the Annual Customer Survey, who it goes to or what sort of questions have been asked in the past or could be asked in the future. As such it is not possible to understand the role the survey plays in supporting the indicators and evaluation and whether its use is being maximised.

No explicit consideration is given to the counterfactual position in the IMP with regards data collection. There is an implicit consideration of the counterfactual in many of the questions presented for the primary data tools e.g. by asking whether consideration of something has improved. If a comparator group was to be used to define a counterfactual (which is identified as an option in the IMP) then it may be desirable to collect similar survey data for them. This is not likely to be an issue where secondary source data has been used as time-series data at various spatial scales across England is generally available.

Similarly, where MMO primary research tools are gathering opinion from national stakeholder groups, care will need to be taken when designing questions once multiple plans are in place. Each of the marine plans may require bespoke questions in order to satisfy their relevant output indicator needs and national stakeholder bodies will need to be able to consider performance with regard that indicator/question just for the relevant plan area. This may present challenges in survey design.

All of the secondary source datasets can be utilised in other marine plan areas. There does not appear to be any reason why the primary research tools could not be applied to other marine plan areas.

Based on the data requirements and collection systems presented in the IMP there does not appear to be any fundamental obstacles to their successful delivery. Datasets are primarily based on annual data collection, which aids comparison of indicators and analysis of changes over time from the baseline. Some data sets are available on a more frequent basis. This is considered to be sufficient and appropriate given the reporting cycles.

Recommendation: *links to the Annual Customer Survey (and other MMO survey tools when up and running) would aid transparency.*

Recommendation: *publish methodologies and sampling strategies for data and evidence collection. As a minimum this should be as part of the review process (the IMP implies that this may be done). However, as the data collection tools are*

implemented on at least an annual basis, an overarching method document could be published after year 1 of implementation.

Recommendation: *ensure that the primary data collection tools can be applied to all marine plan areas, particularly where particular stakeholder groups are relevant across all plan areas.*

6. Monitoring and evaluation governance and resources

6.1 Introduction

This section provides a review of governance and resources relating to the M&E framework. That is, sufficiency of governance arrangements and resources available for the M&E. It responds to the following specific research questions:

- Is sufficient information published in the IMP to provide transparency in how M&E will be undertaken?
- Which organisation is responsible for delivering monitoring? What Quality Assurance (QA) procedures are in place to ensure independence / avoidance of bias? Do these provide sufficient assurance to external stakeholders?
- What are the expected resource requirements for monitoring and how are these being met?
- How does this compare to resources requirements for related / comparable M&E programmes?
- How are resources distributed across the M&E tasks / elements and does this reflect their relative importance?
- Is sufficient information provided on the indicators, sources and methods, or will it be made accessible?
-

6.2 Relevance assessment

6.2.1 Transparency, accountability and QA for M&E

The IMP (and other supporting MMO documents) provides basic information on how M&E will be undertaken. The overriding responsibility for delivering M&E is delegated to the MMO. The ultimate decision-making responsibility to amend plans or not rests with the Secretary of State rather than the MMO.

The IMP does not state that there will be any particular oversight body, however it is understood that the Monitoring Advisory Body may continue to act as a technical oversight group to ensure technical robustness.

Whilst not explicitly stated, it is implied in the IMP[16] that the review reports (and supporting evidence) will be made available to all stakeholders. This provides an appropriate mechanism for ensuring transparency in how data has been used and conclusions drawn. It is not clear however whether stakeholder opinion will be sought, formally or informally, on the review outputs and at what stage.

The M&E plan includes technical elements that will help to ensure unbiased M&E. Most notably through the three primary data collection tools, which draw on a wide range of stakeholders and should enable evidence on relevant issues to be triangulated. This helps to overcome potential bias in responses collected from MMO staff through bilateral meetings.

[16] Page 6

It may be possible to improve transparency and accountability further through the following technical measures:

- Elaboration of the evaluation questions and the data that will be used to respond to them, either as part of the M&E framework or as a pre-curser to undertaking the review.
- Given the difficulty in empirically establishing attribution for the plan, there is the potential for the review process to incorporate a degree of qualitative interpretation of multiple indicators in order to conclude on the plans success and the need for any amendments. This clearly raises the potential for bias in the interpretation when undertaken in house by the MMO. Including more sequential elements in the logic models, thereby reducing the scale of assumptions to move from one effect element to the next would help to overcome this.

6.2.2 Resource requirements

Resource requirements for M&E are expected to fall largely on the MMO, although some smaller monitoring costs can be expected to fall on local authorities and local enterprises. It is a notable issue that the MMO is responsible for developing and monitoring marine plans but is only one of the bodies responsible for their implementation. The importance of being able to ensure that all implementing bodies are in a position to provide monitoring and evaluation data is therefore important. The IMP currently includes mechanisms to obtain limited information from such bodies through surveys which is predominantly qualitative in nature.

The M&E framework is built from the objective (and sometimes policy) level up, without a single uniting logic model that ties the theory of change and the evaluation together. This may have resources implications for M&E, and result in evaluation resources being spread too thinly across too wide a range of evaluation questions.

Anticipated costs are set out in MMO (2014d) and are stated as being comparable to M&E programmes for terrestrial planning frameworks.

6.2.3 Sufficiency of information provided on the indicators, sources and methods

For those indicators that are drawn from secondary sources, the IMP provides URL linkages as well as a short appraisal of their appropriateness for use. Other MMO documents summarise the indicators and again, provide links to where secondary source data can be accessed directly (MMO, 2014e).This is considered to be sufficient.
Section 4.1.4 of the IMP details the primary survey data that will be collected and utilised by the MMO. It includes:

- East marine plan monitoring survey will survey a targeted audience of decision-makers and licence applicants.
- Annual Customer Survey will be used to target a larger group of stakeholders.
- Customer Insight Group will include frequent licence applicants and key decision making bodies, to be contacted at three to six month intervals.

It is not clear from the IMP what sort of sample size would be expected, what sampling approach would be taken or how wide are the interests represented by the

Annual Customer Survey. Notably both the monitoring survey and Customer Insight Group utilise targeted samples. A small amount of additional information may be usefully included in the IMP on this issue. It would be expected to be more fully laid out in any technical documents and supporting evidence produced by the surveys in support of plan reporting.

6.3 Summary of findings and recommendations

The IMP (and other supporting MMO marine planning documents) provides basic information on how M&E will be undertaken and where different responsibilities lie. The IMP does not describe any particular oversight body, however there may be continuing technical oversight from the Monitoring Advisory Body.

An objective-by-objective approach to evaluation is likely to have resource implications that may be out of sync with the resources available. It is unlikely to be feasible (or necessary) to undertake a comprehensive evaluation for every effect.

It is implied in the IMP that the review reports (and supporting evidence) will be made available to all stakeholders although it is not clear whether stakeholder opinion will be sought, formally or informally, on the review outputs and at what stage.

The M&E plan includes technical elements that will help to ensure unbiased M&E, most notably through some triangulation of evidence.

For those indicators that are drawn from secondary sources, the IMP provides URL linkages as well as a short appraisal of their appropriateness for use. Basic information is provided on the MMO's primary research tools.

Recommendation: *It may be possible to improve transparency and accountability further through the following technical measures:*

- *Elaboration of the evaluation questions and the data that will be used to respond to them, either as part of the M&E framework or as a pre-curser to undertaking the review.*
- *Given the difficulty in empirically establishing attribution for the plan, there is the potential for the review process to incorporate a degree of qualitative interpretation of multiple indicators in order to conclude on the plans success and the need for any amendments. This clearly raises the potential for bias in the interpretation when undertaken in house by MMO. Including more sequential elements in the logic models, thereby reducing the scale of assumptions to move from one effect element to the next would help to overcome this*

Recommendation: *evaluation should focus on the extent to which a marine plan (as a whole) is delivering upon its objectives (see Recommendation on logic models). Strategic evaluation questions can then be asked which focus on specific issues or policy areas. In this way evaluation resources can be focussed on the areas where they can provide maximum value to the marine plan review process.*

Recommendation: *some further information on the primary research tools could be usefully made available, either via the IMP or other avenues. In particular, further detail on the make-up of the samples and their sizes and details of the issues/questions to be included in the Annual Customer Survey.*

Recommendation*: adopting an overarching logic model (which can be supported by objective-specific or policy-specific models) and an associated set of more detailed evaluation questions will help to provide focus to the M&E framework and ensure that its implementation is achievable with the anticipated resources*.

7. Wider applicability the monitoring and evaluation framework

7.1 Introduction

This section provides a review of the wider applicability of the M&E framework. That is, whether the framework can be applied more widely across the other marine plans and to the effects on the HLMO objectives. It responds to the following specific research questions:

- Will it be possible to apply the framework to other marine plans?
- What aspects are likely to be less transferable than others? What reframing may be required to deliver a framework that is applicable for all marine plans?
- Does the framework enable the effects of all HLMOs described within the MPS?

7.2 Relevance assessment

7.2.1 Application of the M&E framework to other plan areas

The framework in its current form could be transferable to other plan areas, although there are some weaknesses. The fundamental approaches set out reflect the national requirements rather than plan specific requirements, so the basic approaches and purpose of the framework will be appropriate across all plans. The detail of the logic models will require amendment; however the overall structure would be appropriate across all plans.

Recommendations for improvements set out in this report would improve the framework and hence its transferability. However they may result in more work to be undertaken to establish the individual components at each stage of logic model.

Issues may occur with regard to transferability of qualitative data collection methods for output indicators between plans. These currently link to the specific policies of the East marine plan. Whilst there may be some overlap between plans, one would anticipate that additional questions will be required that relate to the specific policies of the other plans. This may result in an undesirably long set of questions, an issue that will be particularly apparent if certain stakeholder groups / organisations /individuals are required to respond to questions on all plan areas.

7.2.2 Assessment of contribution to the HLMOs

The principal issue here is whether the outcomes identified adequately reflect the HLMOs. It has already been discussed that issues may arise with the assumption that East marine plan level outcomes will provide an appropriate set of outcomes for the HLMOs and hence be transferable across all plans. Whilst one would expect some commonality across the plan areas due to the way in which objectives are derived with regard to the HLMOs it would appear to be a potentially restrictive approach which may adversely affect either the representation of the HLMOs or the plan objectives, or both.

A headline comparison of East marine plan and South marine plan objectives indicates a high degree of commonality, suggesting that there may be significant common ground between the objectives of different plans and with the HLMOs.

A logical approach to establish what the outcomes are that best reflect the HLMOs would be to analyse the detail of the HLMOs at a national level. By taking the HLMOs as the starting point rather than the East marine plan one should be able to achieve a better level of certainty that the outcome are appropriate for assessing contribution to the HLMOs.

One would expect that the HLMO outcomes may be common across the plan areas, but that they would represent only a subset of a more extensive set of outcomes articulated for the plan areas.

7.3 Summary of findings and recommendations

In general terms the M&E framework is considered to be transferable to other plan areas, although it has limitations in what it can achieve from an evaluation perspective. Recommendations for improvements set out in this report would enhance the ability to use the framework for other marine plans including:

Recommendation: *consider the methodological challenges of undertaking the primary surveys once all plans are in place with their unique policies to ensure that the process can be maintained and therefore the consistent time series data continued over the long term.*

Recommendation: *undertake an analysis of the HLMOs in order to establish a set of outcomes that best reflect them. Utilise this, along with the plan-derived outcomes to identify commonality.*

8. Part A synthesis and recommendations

8.1 Summary of findings

8.1.1 Relevance

The IMP recognises the various M&E requirements for marine plans. It sets up a theory-based impact and process evaluation approach with the use of relevant baselines and counterfactuals and three yearly reporting. As such, the approach adopted satisfies the basic M&E requirements of the Act. Further, the monitoring requirements of the HD and SA are subsumed into the overall framework.

However economic evaluation is also a relevant consideration and the approach adopted does not provide explicit reference to it, or enable an understanding of the efficiency of marine plans.

The IMP implies that it will deliver upon the reporting requirements of the Act and highlights the possibility of early review. It provides indications of the reporting style and its accessibility and how the M&E outputs may contribute to amendment of a plan. Whilst some further detail on the processes for publishing and acting upon outputs could be included in the IMP, in particular any MMO internal processes, the information provided is generally considered to be sufficient.

A range of mechanisms were used to engage stakeholders in the development of the M&E framework. For decision-makers and data owners these have provided good scope for their input to shape the approach and content. For the wider stakeholder population, as the East marine plan public consultation took place when the IMP was only available in outline form, opportunity for input has been more limited.

As such, the M&E framework does not fully satisfy the relevance criterion. In particular this is due to the omission of methodologies to enable economic evaluation.

8.1.2 Completeness

The logic models are clearly explained and their elements defined, however the application of these definitions is not consistent across all individual logic models[17]. Further, whilst all of the typical logic model elements are present, their specification would not appear to be optimal for the purposes of evaluating the effects and effectiveness of marine plans.

In particular the specification of activities, and in relation to that the specification of outputs, potentially creates difficulties when trying to understand how a plan creates effects and hence in explaining (and evaluating) the logic of how the plan is influencing the wider economic, environmental and social outcomes. For example, for Objective 1 the activities are defined as economic activities and hence the logic model describes how the marine activities contribute to economic performance, not how the plan itself contributes to economic performance. GVA, the output indicator,

[17] And differ from those set out in HM Treasury (2011), Magenta Book.

is clearly an output of economic activity, but it cannot be considered an output of marine planning activities.

This raises a question of whether the inputs, activities and outputs elements of the logic models should be redefined in order to try to better capture the specific effects of marine plans i.e. those effects that are more immediate and easier to attribute to the plans. This would be beneficial when subsequently trying to determine the contribution of marine plans to the broader economic, environmental and social outcomes and objectives.

In addition, the logic model does not appear to provide any allowance for the financial resources and implications of the plan, which is required for enabling economic evaluation.

As such, whilst the logic models would appear to be complete, including appropriate linkage to the HLMOs, there is an important weakness in how certain elements have been specified. This includes how the HLMOs have been translated into discernible measures for evaluation purposes, which is based on the East marine plan objectives.

8.1.3 Robustness

The existing framework provides a basis for robust ongoing monitoring of the high level effects that represent the plan objectives and HLMOs. However it is unlikely to provide for monitoring data to be collected, and evaluation to be undertaken, that successfully explores issues of attribution and/or contribution. Although this is primarily a reflection of the visionary nature of the objectives rather than a failing of the indicators identified.

There are some issues in the flow and linkages between elements of the logic model, due in part to the specification of certain elements of the logic model. This results in particularly long links between each element of the model which require significant assumptions on the effect of a plan to be made. This would be expected to make it difficult to robustly evaluate whether the plan is having any immediate effects and to what extent any higher level effects could be attributed to a plan.

The indicators identified match the specified effects reasonably well. However if the above critique on the logic models holds then by extension one can conclude that there is also a missing set of indicators and supporting data collection measures i.e. revised logic models with additional elements would potentially require additional associated indicators.

The set of indicators and data collection methods utilised provide the potential for triangulation of evidence which will aid the robustness and credibility of evaluation findings, although this is in part undermined by the difficulty in identifying the changes caused by the plan.

The IMP provides for collection of baseline effect indicators. It discusses counterfactual options, but does not appear to define a preferred approach. This may have implications for data availability come the three-yearly review, most notably for those data which are being collected via the MMO survey.

8.1.4 Evidence and data use

Most of the data collection systems and indicators are based on annual reporting, which appears appropriate given the three and six yearly reporting cycles.

In addition to the use of existing datasets, the MMO includes three primary data collection tools. The IMP justifies the use of such data collection tools by focussing them on the process elements of plan implementation and from the sample questions provided in the IMP, these primary surveys are clearly likely to add value to M&E and similar data would not be available via secondary sources.

Where secondary source data is being utilised, the IMP presents a summary of the data source appraisal, which includes consideration of its technical robustness. Limited information is provided in the IMP on the methodologies for carrying out the primary data collection. Whilst a detailed specification of the methodologies and sampling strategy would not be expected to be included in the M&E framework, some further information on target groups and target sample sizes could be usefully included.

No explicit consideration is given to the counterfactual position in the IMP with regards data collection. Notably if a comparator group was to be used to define a counterfactual (which is identified as an option in the IMP) then it may be desirable to collect similar survey data for that group, which may not be captured by the current sample sets for the primary data collection tools.

Where MMO primary data collection tools are gathering opinion from national stakeholder groups there would appear to be a risk that survey methods, and the set of questions poised, may in some instances become overly burdensome once multiple plans are in place; although it is also recognised that such stakeholders would be uniquely placed to respond to comparator location (non-plan area) questions.

8.1.5 Governance and resources

The IMP (and other supporting MMO documents) provides basic information on how M&E will be undertaken and where different responsibilities lie. The IMP does not state that there will be any particular oversight body, however it is understood that the Monitoring Advisory Body may continue to act as a technical oversight group to ensure technical robustness. It is not clear whether the recently set up ‘Marine Board’ will play an oversight role, or whether it would be appropriate for it to do so.

It is a notable issue that the MMO is responsible for developing and monitoring marine plans but is only one of the bodies responsible for their implementation. The importance of being able to ensure that all implementing bodies are in a position to provide monitoring and evaluation data is therefore important. The IMP currently includes mechanisms to obtain limited information from such bodies through surveys (primarily qualitative information).

It is implied in the IMP that the three-yearly review reports (and their supporting evidence) will be made available to all stakeholders although it is not clear whether

stakeholder opinion will be sought, formally or informally, on the review outputs and at what stage.

The M&E plan includes technical elements that will help to ensure unbiased M&E, most notably through some triangulation of evidence.

For those indicators that are drawn from secondary sources, the IMP provides URL linkages as well as a short appraisal of their appropriateness for use. Basic information is provided on the MMO's primary research tools.

8.1.6 Wider applicability

The framework is appropriate for monitoring the impacts associated with the HLMOs; however difficulties in defining robust counterfactuals (discussed in Part B) and weaknesses in the logic model will limit the extent to which the contribution of marine plans to HLMO achievements can be evaluated. In general terms the M&E framework is considered to be transferable to other plan areas, subject to addressing the primary and secondary recommendations set out in this report.

8.2 Recommendations

The recommendations made through the report have been amalgamated where appropriate and summarised here. The importance of the recommendations varies and as such they have been set out under three sub-headers of decreasing importance: primary-secondary-tertiary.

8.2.1 Primary recommendation: Logic model specification

A number of the recommendations made focus in on how the middle section of the existing logic models are specified, identifying this as a weakness in terms of understanding how a plan causes effects and therefore making it harder to understand the high level effects of a plan and what contribution they are making to plan objectives and HLMOs. Whilst there are a number of potentially useful questions included in the primary data collection tools, these are not appropriately anchored in the plan logic models. This risks any review either lacking in meaningful conclusions that respond to the evaluation requirements, or making conclusions which are based on too many unknowns and implied assumptions.

1. **Recommendation**: the activities, outputs and outcomes components of the logic model should be re-specified. This should pick up more precisely on how marine plans create effects and influence activity. This will aid understanding of how marine plans affect the higher order indicators and provide a basis for articulating the contribution that they have to the achievement of plan objectives and HLMO objectives.

A generic overarching marine plan logic model would provide an appropriate starting point, drawing on the basic theory of how marine plans are expected to overcome or improve upon particular issues. Further detail and elaboration could then be undertaken at plan level.

It is expected that the logic model should seek to pick up on some of the intermediate outcomes that marine plans are trying to address i.e. those that support

the theory that one needs marine plans. For example, those identified in the East marine plan Analysis document and presented in Section 3.2.1 of this report. This can then be tied in more directly to the actual activities that are being undertaken to deliver the plan, providing a clearer depiction of how marine plans will contribute to the broader economic, environmental and societal objectives.

A fully formed logic model is of critical importance when adopting an impact contribution rather than an attribution evaluation approach (as is discussed in Part B of this report). Understanding the steps and processes at work in the logic model along with the role of external factors is of critical importance to building a robust case about contribution. Based on the above example, and in line with Magenta Book guidance, core logic model components could therefore be specified as:

- Resources: the financial and other resources required to deliver marine plans.
- Activities: the activities that implement the plan.
- Outputs: effects that are directly produced by the activities.
- Outcomes: the intermediate effects (multiple outcome tiers can be included in the model and it is not necessary for every effect path through the model to have the same number of intermediate outcomes).
- Impacts: wider effects on the economy, environment and society.

There is no single set of logic model component definitions and it is feasible to construct those which are most useful for the logic model being developed. In particular where multiple logic models, or nested logic models are being used, the number of components (particularly in relation to outcomes) may be usefully expanded. The most critical issue is that the terms should be defined and applied consistently.

Figure 2 also includes components that identify different types of objectives. Whilst not essential to include in the model, these can help in formulating outcomes and impacts. High level objectives (as shown by the HLMOs and East marine plan objectives) refer to the general objectives at a system level i.e. on the economy, environment and society more broadly and relate to impacts. Specific objectives refer to the more specific problems/needs that the plan is try to address and relate to outcomes.

This can be represented in an overarching logic model as shown in figure 3.

Figure 2: Indicative marine plan logic model components.

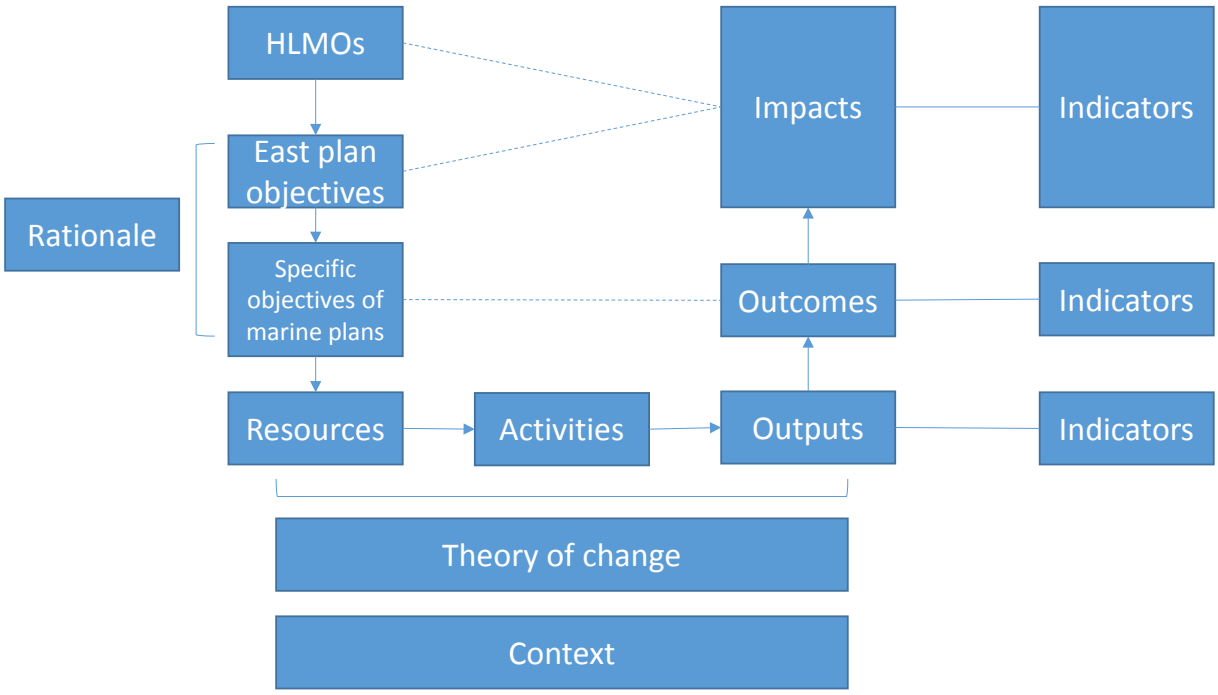


Figure 3: An illustrative overarching marine plan logic model – core components.

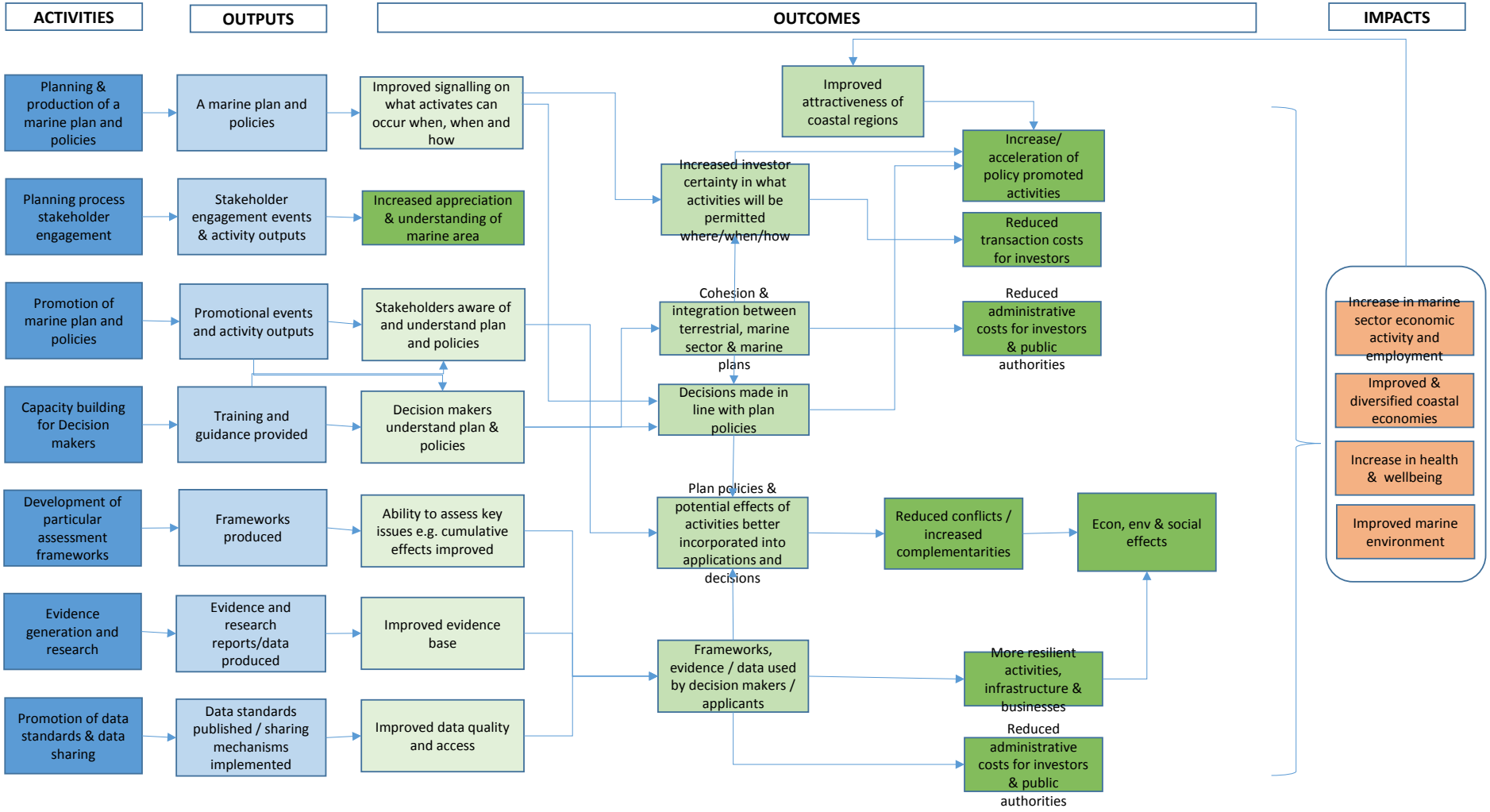


Table 1 demonstrates that there is reasonable coverage of the key logic model elements in the East marine plan IMP, but further indicators could be identified in particular for outputs and the final tier of outcomes.

Table 1: East marine plan logic model indicator gap analysis.

Outputs	East marine plan IMP indicators
A marine plan and policies	-
Stakeholder engagement events & activity outputs	-
Marine plan promotional events and activity outputs	-
Training and guidance provided	Organisations whose staff have received training
Frameworks produced	-
Evidence & research reports / data produced	11.2 Number of evidence projects
Data standards published / sharing mechanisms implemented	-
Outcomes	**East marine plan IMP indicators**
Improved signalling on what activities can occur when, where & how	-
Increased appreciation & understanding of the marine area	-
Stakeholders/Decision Makers (DM) aware of and understand plan & policies	Public Authorities (PA)/Organisations whose staff understand plan policies / how to apply them Awareness of PA/organisations' staff of the marine plans DMs reporting their staff have received appropriate training to successfully implement marine plans
Ability to assess key issues improves (e.g. cumulative effects)	-
Improved evidence base	11A DMs/organisations opinion on quality of marine plan area evidence base
Improved data quality & access	11.1 Number of new data sources on MMO Master Data Register 11.3 Number of datasets available on INSPIRE geoportal 11.4 Average QA score of evidence
Increased investor confidence in what activities will be permitted where/when/how	10A Increased confidence in plan-led management
Cohesion & integration between	% of terrestrial plans that reference

terrestrial, marine sector & marine plans	the East marine plan
PAs make decisions in line with marine plan policies	Number of DMs using marine plans DM view on whether they are contributing to plan-led management DMs reporting that decisions are made in accordance with marine plan DMs reporting integration of marine plans into decision making frameworks
Plan policies & potential effects of activities better incorporated into applications and decisions	Applications referencing East marine plans Organisations stating they have used plan policies in support of their applications PAs reporting improved consideration of plan policies (indicator for each policy) in applications
Frameworks, evidence/data used by decision makers / applicants	DMs/Organisations using MMO Marine Information System
Increased/acceleration of policy promoted activities	-
Reduced transaction costs for investors	-
Reduced administrative costs for investors & public authorities	Organisations reporting time/money savings in the pre-application/application processes due to East marine plan Organisations reporting change in time taken for marine licence applications PAs reporting more streamlined decision making due to plan PAs reporting effective integration between marine & terrestrial plans achieved MMO decision making time period
Reduced conflicts/increased complementarities	-
Economic/environmental/social effects of reduced conflicts/increased complementarities	-

More resilient activities, infrastructure & businesses	-
Impacts	**East marine plan IMP indicators**
Marine economy/coastal economies	Activity levels (e.g. number/capacity of renewable energy installations) GVA indicators (overall/sector) Employment indicators (sectors/coastal local authorities) DMs opinion of climate change resilience of marine sectors
Wellbeing	Number of people engaged with marine/coast natural environment Population wellbeing scores
Environment	Heritage assets at risk Quality/value of seascape MSFD/WFD GES[18] indicators Conservation status of marine protected areas

8.2.2 Secondary recommendations

Recommendation: The framework should be extended to include economic evaluation / efficiency. Incorporating economic evaluation should include consideration of the relevant evaluation questions and inclusion of appropriate indicators in the data collection.

Economic evaluations – sometimes also known as evaluations of efficiency, in simple terms, compare the benefits of the policy with its costs. The Magenta Book identifies different types of economic evaluation, including:

- Cost-effectiveness analysis, which values the costs of implementing and delivering the policy, and relates this amount to the total quantity of outcome generated, to produce a “cost per unit of outcome” estimate (e.g. cost per additional individual placed in employment).
- Cost-benefit analysis, which goes further than cost-effectiveness analysis in placing a monetary value on the changes in outcomes as well (e.g. the value of placing an additional individual in employment). This means that cost-benefit analysis can examine the overall justification for a policy (“Do the benefits outweigh the costs?”), as well as compare policies which are associated with quite different types of outcome.

It is recognized that the anticipated end-point benefits of marine plans (i.e. broad environment/economy/society-wide benefits) as they relate to the HLMOs are not

[18] Marine Strategy Framework Directive (MSFD), Water Framework Directive (WFD) and Good Environmental Status (GES)

likely to occur / be discernible over the short-to-medium term. Even when they do occur it may not be feasible to articulate the extent of change that can be attributed to marine planning, due to the significance of external factors (i.e. non-marine plan influences) as drivers of this change. That does not mean however that economic evaluation is not useful. Typical evaluation questions associated with economic evaluations can cover a number of issues and do not have to be focused on trying to attain some form of overarching cost : benefit ratio. There are a number of relevant economic evaluation questions which could be posed to help understand whether a marine plan 'is worth it'. These include:

- What were the costs associated with developing the marine plan and what lessons can be learnt about the efficiency of the development processes for future plans or plan iterations?
- What are the ongoing implementation and administrative costs associated with the marine plan and what lessons can be learnt about the efficiency of the implementation processes?
- To what extent are the costs involved justified, given the changes/effects (not necessary end-point impacts) which have been achieved?
- To what extent are the costs proportionate to the benefits achieved? What factors are influencing any particular discrepancies?
- What factors influenced the efficiency with which the achievements observed were attained?
- How affordable were the costs borne by different stakeholder groups, given the benefits they received?
- To what extent has the intervention been cost effective?
- When multiple plans are in place, if there are significant differences in costs (or benefits) between marine plan areas, what is causing them?

Recommendation: the framework should include evaluation questions that relate to relevance.

Recommendation: a more coherent and explicit statement of the evaluation questions would provide greater clarity on the focus of M&E activity and whether there are any gaps in the monitoring data. The evaluation should focus on the extent to which a marine plan (as a whole) is delivering upon its objectives (see Recommendation on logic models). Strategic evaluation questions can then be asked which focus on specific issues or policy areas. In this way limited evaluation resources can be focussed on the areas where they can provide maximum value to the marine plan review process.

Recommendation: articulate the potential / likely counterfactual approaches that are expected to be taken with regard to the different effects and thereby identify whether there are any additional data collection needs because of this.

Recommendation: ensure that the primary data collection tools can be applied to all marine plan areas, especially where particular stakeholder groups are relevant across all plan areas as this may present challenges if it results in an ever increasing set of relevant survey questions.

Recommendation: undertake an analysis of the HLMOs in order to establish a set of outcomes that best reflect them. Given that the HLMOs are not just in place for the purpose of marine planning, the process for translating the HLMOs should be true to their universal ownership and original development process. These, along with the plan-derived outcomes should be used to identify commonality and common indicators.

Relevance looks at the relationship between the needs and problems that the marine plan is seeking to address through the attainment of its objectives. Evaluations can explore the extent to which the objectives remain relevant (given that certain problem drivers may have changed) or where objectives may have been poorly specified.

Given the relatively high level nature of the objectives set out in the East marine plan, it may be assumed to be likely that the objectives will remain relevant to the needs over the medium term. However as the UK's marine planning expertise and understanding improves it may be that more specific objectives can be defined, providing a more direct focus for marine plans to address specific local needs and problems, and hence become more focused and effective.

- To what extent have the original objectives proven to have been appropriate?
- Are there more specific issues and needs that could be targeted by the marine plan?

8.2.3 Tertiary recommendations

Recommendation: some form of engagement with the broader stakeholder base may be beneficial for attaining a higher level of support for the M&E framework. For the East marine plan this could be either (i) at the point of the three year review, which may also review the appropriateness of the M&E framework; and/or (ii) as a part of the detailed scoping for the review (i.e. evaluation) analysis, in particular on the evaluation questions to which the review is responding. For future plans it is recommended, and it is likely to be feasible as the MMO's marine planning processes continue to improve, that publish a more complete M&E framework is published for future plans at the time of the plan public consultation in order to improve the engagement with the wider stakeholder group.

Recommendation: links to the Annual Customer Survey (and other MMO survey tools when up and running) would aid transparency.

Recommendation: publish methodologies and sampling strategies. As a minimum this should be as part of the review process (the IMP implies that this may be done). However, as the data collection tools are implemented on at least an annual basis, an overarching method document could be published after year 1 of implementation. In particular, further detail on the make-up of the samples and their sizes and details of the issues/questions to be included in the Annual Customer Survey.

PART B: Counterfactuals and the Evaluation Approach

9. Counterfactuals

9.1 Introduction

Impact evaluation is focussed on understanding the effects of a policy intervention and the extent to which desired (and undesired) effects are being achieved. In general this will focus on the impacts as they relate to the objectives of the intervention.

However for spatial and strategic planning interventions such as marine plans it can be expected that, as well as the plan and its policies, a range of external factors will influence the attainment of the objectives and the direction and magnitude of change in the indicators. As such the problem is that changes in observed indicators are not necessarily caused by the plan and its policies, but may be caused by other influencing factors, such that:

Change in observed indicator = contribution of intervention + contribution of external factors

It is therefore important for impact evaluations to consider some form of causal analysis. Counterfactuals are a commonly used approach for thinking about causation in impact evaluation. Counterfactuals try to address the question "*What would have been the situation of the project area or population had the policy intervention not taken place?*" The purpose of a counterfactual is to try and provide a basis to control for other factors so that we can isolate the contribution of the intervention and hence estimate the change in the indicator that can be attributed to the policy.

The European Commission guidance (European Commission, 2006) contains a diagram on p.79 that explains the role of a counterfactual in impact evaluation analysis (and in doing so neatly demonstrates the distinction between counterfactual and baseline)as follows: "The "policy-on" line shows the observed change, measured with an impact indicator, between the beginning of the evaluated period (baseline) and the date of the evaluation. For instance: local employment has increased, as has literacy. The impact accounts for only the share of this change that is attributable to the intervention. The "policy-off" line, also called the counterfactual[19], is an estimate of what would have happened without the intervention. Impact is assessed by subtracting the policy-off estimate from the observed policy-on indicator. The assessed impact, derived from an estimate of the counterfactual, is itself an estimate. In other words, impacts cannot be directly measured. They can simply be derived from an analysis of impact indicators. Only a counterfactual allows for a quantitative impact estimate. It is nevertheless relatively demanding in terms of data and human resources."

Alternatively, this can be written as:

[19] Baselines are data collected to establish the pre-project conditions against which future changes amongst a target population can be measured. Counterfactual represents the forward projection of this baseline in a without-plan situation.

Attributable change in indicator = observed change – counterfactual change.

The challenge for quantifying the net impact that can be attributed to the policy is finding a credible approximation of the counterfactual.

9.1.1 Approaches for defining counterfactuals

Counterfactual evidence can therefore be an integral element of impact evaluation. The higher the quality of the evaluation design, the more confidence there will be in concluding that the intervention caused the measured effect and to what extent.

The main approaches to constructing counterfactuals are briefly explained in the rest of this section. The approaches included are:

- Experimental designs: random control groups
- Quasi experimental designs: difference in difference and matching
- Non-experimental designs: unmatched comparison groups, predicted vs actual, before and after and ex-post reconstruction/hypothetical questioning.

9.1.2 Experimental designs – randomised control group

A randomised control group requires the allocation of individuals, groups or local areas to receive the intervention to be determined on a purely random basis. Thus it creates two statistically comparable groups – those that randomly received the intervention and those that did not – with no systematic differences between them, thus controlling for external factors. For example, in a medical drugs trial one group of participants (the “treatment” group) receives a new drug and the other (the “comparison” or “control” group) receives a placebo. Who actually receives the drug or the placebo is decided by chance, through a formal randomisation process.

9.1.3 Quasi experimental designs

Quasi-experimental designs adopt other approaches to establish good comparison groups and account for external factors.

Difference-in-difference design

Difference-in-difference involves comparing the before-and-after difference for the group receiving the intervention (where they have not been randomly assigned) to the before-and-after difference for those who did not. Difference-in-difference requires an ‘equal trends’ assumption – that is, outcomes have equal trends in the absence of the intervention. A simple test for the validity of equal trends assumption is to examine historic data for the two groups for the outcome of interest. This provides some confidence that in the absence of the intervention the two groups’ outcomes would have moved in parallel. Further, the approach can be strengthened by using more than one plausible comparison group, with the idea that similar estimations of the impact should be generated. Similarly, performing the analysis on just the two comparison groups should provide an estimate of zero impact. For example, say regional sector employment had historically moved in parallel with that in another region. An intervention in only one region that would be expected to affect employment, such as an increase in the minimum wage, could be evaluated using this approach.

Although difference-in-differences allows us to take care of differences between the treatment and the comparison group that are constant over time (whether these differences are observable or not), it will not help us eliminate the differences between the treatment and comparison groups that change over time. If any other factors occur that affect the difference in trends between the two groups, the estimation will be invalid or biased.

Matching

Outcomes of interest are compared between the intervention group and a comparison group directly matched to the intervention group on factors known to be relevant to the outcome – for example an individual's level of education may be considered a relevant variable when researching income level outcomes. Done well, the matched comparison group can be treated as though it was created randomly and any differences between the two groups can be concluded to be the result of the policy intervention (as there are no other observable differences between the two groups (HM Treasury, 2011).

Such methods rely on observed characteristics in order identify/construct a comparison group. They cannot account for unobserved differences in characteristics between the groups that may be relevant to the outcome. Therefore it must be assumed that the analyst knows and can account for all relevant characteristics.

Matching essentially uses statistical techniques to construct an artificial comparison group by identifying for every unit in the treatment group a matched no treatment observation. Methods include:

- Judgmental matching: involves creating a comparison group by finding a match for each person or site in the treatment group based on researcher judgements about which variables are important.
- Matched comparisons: matching participants (individuals, organisations or communities) with a non-participant on variables that are thought to be relevant.
- Propensity scores: statistically creating comparable groups based on an analysis of the factors that influenced people's propensity to participate in the program.

9.1.4 Non-experimental designs

Intervention group vs unmatched comparison group

Outcomes of interest are compared between the group operating under the marine plan and a comparison group, but one that has not been matched to the intervention group. As such there is a risk that any comparisons made between the two groups' performances will be incorrectly judged to be due to the marine plan rather than external factors. For example, for a policy encouraging provision of local employment opportunities, a renewable energy development within a plan area and one outside a plan area could be compared to see which creates more local job opportunities, but with no attempt to ensure that the developments (and relevant surroundings) have similar characteristics. As such local job provision may relate more to the

nature/scale of each development, or the relevance of the local skill base, than to the policy.

Predicted versus actual

These studies do not use separate comparison or control groups, but use time trends and modelling of the intervention group alone. The analysis compares real post intervention data with modelled/predicted data to assess the impact of the intervention. This approach is heavily dependent on the quality of the model that is being used to generate the prediction, and also has difficulty in accounting for the effects of other, unexpected, contemporaneous factors in difference design. For example, regional macroeconomic models could be specified to take into account marine plan policies.

Ideally, the projections or model should be run ex-post so as to accurately predict the known indicator performance in the with plan situation. An adjustment can then be made to remove the influence of the plan in order to establish the impact. This approach however requires the analyst to have a sound understanding of the relationship between the plan/policy, the conditions being modelled and the influence of other factors contributing to a perceived change. Identifying the extent to which the plan policy contributes to change can often be difficult.

Static (no change) baseline - before-and-after

Before-and-after assessments provide a simple measure of changes in the area before and after the policy intervention. Unless the policy is clearly the only or primary influence on the outcomes, these studies cannot be relied upon to identify a causal relationship between the intervention and the outcome. Nonetheless, monitoring of the before-during-after situation is generally conducted as part of ongoing performance management, and so is both timely (real time data can be obtained) and offers good value for money with little additional expenditure needs. This is particularly the case for more immediate outputs and outcomes, which may be less effected by external factors that final outcomes and impacts. Collecting data as part of organisational management usually means the quality of data is high and closely related to the intervention area, as those delivering the intervention directly use the data and have a vested interest in its quality.

Ex-post reconstruction and hypothetical questioning

Marine plan beneficiaries and other affected stakeholders or relevant experts and representatives can be directly asked questions about the effects of plans and policies or about the likely counterfactual were the plan revoked after initial adoption. As well as directly enquiring about change over time and the degree of attribution of that change to the policy, direct reference can be made to external factors. This also provides an opportunity for enhancing understanding of the relevant external factors and their roles in relation to the policy under evaluation.

Such approaches can utilise surveys and, where sample sizes are sufficient and it is feasible to generate quantitative data, estimates can be made of the total effect. Surveys are clearly susceptible to potential biases as well as inaccuracies. Most

notably, it is conceivable for particularly complex policy areas that the beneficiary or stakeholder may not be able to isolate the likely policy effect – but because the question has been asked they may try to anyway. Expert groups can be utilised which, whilst less able to generate meaningful samples or quantitative data, may overcome some of the potential biases inherent in surveys.

10. Feasibility of experimental and quasi-experimental approaches

10.1 Factors affecting counterfactual approach feasibility

The Magenta Book (HM Treasury, 2011) sets out a series of factors that can determine the extent to which a particular policy is likely to be amenable to empirical counterfactual based impact evaluation i.e. one that utilises experimental or quasi-experimental approaches for counterfactual design.

The determining factors from the Magenta Book are presented in Figure 4 and the general positions on these factors from a marine planning perspective are circled. Whilst this does not give comprehensive consideration to the issue, it demonstrates that there are a number of characteristics of marine planning that limit the extent to which 'robust' counterfactual based impact evaluation can be undertaken. These issues are reflected in the academic literature and approaches that have been undertaken to date for marine planning (e.g. see Carneiro, 2013).

Figure 4: Factors affecting the feasibility of using counterfactual-based empirical impact evaluation and their prevalence in marine planning.

	More feasible if...	Less feasible if...
Scale of impact	Direct relationship between outcome of interest and driver whose effect it is desired to assess	Complex ("distant") relationship between outcome of interest and driver of interest, with many potential confounding factors
	Large effect relative to other changes taking place is expected	Small effect is expected
	Effect is realised within a short time period (and does not vanish immediately thereafter)	Effect builds up gradually over an extended time period
Data availability	Policy involves a distinctive change in practice with respect to identifiable subjects (individuals, institutions or areas)	Policy involves a consolidation of existing best practice, or is poorly differentiated between subjects
	Data available on individual subjects	Only coarsely aggregated totals available
	Data available on precise time periods	Uncertainty over timing of implementation (requires aggregation over time)
	Data to support evaluation collected before and during policy	Data to support evaluation not sought until policy already established
Potential comparison groups	Pilot undertaken at the start including data collection in non-policy areas	No pilot, or data available only for the pilot areas themselves
	Phased start across areas	Simultaneous launch nationwide
	Objective allocation, for example using a cut-off score or random allocation	Subjective allocation
	Accidental factors influencing allocation	Optimal targeting: a "perfect" allocation can frustrate impact evaluation by leaving no equivalent comparison group

Source: Adapted from HM Treasury (2011)

The critical issues are discussed here in turn:

10.1.1 Scale of impact

Marine plans work as part of a causal package with other 'influencing factors' such as stakeholder behaviour, related programmes and policies, institutional capacities, cultural and environmental factors and social and economic trends. Understanding the relative strength of plan policies – and hence the scale of impact – compared to these other factors can be a challenge, particularly where the influence of these other factors is poorly understood.

Ultimately, for empirical counterfactual-based evaluation to be feasible, the likely scale of impact on the system needs to be sufficiently large to 'show up'. This is the case even where the comparison group is a relatively good fit. The Magenta Book states on a number of occasions that impact evaluation using empirical counterfactual methods is only worth pursuing where the scale of impact is sufficiently large.

In particular for marine plans, external factors include environmental factors (e.g. climate change and ecosystem function), economic factors (e.g. market demand and access to finance), social factors (e.g. education levels), and other plans and policies. This last one is of particular relevance for English marine planning. Marine activities are currently managed by an array of sector-specific and cross-cutting policies and regulations. In many instances these policies have primacy over marine plan policies and cover similar issues – particularly when thought of in relation to the top level impact indicators for marine plans. The scope and strength of marine plan policies and their relative significance in shifting the overall policy landscape, and as such likely influence of the marine plan policies in determining where or how an activity is carried out, is limited.
This can be seen in relation to East marine plan Objective 3 for renewable energy and related policies e.g. WIND2, where energy sector policies such as DECC's Electricity Market Reforms, the UK Renewable Energy Road Map, and in particular the relevant National Policy Statements (NPS) for Energy (EN-1, EN-3 and EN-5) and The Crown Estate's Round 1, 2 and 3 leasing rounds arguably have a more significant effect on shaping renewable energy activity.[20]

Another example can be taken for Objective 8 for marine protected areas (MPAs). MPAs typically have management plans (which are not devised as part of marine plans) and have existing legislation which requires potential impacts on conservation objectives to be taken into account in marine management (and other) decisions. For example, Natura 2000 sites are supported by The Conservation of Habitats and Species Regulations 2010. Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive and thereby provides for the protection of these sites and their features.

Marine planning is an intervention that is a contributory cause with regards the achievement of plan objectives and the HLMOs. This is clear in some of the wording

[20] This policy as well as East Plan Policy BIO1 are discussed in more detail in Part B, Section 13.

used in articulating East marine plan objectives. For example, Objective 8 is to 'support' the achievement of MPA objectives, not to deliver them single-handedly. A particular role of the East marine plan is to consolidate on existing policies – hence the need for extensive signposting in the document to other policies.

Further, the effect of marine plans and policies on the impact indicators is unlikely to show up over the short term and there may be significant time lags between any effect generated by a policy and any impact on the wider economic, environmental and social systems of the plan area. This can be seen from two angles: firstly, from an environmental perspective, where ecological systems may take time to recover or change as a result of any marine plan-induced environmental improvements (or degradation avoidance); secondly, from a relative percentage perspective, plan policies instigate change primarily through their influence on new activities (or existing activities seeking repeat or amended permissions), and so the proportion of plan area activity effected in any given year will be small. As such it will take time for marine plan policy induced effects to make a difference to the plan area system.

All of these issues point towards empirical impact evaluation using counterfactuals as being difficult.

10.1.2 Data availability

The issue regarding data is more finely balanced, but again presents a number of challenges. Positively, data collection is being thought about at the plan design stage. As witnessed for the East marine plan, data collection procedures have been implemented in parallel with the design and implementation of the plan, thereby offering the opportunity to have available baseline data and ongoing monitoring data for the purposes of evaluation.

Indicators for individual subjects are not publically available, however it should be feasible to collect such information directly from planning application records or through surveying applicants and decision makers (as proposed in the East marine plan's IMP).

In the context of the East marine plan, there are significant limitations with many of the available datasets. This is particularly the case for the impact indicators. For example, the Standard Industrial Classification (SIC) codes do not provide a satisfactory representation of marine economic sectors (MMO, 2014f), thereby limiting the extent to which one can accurately estimate changes in marine sector activity. There is no indication that any significant advances in these datasets will occur in the short term.

10.1.3 Potential comparison groups

Within a given plan area policies are applied universally and there is as such no natural comparison group. However the phased introduction of marine plans provides an avenue for the identification of comparison groups from outside of the plan area (if future plans are implemented concurrently then this option is removed). For spatial policies, the simplest approach is to look directly at the outcomes and impacts of the plan area and another comparison area – this is the difference in difference approach. The aim is to identify an area where the relevant indicator(s) (for example marine sector GVA) would be expected to follow the same trend over

time in the absence of marine planning. To do this we can look at pre-policy trends – for example, marine sector GVA or particular biodiversity indicators. The difficulty is in finding a comparison area where trends are sufficiently similar (particularly difficult for sectors that are new or emerging), so that any future divergence in trend can be attributed to the policy. Clearly there are likely to be broadly similar trends in GVA between some marine plan regions but these are unlikely to be considered to be sufficiently similar given the likely magnitude of change that marine plans may induce. Methods such as 'synthetic control'[21] can be used to improve the match in trends.

There are two important considerations that limit the applicability of this approach for marine planning. Firstly, marine plan policies are only likely to effect a small proportion of the relevant population i.e. those activities in the plan area submitting marine licence applications or require some other competent authority decision on the nature of their activity, which make up only a fraction of the total economic activity in the plan area. This returns to the issue of scale of impact already discussed. Secondly, other events that occur after the implementation of marine plan policies may affect treatment and comparison areas differently or uniquely thereby eroding the relevance of any divergence in trends between the two groups. Alternatively we can seek to match specific treatment units (plan areas or affected businesses or individuals) to similar comparison units. Where no perfect match can be found, statistical methods can be used to control for a known set of observable characteristics (i.e. those on which data exists). Given the heterogeneity between regions there may however be little scope for controlling for all significant variables at the plan area level.

Such statistical approaches require large samples and this is not generally found for those units being directly affected by plan policies i.e. marine activities / newly licenced activities. The Magenta Book provides an illustration of the sort of sample sizes required, and notes that this varies depending on the likely scale of the effect of the marine plan policy. It states that "if the size of the policy effect is similar to or greater than the noise, then quite small sample sizes (e.g. 15 treated and 15 controls to give a combined sample of 30) are adequate; but as the relative signal size decreases, the number of observations required to detect it increases dramatically. For example, a signal-to-noise ratio of 1:8 would require a combined sample size of 2000."

Looking at the number of marine licence applications over the last five years we can see that the sample size for marine planning will likely be too small, given the anticipated scale of impact i.e. signal-to-noise ratio. Over the last five years (05/2010 to 05/2015) there have been a total of 1,568 licence applications in England and Wales[22]. If we initially disaggregate these by sector prior to performing any statistical analysis the sample size is likely to become too small – particularly if any further disaggregation is necessary.

[21] This utilises weighted averages of a bundle of other areas to create an artificial comparison group with better similarity in trends.
[22] MMO Marine Case Management System. Accessed on 22.04.2015 online at: https://marinelicensing.marinemanagement.org.uk/mmo/fox/live/MMO_PUBLIC_REGISTER .

Ultimately such methods are only really applicable where the target units are relatively homogenous and have known relevant characteristics that can be controlled for. That is unlikely to be the case even within sectors and significant resources would need to be put to building statistical models in order to understand and allow for relevant characteristics.

An option, outlined within the East marine plan IMP, that could improve the comparison group fit is by using smaller spatial areas and building on the coastal typologies developed through MMO research (MMO, 2011). Areas in each typology may have comparable trends for certain indicators or may have particular characteristics which could be controlled. Again however there are complications: coastal areas themselves are not the recipients of the plan policies. For example, differences in coastal area local employment may be more likely to be affected by the number and scale of new activities coming forward within their vicinity rather than by the effects of East marine plan policy EC2 which encourages new activities to give weight to local employment generation; or by the presence of other naturally occurring/pre-existing characteristics e.g. a port or marine industries industrial park.

10.2 Implications

The principal implication of this is that experimental and quasi-experimental counterfactual approaches are unlikely to be feasible for marine planning, leaving non-experimental approaches as the primary option. As such, drawing on the Magenta Book we can see that a combination of a weak counterfactual design (i.e. non-experimental approaches), combined with a relatively small policy effect compared to the noise of external factors results in a limited ability to detect difference and attribute change to a marine plan and its policies. The use of the pre-defined coastal typologies is likely to provide the most promising set of treatment and comparison groups – however it is debatable to what extent any future divergence in their trends will realistically be able to be attributed to marine planning as opposed to external factors.

Table 2: Experimental power vs strength.

	Weak design Non-experimental approach or no counterfactual	**Strong design** Realistic counterfactual through experimental or quasi-experimental approaches
Low power Small number of observations and /or policy effect small relative to noise	Unlikely to detect difference between groups or over time. And even if we do , we have no confidence in attributing it to the policy	Unlikely to detect difference between groups. But if we do, then we have confidence in attributing it to the policy
High power Large number of observations and/or policy effect large relative to noise	Very likely to find a significant difference between groups, but this does not mean it can be attributed to the policy	Very likely to find a significant difference if there is a real policy effect. We have confidence in attributing this difference to the policy.

Source: Adapted from Magenta Book

The Magenta Book (HM Treasury, 2011) states that for a counterfactual-based empirical impact evaluation “the implication is that impact evaluation is only worth

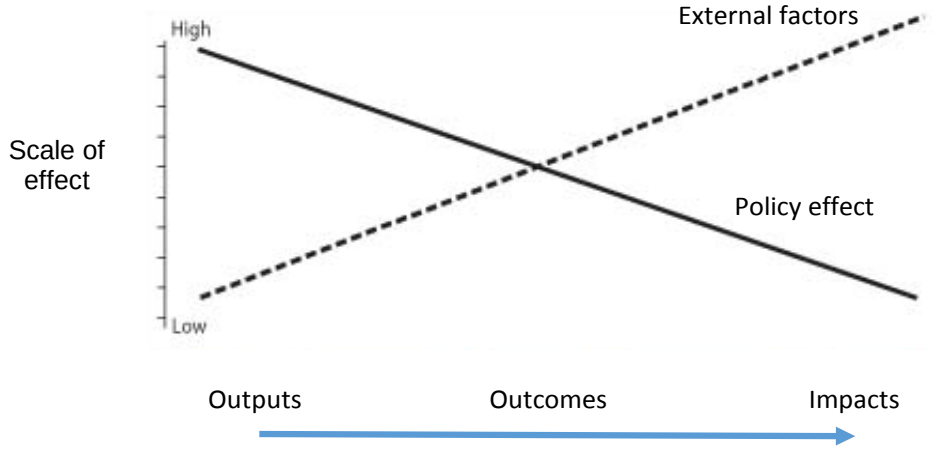
attempting on policies where the expected impact is large enough to stand out from random fluctuations in the system under study. How large is large enough depends on how well modelling is able to explain the differences between individual group members that arise in the absence of the policy. If it is possible to predict accurately what an individual's outcome 'should' be, then any impact on that outcome due to the policy is easier to detect. If, however, the drivers of these differences are poorly understood, or are not captured in any model, then the noise level will be higher. Realistically, how big is the intervention impact expected to be? Is it going to be distinguishable amid 'noise'? If not, it may well not be worth proceeding any further".

However it is worth noting that having no comparison group is not the same as having no counterfactual. The counterfactual is in effect very simple: what would the indicator have been in the absence of the marine plan? The difficulty is in drawing empirical, quantitative, conclusions on impact attribution.

On the one hand, the difficulties reflect structural issues hard-wired into the approach taken in drafting the East marine plans. However there are opportunities to overcome some of these issues through the choice of evaluation approach and how counterfactuals are used within the approach and in relation to the marine plan logic model.

Issues regarding both scale of impact and availability of comparison groups can be partially alleviated by looking further up the logic model, at effects that are more directly under the influence of marine planning (as depicted in figure 5). Although for the East marine plan, as demonstrated in the policy case studies presented in Annex A, the difficulties already discussed are likely to be encountered quite far up the logic chain.

Figure 5: Change in scale of policy effect and external factors along the logic chain.



Source: European commission

It is clear that, given the difficulties in developing meaningful attribution analysis for marine plans, consideration should be given to alternative evaluation approaches that enable conclusions on the contribution plans make to the stated objectives to be made. Combining counterfactual-based analysis within a broader evaluation approach, using non-experimental approaches, can still serve to aid the

understanding of policy contribution and overcome some of the uncertainties that are present due to the weak counterfactual designs employed.

11. Evaluation approaches for marine planning

11.1 Introduction

In light of the problems in using experimental or quasi-experimental counterfactual approaches for empirical impact evaluation it is useful to consider the feasibility of adopting alternative approaches that can still satisfy the monitoring and evaluation requirements set out in the Act.

The Act requires monitoring and evaluation of marine plans to consider the contribution of policies to the plan objectives and HLMOs. It is important to note that there is a difference in the evaluation literature between the terms contribution and attribution.

Attribution typically requires a consideration of how much of the impact can be linked to the intervention, principally demonstrated through statistical means using robust counterfactuals. Contribution typically seeks to reduce the uncertainty about the contribution an intervention is making by verifying a theory of change that takes account of other influencing factors.

Whilst it may be desirable to focus on ‘causal attribution’ – did the intervention cause the outcomes and impacts that have been observed? - in situations where the outcomes and impacts have been caused by a combination of policies and/or other factors, and robust counterfactual approaches are not feasible, it is more useful to think about “causal contribution” – did the intervention contribute to the outcomes and impacts that have been observed?

Indeed, the Marine Planning System Impact Assessment (IA) (Defra, 2011) states that in evaluating the success of plans “an important aim will be to establish whether the outcomes identified in this IA are achieved. It is likely to be challenging to separate out the effect of marine planning on outcomes, but indicators should aim to provide insights on the outcomes achieved.”

It is also useful to note that marine planning is undertaken with regard to an adaptive management approach and in the face of uncertainties. There is a need to understand how and why effects occur as well as simply what the impacts are. In this regard alternative evaluation approaches can be particularly useful. A criticism of counterfactual based impact evaluations is that they can operate through something of a ‘black box’. They tell us about the impact but little about how they came about. Whilst process evaluation can be used in conjunction with such impact evaluation, process evaluation typically focusses only on the relationship between the plan implementing activities and outputs. For marine planning there are a number of intermediate outcomes which can be usefully understood to help illuminate whether a plan and its policies are having the desired effects. These can be combined with non-experimental counterfactual approaches to provide meaningful conclusions which can be used to understand the effectiveness of a plan and its policies and draw lessons which can then be used to amend policies in the future. By exploring the contribution of plans at the intermediate outcome level the uncertainties that are

generated by using non-experimental counterfactual approaches become less significant.

11.2 Contributory analysis evaluation approaches

Whilst there are a number of different ways of classifying evaluation approaches, for the purposes of this study, it is useful to consider the following two broad approaches: counterfactual approaches and contributory analysis approaches.

- **Counterfactual approaches** – these develop an estimate of what would have happened in the absence of a programme or policy, and compare this to what has been observed in the presence of the intervention. This approach requires the use of a control group or comparison group in order to generate robust conclusions.
- **Contributory analysis approaches** – these demonstrate whether the intervention is one of the causes of the observed indicator change. The evaluated intervention may be ranked among the various causes explaining the observed change. They examine the underlying processes which sit between the cause and effect and hence rely on chains of logical arguments and careful analysis that seeks to confirm and disconfirm the logic.

Contributory approaches explicitly try to establish a causal link. The aim is to build a credible case which will demonstrate that there is a causal relationship between an intervention and observed outcome or impact. In this sense, rather than attempt to definitively link the policy to a particular outcome or impact, the aim is to provide plausible evidence that can reduce uncertainty regarding the difference the policy is making.

In specifying and assessing a number of causal hypotheses and reconstructing the actual causal chain lying between intervention and outcomes/impacts, it should be feasible to make a judgement about the extent to which a plan or policy contributed to a particular outcome or impact and the extent to which other external factors were responsible.

Such approaches may not involve placing an exact numerical estimate of the effect produced by an intervention, but will instead mean interpreting it in terms of a scale of magnitude (for example, from no discernible impact through to high impact) as well as in terms of the necessity and sufficiency of the plan or policy (was the intervention sufficient by itself to produce the desired impact, or was it a necessary but individually insufficient factor in producing the observed outcome?).

While there are a number of specific approaches that can be adopted (White and Phillips, 2012) they each employ a common set of core steps. These are usefully summarised in the EU evaluation guidance[23]:

1. Refining the cause-and-effect chains which connect design and implementation on the one hand, and the evaluated effect on the other.

[23] European commission online evaluation guidance. Available at: http://ec.europa.eu/europeaid/node/71165

This step builds upon available explanations pertaining to the evaluated area to develop a comprehensive logic model.

2. Gathering evidence related to each link in the cause-and-effect chain, including findings of similar studies, causal statements by interviewees, and evidence from in-depth inquiries.
3. Gathering evidence related to other explanations i.e. other interventions and external factors.
4. Developing a step-by-step chain of arguments asserting that the intervention has (or has not) made a contribution (i.e. validating or invalidating the logic model), and possibly ranking the intervention among other contributions.
5. Submitting the reasoning to systematic criticism until it is strong enough.

Clearly counterfactual analysis can be incorporated within such an approach, noting that having no comparison group is not the same as having no counterfactual. Quantitative approaches to defining counterfactuals using non-experimental approaches can be used to explore different elements of the logic model. By combining this with multiple evidence sources, the strength of evidence used to explore the logic model is enhanced and the uncertainties surrounding the outputs of non-experimental counterfactual analysis become less critical to the evaluation conclusions. The importance of evidence triangulation when using weak counterfactual designs and contributory analysis cannot be understated.

12. Using non-experimental counterfactuals for the East marine plan

12.1 Counterfactuals presented in the East marine plan IMP

The IMP recognises that the East marine plans are not the sole instrument of change and that there are a number of other influences within the plan areas, including policy instruments with overlapping objectives. The IMP provides examples of possible approaches: other plan areas, coastal area typologies. Both would be examples of comparison group quasi-experimental approaches. As discussed in section 3, these are not likely to provide suitable approaches.

The counterfactuals adopted for the East marine plan, which are implicitly provided through the wording of the indicators and other text in the IMP, are:

- Tracking before and after status of secondary source indicators e.g. marine sector GVA.
- Comparing ex-ante projections and ex-post performance of secondary source indicators
- Tracking before and after status of stakeholder opinion indicators.
- Ex-post counterfactual reconstruction through hypothetical questioning for stakeholder opinion indicators.

In this way, all of the main non-experimental approaches, except the use of an unmatched comparison group, have been included in the IMP.

12.1.1 Tracking before and after status of secondary source indicators

The baseline position on the secondary source indicators are being collated by the MMO. The purpose of the baseline is primarily to provide monitoring data on the status of marine sectors and they are essentially aligned with the impact component of the logic model presented in Section 8.2 of this report.

From an evaluation perspective, on their own, given the scale of impacts issue discussed in Section 10, they are likely to provide little or no indication of the effects of marine plans. However they clearly form an important component of the broader evaluation dataset as they track the status of the ultimate objectives of the plan.

12.1.2 Ex-ante projections of the counterfactual

There are no ex-ante projections included in the East marine plan IMP and only passing reference is made to their use. However there has been work as part of the evidence base for marine planning that has undertaken ex-ante projections for a no plan counterfactual. There are three relevant reports to consider:

- MMO (2014). Analysis of the East Inshore and East Offshore Marine Plans. This report provides a short baseline description of each marine sector, including an estimate of GVA where feasible. It provides a short qualitative description of the expected impacts of the East marine plan for each sector. The description essentially maps key steps from an implied logic model for each sector but

provides little meaningful exploration of the extent of the changes that will be driven by the East marine plan. It does not provide any quantitative estimates or set the descriptions within meaningful contextual discussions of external policy and non-policy factors.

- MMO (2013). Economic baseline assessment of the South Coast.
  The report provides baseline descriptions for each marine sector and trend based projections for key variables such as employment and GVA where feasible. It presents a considered description of expected future activity in the plan areas, including reference to known safeguarded sites and future applications. It includes some reference to external policy drivers but this is not comprehensive and is not set against the expected role of marine plans. There is little consideration of other non-policy drivers and their role in delivering marine sector activity.

- Defra (2011). Marine Policy Statement Impact Assessment
  The report includes a consideration of the baseline situation and a with plan estimate of impacts through consideration of activity levels (trend-based projections) under a without plan counterfactual. It identifies that there are a number of external factors that will also drive change in the UK marine area[24], although these are not directly brought into the analysis.

  The report includes estimates of the economic intermediate outcomes of marine plans, specifically considering support costs, activity costs, timing of activity and scale of activity – these equate to the administrative costs, transaction costs, acceleration of activity and scale of activity terms used in the logic model presented in Section 8.2. Assumptions on the potential impacts were made in collaboration with sector representatives and applied to the expected future levels of activity in order to generate quantitative estimates of impact.

Such projections are clearly useful for the planning phase of a marine plan and in order to provide impact assessment evidence. However there is significant uncertainty in the impacts stated and underlying counterfactual positions.

[24] These are:
- The implementation of the Marine Strategy Framework Directive which was adopted in 2008, and has been transposed into national law, requires that Member States of the EU meet Good Environmental Status by 2020.
- Some new uses of the marine environment, for example for carbon capture and storage.
- More economic activity largely driven by population growth.
- Increase in costs for government and businesses in the decision-making process arising from increasing competition for the use of marine environment as well as increased conflict between activities.
- Potential deterioration in ecosystem goods and services, for example decline of fish stocks, and in the socioeconomic value derived from them.
- Climate change and other wider environmental changes affecting ecosystem functioning.
- Technological changes with implications for the way marine activities are carried out.
- Economic cycles affecting the level of marine activities at various stages.

Trend-based projections of the plan area level indicators e.g. marine sector GVA are clearly susceptible to being influenced by an array of external factors, as previously discussed. Comparison of trend-based projection counterfactuals with the actual indicator performance will hold little meaning if any external factors have shifted over the period being evaluated, particularly in situations where the likely scale of impact of the marine plan in comparison to these external factors is expected to be weak.

More sophisticated economic modelling might enable a more robust projection of the counterfactual to be made. Further it may enable ex-post reconstruction of the counterfactual that incorporates known changes to external factors that have taken place over the period under evaluation. However such an approach would still be susceptible to the scale of effect issue. The idea is to run a model which correctly simulates what did actually occur in the with-plan situation (the observed change), and then to run the model again with a set of assumptions representing a without plan counterfactual situation. However in order to do this a clear, mathematical understanding of cause-and-effect relationships linked to the marine plan, as well as all relevant explanatory variables, is required, which is not currently thought to be the situation.

Assumptions used for ex-ante estimates of the effects of the marine plan may be of more interest than the counterfactual projections used as part of their creation. The Marine Planning System IA looks at intermediate outcomes (e.g. timing of activity, administrative costs) which draw on a set of stated assumptions about: (1) activity level projections in a without plan counterfactual; (2) stakeholder/expert opinion on how each intermediate outcome will change in response to the adopted marine plan. This second point implies that there is some sort of logic or theory of change as to why the outcomes have come about, on which the impact calculation assumptions can be based. Revisiting these theories and assumptions with the same expert groups after plan implementation would provide an opportunity to explicitly test the underlying theory and whether the plan appeared to perform in line with expectations. Any deviation would be considered to be either due to the plan under/over delivering or due to expectations being set too high. This critical examination could utilise the same methodology, using the same expert groups, assuming they now have more direct experience of the with plan situation and/or could be done by collecting data on the relevant indicators through surveys.

12.1.3 Ex-post reconstruction through hypothetical questioning

The East marine plan IMP includes a set of survey and workshop questions for decision makers and stakeholders. These include a range of questions which implicitly require the respondent to make a judgement about how certain things have changed since the introduction of the plan. For example:

Questions to decision makers:

- How satisfied are you that you have seen improved consideration of the following factors in decision-making in the Eat Plan areas over the last 12 months (factors are linked to the individual plan policies e.g. economic productivity, employment, cumulative effects, wider biodiversity.)?
- To what extent are you satisfied with the following statement: I have seen an improvement in the East marine plan areas evidence base over the last 12 months?

- Which of the East marine plan policies/objectives seem to have led to an observed outcome?
- Has there been a change in success rate of applications before and after the adoption of East marine plans? To what extent do you believe that this is due the existence of the East marine plans

Questions to marine licence applicants

- To what extent are you satisfied with the following statements:
    - The East marine plans have saved my organisation time in the pre-application phase of projects.
    - The East marine plans have saved my organisation money
- Have you noticed any changes in the time it takes you to apply for a marine licence?

Key areas where more could be made of these questions:

Consider scale as well as certainty

A number of survey questions are focussed on important intermediate outcomes e.g. whether the East marine plans have saved licence applicants time and money. However the wording of the question would appear to focus on certainty – "how satisfied are you that you saved time/money?" – "I'm very satisfied that I saved time/money". Of course, satisfaction could be construed to be made up of both certainty and scale – "I'm very satisfied with the amount of time/money I've saved".

Either way, there is a need to consider exactly what is being asked of the respondent: (1) whether respondents are likely to interpret the question consistently, and (2) whether a more explicit attempt to understand scale could be included.

Utilise the opportunity to gather quantitative data

There are currently no avenues in the IMP for collecting quantitative data on intermediate outcomes. Given the difficulties in understanding the effect of marine plans at the level of impacts, any additional information that can help understand the intermediate outcomes will be particularly valuable.

Data could use absolute values regarding reductions in, for example, administrative costs (or other savings), or could use solely percentage estimates of such savings. Such data could provide the basis for assumptions that seek to generate quantitative estimates of changes in outcome indicators.

Explore the change compared to the counterfactual position and with regard to external factors in order to overcome potential bias

Each of the survey questions requires the respondent to consider a baseline position and then to consider the current position to essentially determine whether things have got better, worse or stayed the same. In most instances this is explicitly tied to the East marine plan either avoiding the need to incorporate external variables or requiring the respondent to internally account for them. There are a couple of instances where the question appears to be tied only to the baseline position and

any change could conceivably have been driven by external factors e.g. To what extent are you satisfied with the following statement: I have seen an improvement in the East marine plan areas evidence base over the last 12 months – presumably evidence could have improved due to research and data produced through / driven by other programmes /agendas outside of marine planning.

Survey responses are clearly prone to a range of potential positive and negative biases. In a survey such as this, which is expressly asking about changes induced by the East marine plan there are a number of biases that may result in plan effects being overstated or understated. An important possible bias is “error of attribution”, whereby people may be more likely to attribute change to the particular subject matter than to contextual factors. The likelihood of this is clearly heightened where no survey questions are used to bring contextual factors to the front of respondents’ minds - there is no benchmark against which to think about the significance of any possible changes that were brought about by the plan. Reference to contextual factors could be brought into survey questions by asking how significant any changes induced by the plan were in comparison to contextual factors. Alternatively the question could explicitly ask the respondent to think about what would have occurred in the counterfactual situation as well as the with plan situation with the aim of subtracting one from the other in order to establish the net effect.

Tie the questions more explicitly to the logic model

A majority of the survey questions are relatively general in the sense that they ask for the change in X that has been induced by the East marine plan. However they do not seek to tie this down to any given aspect of the plan. In particular, certain outcomes that are the focus of survey questions have multiple pathways through the marine plan logic model. For example, applicant time and money may be saved by (1) better signposting as to where the activity will be permitted or could effectively operate, (2) by providing easy access to improved data and evidence on which applicants can design projects or develop applications, (3) by integration of plans, aiding decision makers to make faster and more appropriate decisions with a knock-on effect on application time and timing of permitted activity.

In this sense, the analysis of the survey questions will currently only tell the evaluators something about the aggregate performance of the plans, not about which bits are working well. Better linking to the logic model should enable lessons learnt to be more usefully drawn out.

Incorporate other important intermediate outcomes

A number of important components of the logic model (Section 8.2) are not covered in the monitoring indicator set of the IMP. These could usefully be incorporated.

It is recognised that the survey questions in the IMP, whilst only provisional, are likely to have gone through considerable internal testing, with particular consideration given to the length of questionnaire and depth of detail that might be realistically asked of respondents. In this regard, in order to address some of the points made above, it may be feasible to explore the use of case study research on a selection of decision makers and applicants in order to explore specific cases in

more detail. In particular this should focus on obtaining quantitative data and issues of scale relative to external factors (in this sense there would be a different focus to the focus groups proposed which one assumes would be largely qualitative in nature).

12.1.4 Unmatched comparison groups

Using single stakeholders

As already discussed, the use of matched comparison groups is not thought to be readily feasible for the East marine plans. However it may be feasible to adopt a hybrid approach where individual stakeholders have activities in both the plan area and outside the plan area giving them a unique perspective on the plan area subjects and comparison group subjects. In such a circumstance, whilst the activities and area may not be well matched, the assumption is that the stakeholder has a vested interest in the plan area and is better able to internally account for the differences.

The stakeholder can conceivably be asked to make a direct comparison between particular issues for the activity in the plan area and the activity outside of it, drawing directly from their experience. In this sense, the burden of controlling for external factors is passed from the evaluator to the stakeholder and removes the need for controlling statistical analysis.

Relevant stakeholders would include: decision makers where individuals / individual departments have nationwide coverage; industry representatives who operate at a national level; and licence applicants who have or had live applications over the period being evaluated inside and outside of the plan area.

Using unmatched areas

There is expected to be a high degree of commonality across marine plan areas in terms of the outcome and impact indicators that may be relevant – the overarching model of how marine plans effect change will be very similar as the same tools will be employed, and there will be some degree of similarity in the desired end-points as each plan reflects a local interpretation of the HLMOs.

Whilst there is a high degree of heterogeneity between plan areas, given that many of the anticipated effects are subject to national level external factors, a contextual analysis benchmarking plan area performance against non-plan areas can be a useful input to the broader evaluation evidence.

12.2 Understanding external factors

There are a range of important external factors which are likely to influence the impact and intermediate outcomes identified in the logic model. The potential magnitude of these external factors when compared to the likely scale of impact of the East marine plans may in many cases be significant.

In developing any sort of impact evaluation analysis, regardless of the counterfactual approaches utilised, a clear understanding of what these external factors are and how they have changed over the period under evaluation is essential. This provides an avenue for disentangling the effects of the intervention from those of other causes. The East marine plan IMP does not currently set out any such external factor indicators.

In addition, it may help to understand the transferability of any lessons learnt from the evaluation from one context (or plan area) to another.

12.2.1 Implications for the evaluation

Effort should be made up front to develop a list of relevant external factors and potential indicators so that baseline and time series data can be collected. The relationship between the plan logic chain and external factors should be made explicit, along with the logic model.

External factors are potentially numerous and it is important therefore to focus on those which are most relevant. In this regard it may be sensible to focus on the primary external factors when developing the logic chain, but then to make a more detailed consideration when working on a particular evaluation question.
Where it is not possible to identify appropriate secondary source indicators, questions will need to be incorporated into the monitoring and evaluation primary data collection tools. Ultimately it is likely that a number of external factors may need to be described qualitatively rather than quantitatively.

The East marine plans and South marine plans baseline/analysis reports present a limited level of contextual analysis, with only partial coverage of relevant external factors. These reports (or other bespoke research) could be used to provide a more specific exploration of relevant external factors and their role in determining change in key outcomes and impacts.

The early exploratory work undertaken during the plan development phase is likely to provide numerous opportunities to develop an understanding of the range of relevant external factors and the extent of their influence. This can be usefully coupled to the objective/policy level logic modelling that the MMO is undertaking to help it develop plan objectives/policies.

Whether during the plan development phase, as part of commissioned baseline (or other) research, or indeed as part of the monitoring and evaluation data collection, the views of stakeholders can be useful in understanding the expected and actual change and role of external factors.

Comparative questions seeking an understanding of the role of plan-induced effects and external factors on key outcome and impact indicator trends can provide important quantitative and qualitative data on which to develop an understanding of and explanation for indicator trends.

13. Illustrative review of two East marine plans policies

This section provides an illustrative exploration of the potential scale of effects of two East marine plan's policies relative to the noise of external factors. The purpose of this is twofold:

1. To identify examples of external factors to illustrate the type of factors of relevance and explain why they are potentially significant.
2. To confirm the usefulness or otherwise of trying to establish quantitative estimates of plan outcomes and impacts.

13.1 East marine plan policy WIND2

The East marine plans area includes three Round 3 offshore wind zones - Dogger Bank, Hornsea and East Anglia - with a potential installed capacity of over 17GW.

Policy WIND2 states that "Proposals for Offshore Wind Farms inside Round 3 zones, including relevant supporting projects and infrastructure, should be supported".

The objective of Policy WIND2 is to ensure that the large potential for offshore wind farms in the East marine plan areas and the ambitions of government for renewable energy are realised subject to meeting certain conditions on zoning and other interests[25] (the intended impact). Outputs and intermediate outcomes relate to the causal chain by which it is expected that the policy will deliver its intended impact.

Table 3: Illustrative logic model for Policy WIND2.

<table>
<tr><th>Outcome #0</th><th>Outcome #1</th><th>Outcome #2</th><th>Impact</th></tr>
<tr><td rowspan="4">■ Developers aware of and understand the policy and plan
■ DMs understand the purpose of the policy</td><td colspan="2">Logic chains A</td><td rowspan="4">■ East marine plan economic, environment, social conditions</td></tr>
<tr><td>■ Greater investor certainty in the policy climate
■ Decisions made in accordance with the plan</td><td>■ New wind sector investment</td></tr>
<tr><td colspan="2">Logic chains B</td></tr>
<tr><td>■ Developer zone appraisal plans demonstrate how other activities and the environment have been taken account of in proposal
■ Decisions made in accordance with the plan</td><td>■ The particular benefit to other activities/ environment of the conflict avoided and complementarities delivered</td></tr>
</table>

[25] The condition of this support is reliant on the development of an appropriate Zone Appraisal Planning process or an equivalent zone level assessment to inform project boundaries brought forward from within the Round 3 zones. Proposals should draw on the findings of these assessments and should demonstrate how other activities and the environment have been taken account of in proposals as well as taking into account GOV2. Offshore Wind Farm proposals will still be required to be in compliance with relevant legislation and regulations including Habitat Regulations Assessment, Environmental Impact Assessment and National Policy Statements.

13.1.1 External factors and expected scale of effect for logic thread A

Contribution of Policy WIND2 to outcome #1: Investor certainty in the supporting policy environment

Policy WIND2 contributes to increased investor certainty by establishing a policy favourable to the development of offshore wind farms within R3 zones. However, this policy is subject to a number of conditions and therefore does not provide any guarantee that proposals for development within these zones will be consented. Policy WIND2 is only one of a number of supportive policies.

While the East marine plans contribute to a supportive policy climate, there are other more significant policy influences such as DECC's Electricity Market Reforms and the UK Renewable Energy Road Map, together with the relevant National Policy Statements (NPS) for Energy (EN-1, EN-3 and EN-5). In particular the NPS provide the primary basis for decision-making in relation to Offshore Wind Farms over 100 MW including assessment of impacts on biodiversity, other activities and social receptors on land and offshore - policies in the Energy NPS are given priority over marine plan policies. In addition, The Crown Estate's Round 1, 2 and 3 leasing rounds for offshore wind have established clear zones within which offshore wind farm development may occur.

On this basis, it is likely that Policy WIND2 will play only a minor role in the achievement of the desired outcome.

Contribution of Policy WIND2 to outcome #1: Decisions made in accordance with the plan

By making decisions in accordance with WIND2, one would expect to see positive planning decisions for wind energy developments (subject to certain conditions being met).

As highlighted above, marine plan policies are not the only influence on decisions to grant or refuse consent within R3 zones. Given the primacy of the NPS for energy, WIND2 is unlikely to be a major influence on decisions to grant or refuse consent within R3 zones and so may not have a significant bearing on the number or timing of positive decisions.

It is also of note that the decision maker for offshore wind development in R3 zones is the Planning Inspectorate (for developments >100MW) as these developments constitute major infrastructure development and are thus consented under the Planning Act 2008. The MMO is a consultee for these developments and is therefore reliant on the Planning Inspectorate to take account of any representations it makes in reaching their final decision. The MMO is the decision maker where the development has an operating capacity <100MW

Contribution of Policy WIND2 to outcome #2: New wind sector investment

There are a number of other significant influences on investment decisions for the development of offshore wind in UK waters. These particularly include:

- Long-term market certainty (DECC, 2011)
- Current costs and potential cost reduction (Offshore Wind Cost Reduction Task Force, 2012).
- Appropriate levels of funding support (Renewable UK, 2014).

On this basis, it is likely that Policy WIND2 will play only a minor role in the achievement of the desired outcome.

Contribution of Policy WIND2 to Impact: East marine plan marine economy (specifically, wind sector activity)

New wind investment will only be expected to make up a certain proportion of overall wind sector activity in the East marine plan areas. The overall performance of the sector is therefore dependent on more than just the new investment encouraged by Policy WIND2. Critical factors include:

- Climatic conditions and hence energy generation potential in any given year.
- Market conditions that include price per unit and hence the value of sector output.
- Infrastructure usage regarding turbine operational performance and maintenance periods and any decommissioning.

13.1.2 External factors and expected scale of effect for logic thread B

Contribution of Policy WIND2 to Intermediate outcome #1: Conflict/ complementarity planning by developer

This relates to the number/proportion of development applications that have demonstrated how other activities and the environment have been taken into account in proposals. Demonstrating how other activities and the environment have been taken into account – this would be addressed through the environmental impact assessment as well as the zone Appraisal Planning process which is required for all offshore wind farm projects. Again, it is therefore questionable as to whether Policy WIND2 is likely to have any significant bearing on achievement of this element.

Contribution of Policy WIND2 to Intermediate outcome #1: Decisions made in accordance with the plan

The application of the policy (including associated conditions) by decision-makers could be monitored in a number of ways, for example:

- The number/proportion of decisions that have taken into account representations in relation to other activities or the environment
- The number/proportion of decisions that have maximised co-existence in accordance with Policy GOV2

A degree of judgement would need to be applied in determining the extent to which these elements had been met.

For the first element - taking into account representations in relation to other activities or the environment – this is also an important element of the existing consenting process, although it could be argued that Policy WIND2 provides an additional focus on the need to take account of other users' interests. Conversely, it might be argued that Policy WIND2 was introduced specifically to support offshore wind farm development within R3 zones in preference to other activities and therefore offshore wind development might over-ride other user interests.

For the second element – maximising co-existence – this is essentially a new policy introduced by the East marine plans. Under Policy GOV2, it would be possible to monitor the number of decisions that considered co-existence and to consider under Policy WIND2 the extent to which co-existence had been maximised. The counterfactual for this element might assume that a lower level of consideration would be given to co-existence issues in the absence of Policy WIND2, although again, it is difficult to define to what degree. It would be possible to monitor decisions to identify instances where activities such as shipping and commercial fisheries were specifically accommodated within development plans.

Contribution of Policy WIND2 to Intermediate outcome #2: Specific benefits for other sectors and the environment

This presumably could be measured in terms of either:

- Costs avoided e.g. wind farm located to avoid disruption to shipping route, thus avoiding additional fuel costs and steaming times, or avoided important fishing area thus reducing impacts on landings/ minimising fisheries displacement etc.
- Additional benefits accrued e.g. co-locating an offshore windfarm with a shellfish aquaculture facility such as mussels.

The assessment could draw on information from Intermediate Outcome #1 above. Difficulty regarding costs avoided would be in establishing a counterfactual and whether WIND2 had made any difference. As above WIND2 might make things better (taking more account of other users) or worse (taking less account of other users). If a positive co-location was achieved this might more clearly be a benefit associated with the policy, although this might have happened anyway in the absence of the policy.

13.1.3 Contribution of Policy WIND2 to Impact: East marine plan economic, social and environmental condition/performance

If WIND2 had a specific negative impact on other users e.g. fisheries, shipping, it would be possible to estimate the impact on those sectors either in terms of increased costs, or, where there was a change in output, in terms of GVA. For fisheries, it would be necessary to try to establish whether the value of landings was lost or whether vessels were simply displaced. Such impacts have been estimated for various marine IAs e.g. Marine Conservation Zone (MCZ) IA (Defra, 2012), Marine Scotland MPA IA (Marine Scotland, 2013a), Marine Scotland Offshore Renewables IA (Marine Scotland, 2013b) so methods are available, although require the use of many assumptions. The main issue would again be in establishing a

counterfactual, given the external factors, and thus whether WIND2 had made things better or worse for these sectors.

If WIND2 had specific positive impacts e.g. establishment of new shellfish aquaculture facility, it would be possible to estimate the economic benefit of this activity (although publishing such information may not be possible due to confidentiality issues). As above, attribution to the plan may still be difficult, although it may be possible to ascertain from the developer what the driving force for the co-location may have been.

13.2 East marine plan policy BIO1

Policy BIO1 requires that "Appropriate weight should be attached to biodiversity, reflecting the need to protect biodiversity as a whole, taking account of the best available evidence including on habitats and species that are protected or are of conservation concern in the East marine plans and adjacent areas (marine, terrestrial)".

The policy seeks to ensure that the East marine plan areas biodiversity is appropriately protected (the intended impact). Intermediate outcomes might relate to change in the degree of consideration being given to biodiversity and the difference this makes to the environmental impacts of licenced activities.

Table 4: Illustrative logic model for Policy BIO1

<table>
<tr><th>Outcome#0</th><th>Outcome#1</th><th>Outcome#2</th><th>Impact</th></tr>
<tr><td>Developers aware of and understand the policy and plan</td><td>Logic A
Increase in relative level of consideration given to biodiversity by proposal applicants</td><td rowspan="2">Increase in positive / decrease in negative impacts on biodiversity by newly licenced activities.</td><td rowspan="2">Improvement / protection of East marine plan marine environment health & quality</td></tr>
<tr><td>DMs understand the purpose of the policy and any support tools/information</td><td>Logic B
Increase in weight attached to biodiversity by decision makers, taking account of best available evidence</td></tr>
</table>

13.2.1 Contribution of Policy BIO1 to Outcome #1 for logic thread A

In addition to Policy BIO1, there are a wide range of existing measures that seek to ensure marine biodiversity is adequately protected including:

- National nature conservation legislation such as the Marine and Coastal Access Act 2008 MCZ provisions, The Wildlife & Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and the Natural Environment and Rural Communities Act 2006.

- National marine licensing legislation including the Marine & Coastal Access Act 2008, The Petroleum Act 1998 and the Planning Act 2008.
- European legislation such as the Habitats and Wild Birds Directives, the Marine Strategy Framework Directive, the Water Framework Directive, the Strategic Environmental Assessment Directive, the Environmental Impact Assessment Directive and the reformed Common Fisheries Policy.
- International conventions such as the Biodiversity Convention and OSPAR Convention.

While Policy BIO1 contributes to a supportive policy climate, the statutory requirements under both national and European legislation provide much stronger drivers for biodiversity protection. On this basis, it is likely that Policy BIO1 will have only a minor additional influence on developers' consideration of biodiversity. It is probable that any counterfactual developed to inform an assessment of the impact of Policy BIO1 would be indistinguishable from the intervention option including Policy BIO1.

13.2.2 Contribution of Policy BIO1 to Outcome #1 for logic thread B

As per logic thread A, there are a number of other more significant policy drivers for the conservation of biodiversity which decision makers must take into account. On this basis, it is likely that Policy BIO1 will play only a very minor role in influencing regulators' decisions. It is probable that any counterfactual developed to inform an assessment of the impact of Policy BIO1 would be indistinguishable from the intervention option including Policy BIO1.

13.2.3 Contribution of Policy BIO1 to Intermediate Outcome #2

On the basis of Outcome #1, it would not be possible to separately identify the contribution of Policy BIO1 to Outcome #2.

13.2.4 Contribution of Policy BIO1 to Impact

As above, in the absence of any discernible impact on outcomes #1 or #2, it would not be possible to separately identify the contribution of Policy BIO1 on the desired impact. While, for example, the construction and operation of offshore wind farms would potentially reduce gross carbon emissions from national electricity generation, this would more be a function of other (non-marine plan) policy drivers rather than BIO1. It is also possible that offshore wind farm development could lead to other environmental benefits, for example, protection of areas within arrays from damaging seabed trawling, although the net benefit of such impacts would depend on where fishing effort might be displaced to. However, it would again be the case that the likely drivers of this change would be a function of other (non- marine plan) policy drivers rather than BIO1.

13.3 Implications

The above illustrative examples confirm the importance of external factors and the likely low effect-to-noise ratio for marine plans as well as some of the difficulties in relation to establishing counterfactual positions. It recognises that these can occur

upfront at the policy level as well as through economic, environmental and social channels.

It highlights the importance for primary data collection work to ensure an understanding of whether and how the plan policies made a difference (in relation to intermediate outcomes e.g. behaviour change) compared to other factors. For example, for the East marine plan Decision Makers survey establishing whether decision makers think that a particular policy-linked outcome indicator has changed (e.g. better account for biodiversity in applications) when compared to the counterfactual is unlikely to be sufficient given the magnitude and overlap of other policy drivers.

14. Part B summary conclusions and recommendations

The Magenta Book advocates the use of experimental / quasi experimental approaches for designing counterfactuals for empirical, quantitative impact evaluation. However there are two key factors which mean that such approaches are not currently considered feasible for marine planning: the scale of effect compared to the noise of external factors; and the ability to find well matched comparison groups. As such, counterfactual analysis will need to utilise non-experimental approaches. This has implications for the likely robustness of quantitative estimates of the impact that can be attributed to marine plans and hence the overall evaluation approach.

It is recommended that a form of contributory analysis evaluation is undertaken. Such an evaluation directly seeks to explore the cause-and-effect relationships depicted in the marine plan logic model by amassing a range of evidence that seeks to prove or disprove key assumptions. Whilst it may not be feasible to establish quantitative estimates of impact, it may be feasible to establish quantitative estimates of some outcomes and to provide qualitative scoring of impacts.

At its core, this approach is likely to require simple tracking of outcome, impact and external factor indicators combined with a theoretical understanding of their relationships, as well as empirical (quantitative and qualitative) monitoring and evaluation research with decision makers, licence applicants and other relevant stakeholders.

Notably, the tracking of plan and non-plan issues through the logic model is not the same as using a static baseline. It is a form of ‘dynamic baseline’ but it does not require forecasting.

The East marine plans IMP does not explicitly state what counterfactual will be used for particular indicators or evaluation questions. However in many cases the counterfactual is implied through the indicator wording and by understanding the supporting evidence reports available to the evaluators. To some degree each of the main non-experimental approaches are considered.

Particular opportunities are available for improving how the counterfactual is incorporated:

- Logic model outputs and some outcomes will be largely unaffected by external factors, or may at least have high effect-to-noise ratios and simple static baseline. Before-and-after consideration of indicators may be appropriate.
- It may be feasible to develop a comparison group by using single stakeholders that have distinct relevant activities within and outside of the plan area. Unmatched comparison groups using plan areas or coastal typology areas are unlikely to be sufficient to enable quantitative counterfactual-based analysis of impacts. However they may be useful as one strand of evidence when exploring the potential contribution that a marine plan may have made to particular outcomes or impacts.
- Better and more explicit understanding of external factors and tracking of them as part of a monitoring indicator bundle is of critical importance and is a key aspect

that is currently missing from the East marine plans IMP. The baseline reports undertaken during plan development could serve as a tool for exploring and identifying relevant external factors and indicators.

- A range of enhancements could be made to the primary research with stakeholders in order to more fully explore the marine plan logic, to disaggregate between different logic pathways, to draw in more explicit reference to external factors and the counterfactual position, and to obtain a better understanding of the scale of impacts (including quantitative data).
- In light of anticipated limitations in stakeholder survey length and complexity, it is suggested that a series of detailed case studies are undertaken which could fully explore critical issues and logic pathways.
- Given the range and scale of external factors there seems little merit in relying on trend-based projections of outcome and impact indicators to provide a meaningful counterfactual although they are likely to provide interesting contextual information for the evaluation. In particular, baseline and projection reports provide an avenue for more comprehensive exploration of the external factors of relevance to marine plans and their evaluation.

There are a considerable number of indicators already presented in the East marine plan IMP and a significant number of others could be created for other components of the extended overarching logic model presented in this report. In order to provide focus to the evaluation and counterfactual design process it is suggested that a discrete set of impact evaluation questions are elaborated which focus in on key aspects of the outcomes and impacts presented in the logic model that the MMO (and its stakeholders) most want evaluated. For each evaluation questions consideration should be given to the effect indicators and external indicators that should be monitored and the range of data collection methods that can be used to inform analysis.

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