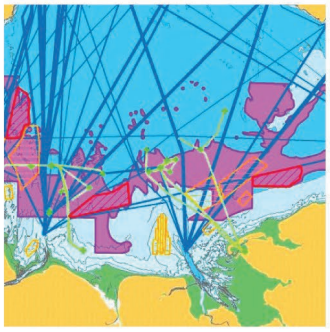
White Paper

Marine Net Gain

Applying Metric 3.0 to intertidal habitats

August 2021




Innovative Thinking - Sustainable Solutions

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Summary

Natural England recently published Biodiversity Net Gain Metric version 3.0. This includes an updated version of an intertidal metric for assessing the biodiversity net gain requirements when coastal developments adversely affect shoreline habitat.

ABPmer has tested Intertidal Metric 3.0, to understand how it is likely to work using a hypothetical case study. This White Paper shares the outcome and compares the findings with the previous Intertidal Metric 2.0.

The analysis indicates that, where a development results in the loss of intertidal mudflat and saltmarsh habitat, the metric will require the creation of replacement habitat in a ratio of **9.75:1 for mudflat and 15:1 for saltmarsh to deliver the requisite 10% net gain** in normal situations. This compares with ratios of 2.4:1 for mudflat and 12.75:1 for saltmarsh under Intertidal Metric 2.0.

The UK has substantial experience with delivering compensatory measures, under the Birds & Habitats Directives (now enforced through the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019),to address losses of intertidal mudflat and saltmarsh habitat within Special Protection Areas or Special Areas of Conservation. This experience, gained over nearly three decades, indicates that typical ratios of around 2:1 (gain:loss) are requested and accepted by regulators and advisors. These ratios are deemed sufficient to ensure the coherence of the Marine Protected Area (MPA) network is protected and any uncertainties about restoration effectiveness are addressed. On this basis, one might expect a 10% net gain to perhaps require a ratio of 2.2:1. The ratios required by Intertidal Metric 3.0 therefore appear to be disproportionately large.

The reasons for such large multipliers reflect the conservatism that has been built into the components of Intertidal Metric 3.0 which when multiplied up generates an overly conservative output. In particular, the metric fails to recognise the very significant structural and functional benefits that newly created intertidal habitats provide. These benefits are ignored until NE judges that full function is achieved. These weaknesses were identified in earlier versions of the Intertidal Metric 3.0 but have not been addressed.

Trading rules under Metric 3.0 state that intertidal net gain which occurs on terrestrial habitat, in the form of managed realignment, cannot occur on terrestrial habitats which are classified as high distinctiveness or higher (unless additional compensation is provided). Realigning over sites containing 'medium' distinctiveness habitats would trigger additional net gain requirements (though the tool which is currently available does not facilitate testing of the managed realignment trading changes which have been made in Metric 3.0). Both of these changes are likely to increase the complexity and cost of managed realignment projects. An analysis for the Solent Region indicates that approximately 85% of potential realignment sites would be affected in this way. This is likely to limit options for viable managed realignment projects in the future.

Where developers need to deliver compensatory measures for damage to intertidal habitats inside MPAs then net gain policy currently also requires delivery of net gain for any terrestrial losses associated with those compensatory measures. This will potentially create a snowball effect and lead to very substantial habitat intervention projects to meet the requirements of both the Habitats Regulations and the proposed net gain policy under the Environment Bill.

Given the scale of measures required to achieve net gain and the potentially limited opportunities to deliver them under Metric 3.0, there is a serious risk that development in the intertidal zone will become highly constrained. Significant revision and rethinking of Intertidal Metric 3.0 is likely to be required to create a workable process that can support sustainable development in intertidal areas.

1 Introduction

1.1 Background to net gain

The central principle behind 'net gain' is that any biodiversity impacts which arise from new developments must be offset through the creation and restoration of habitats such that there is at least a net 10% increase in biodiversity overall. This is proposed as a mechanism for contributing to the net restoration of natural habitats in England and for achieving the country's stated aim of leaving the environment in a better state following development.

Future developments must still follow the mitigation hierarchy before considering any net gain actions. Therefore, the first priority must always be to avoid loss or damage to natural habitats. The implementation of habitat restoration measures to achieve net gain is only required where there are unavoidable and residual habitat losses.

The Environment Bill, which will officially mandate the use of biodiversity net gain for developments in England, is still undergoing parliamentary scrutiny. This follows its re-introduction to Parliament in May 2021. The current expectation is that it will become law by Autumn 2021. Under this Bill, once it is enacted, requirements for net gain in both terrestrial and intertidal habitats will have to be considered. The intertidal habitats will include all areas down to the mean low water mark, as this is included in the area covered by the Town and Country Planning Act.[1]

A key element of the net gain approach is the introduction of an interpretative metric. This is a tool that measures both the biodiversity losses that arise from development and the gains that are achieved by creating, enhancing and restoring habitat. In theory, it should provide a simple, objective way of informing and auditing net gain decision-making.

A net gain metric has been trialled for terrestrial development for a while now, but on 7 July 2021 Natural England released Biodiversity Metric 3.0[2] which includes an updated metric for intertidal areas.

This new version of the metric is expected to be used by any developer, consenting body or landowner that needs to calculate biodiversity losses and gains for terrestrial and/or intertidal habitats. It will be this metric that underpins the Environment Bill's provisions for mandatory biodiversity net gain in England.

Of course, the main concept of delivering net gain as part of any development, whether on land, along the coast or at sea, is a fundamentally and universally welcome one. There is a clear and broad consensus in society, as expressed in national policy, that we need to address biodiversity decline and leave the environment in a better state for future generations. To help achieve that, it makes sense to ensure that any new development can also deliver a net biodiversity gain of at least 10%.

[1] Even in advance of this legislation being enacted, the principles and practices of Biodiversity Net Gain delivery are already being enforced under the planning process. This applies especially to changes and losses of terrestrial habitats but has, more recently, also being applied for intertidal habitats

[2] http://publications.naturalengland.org.uk/publication/6049804846366720

There are however concerns being expressed by various interest groups that this latest metric may not be workable.

Throughout its development, there has been concern from industry that it is an overly detailed and complicated way of assessing damage and calculating net gain. A further concern is that applying this metric may not deliver transparent, fair or, even, workable solutions. It is important that we get this right if we are to effectively deliver the biodiversity enhancements we want in the future.

There is also a further challenge. This new Biodiversity Metric 3.0 does not currently account for developments beyond the coastal margins and into the wider marine (subtidal) environment. Although, work is underway to develop an approach to 'Marine Net Gain' for English waters and Defra is currently working towards a consultation on the principles for delivering this by the end of 2021.

1.2 Aim of this review

This White Paper examines the application of Intertidal Metric 3.0 and considers what it could mean for future developments. It describes the metric in further detail and then tests it against a hypothetical scheme.

The main aim of this review is to understand what it might mean for a coastal development affecting intertidal habitat. It analyses the findings for a hypothetical scheme and then compares the results with the findings from application of the Intertidal Metric 2.0. It also contrasts these insights with broader experiences, from the last 27 years, of delivering intertidal compensatory measures for habitat losses in MPAs under the Birds & Habitats Directives (now enforced through the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019). Finally, it explores some wider considerations of the implications of the intertidal metric for the delivery of intertidal habitat creation projects.

Since 2018, ABPmer has been thinking in great detail about how this exciting and vital new tool can be developed and applied. This review is the fourth in a series of White Papers that ABPmer has produced alongside the development of this metric to help inform the thinking underpinning it. We are also one of several specialists who contributed to Natural England's 'sounding board' and provided advice during the Metric's development. Through this 'sounding board' group, as well as other articles and stakeholder forums, we offered advice and views on how the metric could be developed.

A key element of net gain is the introduction of a metric to account for habitat losses and gains

We have recognised throughout this process that the metric needs to be effective, transparent and fair if it is to achieve its fundamental goals.

Further background information, and descriptions of our thinking, can be found in the previous White Papers and other articles we have published on this subject, as follows:

- A White Paper published in March 2019 (ABPmer, 2019a) which outlines the importance of addressing marine environmental net gain and why a statutory system is needed to deliver it: www.abpmer.co.uk/blog/white-paper-why-we-need-a-statutory-system-of-marine-environmental-net-gain
- A White Paper published in July 2019 (ABPmer, 2019b) which proposes a simple and practical approach to delivering marine environmental net gain: www.abpmer.co.uk/blog/white-paper-adapting-net-gain-for-the-marine-environment

- White Paper produced in December 2020 (ABPmer 2020) that explains why delivering marine environmental net gain will need more than just a metric but a clear statutory framework: www.abpmer.co.uk/blog/white-paper-delivering-net-gain-more-than-just-a-metric-is-needed
- A Chartered Institute of Ecology and Environmental Management (CIEEM) article (Scott and West, 2020) which provides an update to marine net gain and explains further how a metric could be developed: https://events.cieem.net/Portal/Portal-Home.aspx; and
- An Institute of Environmental Management & Assessment (IEMA) article (West *et al.,* 2021) which proposes a simple, practical approach to applying net gain across the marine environment: www.iema.net/corporate-programmes/eia-quality-mark/impact-assessment-outlook-journal.

ABPmer has also set up a dedicated LinkedIn forum to ensure that lessons are shared about new developments and issues relating to the delivery of marine environmental net gain: www.linkedin.com/groups/8813531/.

2 Review of Biodiversity Metric 3.0

2.1 Key objectives and components of the metric

The aim of the biodiversity metric is to provide a means to calculate net gain for licensable development, thereby providing a simple and objective method for informing net gain decisions. The metric can be used to quantify the existing biodiversity value of a development area and to calculate the losses and gains in biodiversity from actions such as development or positive conservation management.

The biodiversity 'value' of a land parcel is evaluated on the basis of its habitat characteristics. These include their extent, strategic significance and relative 'quality'. The assessment of quality comprises an assessment of:

- **Distinctiveness -** the type of habitat present, e.g. scarce or declining, high biodiversity value; **Condition -** the biodiversity value of the habitat relative to others of the same type. This is
- determined by condition criteria set out in the habitat condition assessment sheet; and
- **Strategic significance** - whether the location of the development and/or off-site work, or the habitats present/created, have been identified as significant for nature.

The initial calculation determines the 'baseline' or 'pre-intervention' value in biodiversity units. The process is then repeated, using a 'post development' or 'post-intervention' scenario, to account for the impact of a development or intervention (including any on-site measures to retain, enhance or create additional biodiversity within the development site).

At this point, additional factors are considered to account for risks associated with creating, restoring or enhancing habitats. A further risk factor is used to account for the likelihood of failure of offset actions. The risks are:

- **Delivery** – the difficulty of creating or restoring habitat;
- **Temporal** – the risk associated with a delay in creating fully functioning habitat; and
- **Spatial** – the risk of undermining aspects of connectivity and function if the created habitat is at a distance from the place of impact.

2.2 Latest amendments to the metric

Following consultation on the Biodiversity Metric 2.0, Natural England made a number of changes to create Metric 3.0. Some of the key changes are summarised below. This summary firstly describes first the generic changes and then considers the specific changes that apply to the inclusion of intertidal habitats.

In terms of the general metric changes, these are as follows:

- Removed: Habitat connectivity risk multiplier – this was a measure to value a habitat in relation to its contribution to the ecological network i.e. the relationship of a particular habitat patch to surrounding similar habitats;
- New: Advanced creation/enhancement of habitats - New functionality has been introduced which recognises that creating/enhancing habitat in advance reduces the delivery risk associated with such activities and in appropriate circumstances increases the Biodiversity Units generated for a given area;
- New: Delay creation/enhancement of habitats - New functionality has been added to allow for delayed creation/enhancement of habitats;
- Amended: Time to condition - The maximum time to target condition of 32+ years has been reduced to 30+ years. The multiplier remains at 0.32.

As for the changes which apply to the consideration of intertidal habitat, these are as follows:

- Amended: The offsite risk multiplier categories have been changed from Local Planning Authority (LPA) /National Character Area (NCA) to Marine Plan Area to ensure relevance of the location multiplier to the functional marine environment;
- Amended: Adjustments to habitat distinctiveness bands have been made;
- Amended: Intertidal habitats altered within Metric 3.0:
    - Removed: Intertidal sediment - Littoral biogenic reefs - on bedrock including chalk, peat or clay;
    - Amended: Splitting sand and muddy sand into two new habitat categories: littoral sand (medium distinctiveness) and littoral muddy sand (high distinctiveness);
    - Removed: Artificial features of littoral sediment as it is not possible to differentiate between 'natural' and artificial;
    - Amended: Artificial rock habitats replaced with 3 artificial 'hard structures' habitats including 'Artificial hard structures with Integrated Greening of Grey Infrastructure';
- Amended: Several of the risk scores for specific habitats, including difficulty of creation, difficulty of enhancement and time required to reach target condition. For example, mudflat creation changed from 'medium' to 'high' difficulty;
- Confirmed: Trading rules between terrestrial and intertidal habitats to allow for the creation of intertidal habitat (to allow for the creation of intertidal habitat on low or medium distinctiveness terrestrial habitat)[3] and facilitate managed realignment schemes.

A full outline of the changes, as published by Natural England, is freely available online.[4]

[3] Noting however that the current spreadsheet tool available from the Defra website does not allow for a change in broad habitat type on the 'A3 habitat enhancement tab' (e.g. from 'grassland – other neutral grassland' to 'coastal saltmarsh'; a 'check data' warning appears, and calculations cannot be finalised).

[4] Natural England (2021) Summary of changes from Biodiversity Metric 2.0 to Metric 3.0 - http://publications.naturalengland.org.uk/publication/6049804846366720

3 A Case Example

A case study investigation is provided below. This describes the potential compensation requirement for a hypothetical scheme in a non-designated intertidal zone. This compensation is calculated initially by using Biodiversity Metric 3.0 and the results are then compared with calculations from Metric 2.0.

3.1 Calculation using Metric 3.0

The hypothetical project scenario assumes a 2 ha loss of both intertidal mudflat and saltmarsh (4 ha in total) of low strategic significance. The loss of 2 ha of each habitat type equates a loss of 24 Biodiversity Units (BU) in each case.

Habitat Type	Area Lost or Degraded (Metres^2)	Ecological Condition of Habitat Prior to Development
Saltmarsh	2 ha	Moderate
Intertidal mud	2 ha	Moderate

Initial (Onsite Baseline) Units	**Habitat Units**
On-site baseline (*pre-impact assessment*)	48
On-site post-intervention (*in this example habitat is permanently removed, but in some cases could be replaced*)	0

Overall net gain/loss	-100%

In this scenario, off-site intervention involves the creation of moderate condition mudflat and saltmarsh on low distinctiveness, poor quality, vacant land. The area of compensation is not in a local strategy i.e. low significance, but compensation is within the same Marine Plan Area.

On-site post-intervention	0
Off-site baseline (low distinctiveness and importance, poor condition habitat)	99.00
Off-site post-intervention (high distinctiveness, low importance, moderate condition saltmarsh and mudflat habitats)	161.97
Total net unit change	14.91

Overall net % gain/loss	**10.18%**

Based on the Biodiversity Metric 3.0 calculator assumptions applied for this example project, the area of compensation required would be 19.5 ha of intertidal mudflat and 30 ha of saltmarsh. These values factor in the requirement to address the losses of respective low distinctiveness, poor condition terrestrial habitat to ensure overall BNG. This results in a replacement ratio of 9.75:1 ha for intertidal mudflat and 15:1 ha for saltmarsh habitat.

3.2 Comparison with Metric 2.0

The above hypothetical project scenario was also calculated using the Biodiversity Metric 2.0. The full scenario is provided in Appendix A.
Using Metric 2.0 calculator, the replacement requirements for the same project would require creation of 4.8 ha of intertidal mudflat and 25.5 ha of saltmarsh. As in the above examples, these values include both the direct loss caused by the development itself and the requirement to address the losses of respective low distinctiveness, poor condition terrestrial habitat to ensure overall BNG. This equates to a replacement ratio of 2.4:1 ha for intertidal mudflat and 12.75:1 ha for saltmarsh habitat.

The amendments made to Metric 3.0 are therefore resulting in increased net gain ratios when compared to Metric 2.0, thus placing an increased requirement on a developer. A comparison of ratios is shown in Table 1.

Some of the key changes leading to the changed ratios are the loss of the connectivity multiplier and an increase in the technical difficulty of creation for mudflat and saltmarsh from medium to high.

Table 1. Comparison of net gain creation ratios for loss of 1 ha of habitat.

Habitat Type	Metric 3.0	Metric 2.0
Saltmarsh	15.0 : 1	12.75 : 1
Intertidal mud	9.75 : 1	2.4 : 1

3.3 Comparison with MPA compensatory requirements

To set the ratios being demanded by Metric 3.0 into context, Table 2 summarises information on the ratios that have been applied in determining suitable compensatory measures for projects within MPAs that have required derogation under the Birds & Habitats Directives implementing Regulations.

For flood and coastal defence projects offsetting coastal squeeze impacts, compensation ratios have generally been around 1:1. For port and other development projects, the compensation ratios have been slightly higher and more variable ranging from 2:1 up to a maximum of 5.5:1.

These ratios are deemed to be sufficient to ensure the coherence of the MPA network is protected and any uncertainties about restoration effectiveness are addressed. On this basis, one might expect a 10% net gain to perhaps require a ratio of 2.2:1 (or at most 4.4:1).

The ratios required by the metric are considerably greater than those typically required for compensatory measures under the Birds & Habitats Directives

The ratios being required by Intertidal Metric 3.0 for mudflat (9.75:1) and saltmarsh (15:1), can be seen to be considerably higher than those that have been required under the Birds and Habitats Directives. The reasons for such large multipliers reflect the conservatism that has been built into the components of Intertidal Metric 3.0 which when multiplied up generates an overly conservative output. In particular, the metric fails to recognise the very significant structural and functional benefits that newly created intertidal habitats provide. These benefits are ignored until NE judges that full function is achieved. These weaknesses were identified in earlier versions of the Intertidal Metric 3.0 but have not been addressed.

We note that compensatory measures packages under the Birds and Habitats Directives have rightly been subject to a high level of scrutiny by regulators, conservation advisors and environmental NGOs. Experience with implementation of these packages has demonstrated that they broadly deliver to expectations. For example, based on a review commissioned by Defra of intertidal compensatory measures projects delivered up to 2015, Morris *et al.* (2016) concluded that "*In all cases, the key issue of loss of extent has been satisfied*" and "*The majority of compensation sites can be expected to meet their design objectives in the short- to medium-term.*"

In light of the success of previous intertidal projects delivering compensatory measures under the Birds and Habitats Directives and the understanding that net gain is to deliver a gain of 10%, the ratios needed to satisfy the requirements of Intertidal Metric 3.0 0 therefore appear to be disproportionately large.

Table 2. Compensation ratios used for developments affecting Natura 2000 habitats

Location of Compensation Site	Extent of Habitat Lost or Changed (ha)	Extent of Habitat Created (ha)	Approx. Gain: Loss Ratio	Background Details
Coastal Squeeze				
Humber - Coastal Squeeze (CS) (CHaMP)	600 ha	600 ha	**1:1**	Based on 6 mm sea level rise and an upper limit of the estimate of loss associated with coastal squeeze
Humber - temporary losses/ disturbance (CHaMP)	27 ha	27 ha	**1:1**	Losses associated with the implementation of the Humber Flood Defence Strategy
Humber - Provision of flood storage (CHaMP)	45 ha	45 ha	**1:1**	Losses associated with the implementation of the Humber Flood Defence Strategy
Paull Holme Strays, Humber	n/a	80 ha	**4:1 (Direct) 1:1 (CS)**	Compensation scheme for both coastal squeeze and direct losses due to flood defence works
Brandy Hole, Crouch	12 ha	12 ha	**1:1**	-
Medmerry - Selsey Peninsula	n/a	183 ha	**1:1**	Implemented as part of Solent Dynamic Coast project
Coastal Defence Works				
Humber - losses associated with reconstruction and maintenance works (CHaMP)	15 ha	45 ha	**3:1**	Losses associated with the implementation of the Humber Flood Defence Strategy
Morecambe Coastal Defence Works and Hesketh Out Marsh, Ribble	11 ha	52 ha (of a 180 ha site)	**4:1**	Loss of sandflat under the footprint of a breakwater (7 ha) and under a mitigation area (4 ha) in Morecambe (relatively high ratio applied due to distance and lack of any like for like habitat delivery options)
Rye Harbour	3.1 ha	6.1 ha	**2:1**	Pett Frontage Tidal Defence Scheme

Location of Compensation Site	Extent of Habitat Lost or Changed (ha)	Extent of Habitat Created (ha)	Approx. Gain: Loss Ratio	Background Details
Port Development				
Allfleet's Marsh (Wallasea Island North Bank); Crouch	54 ha	115 ha	**2:1**	Habitat created many years after the losses associated with East Coast port developments
Welwick, Chowder Ness and Doig's Creek; Humber	31 ha	59 ha	**2:1**	Losses associated with port development on the Humber Estuary
Trimley Realignment	4 ha plus 0.2 ha annually (indirect)	12.5 ha	**3:1**	Losses associated with Trinity III Felixstowe Port Development
Little Oakley; Hamford Water	72 ha (69 ha of direct loss)	105 ha	**1.5:1**	Intertidal habitat to be created as a result of losses associated with port development
Other Developments				
Gwent Levels Habitat Creation, near Newport, Wales	200 ha (SSSI)	438 ha	**2:1**	To offset impacts of the Cardiff Bay barrage. Habitat types lost and gained are very different
Chetney	3.9 ha	22 ha	**5.5:1**	Highways Agency scheme – A249 Iwade to Queensborough Road improvement scheme.

4 Implications for Managed Realignment

One of the key methods for creating intertidal habitat is managed realignment. This entails the landward relocation of coastal defences, often over vulnerable and low-lying hinterland areas. They often include the construction of new counter wall sea defences at the back of the site where necessary (i.e. where there are still low-lying vulnerable hinterland areas) though, in some instances, they are integrated with higher land to avoid the need for new hinterland embankments. The old sea defences are then opened up to the tide and the former hinterland (often historically claimed from the sea) naturally developed into intertidal habitat.

Managed realignment is, however, much more than just a mechanism for creating habitats. It is first and foremost, a coastal adaptation measure, an important tool for sustainably managing our coasts in response to a changing climate and rising sea levels. As such, it is a Shoreline Management Planning (SMP) policy that is enacted at suitable locations to improve the quality and sustainability of existing coastal protection. It also provides vital water quality and amenity benefits as well as enhancing biodiversity.

Over the last three decades, around 74 different managed realignment projects have been implemented in the UK which have created around 3,000 ha of intertidal habitat.[5] But SMP policy has yet to be implemented along large lengths of coastline.

The Committee on Climate Change (CCC, 2018) stated that managed realignment would need to be carried out at a rate five times greater than at present - to meet the SMP's objective of 550 km of coastline realigned by 2030. RSPB (2018) estimated that this would deliver 6,000 ha of new coastal habitat by 2030.

Despite the importance of managed realignment and the need to do more in the future, under Intertidal Metric 3.0, managed realignment can only occur on terrestrial habitats which are classified as having 'high' distinctiveness, if additional 'compensation' for those habitats is undertaken.

For habitats with 'high' distinctiveness, such as coastal lagoons, ponds and reedbeds (all of which are often encountered at potential realignment sites), the same (like for like) habitat would need to be recreated, but at a slightly larger extent to take account of risk multipliers (e.g. 1 ha of moderate quality reedbed would need to be replaced with around 2.2 ha of moderate quality reedbed to satisfy trading requirements).

Undertaking managed realignment over medium distinctiveness habitats, such as neutral grassland or arable field margins (again very frequently seen at manged realignment sites), would lead to net losses unless yet more (better quality / higher distinctiveness) habitat is created. For instance, if the example site applied in Section 3.1 contained just 1.4 ha of good quality neutral grassland (out of 49.5 ha), then the 10.18% net gain would turn to a net loss of -0.22%!

These rules will add further complexity and challenge to those seeking to progress managed realignment projects and significantly increase the cost of delivering such projects.

To understand the potential scale of the issue, we explored potential managed realignment opportunities and the prevailing land cover types in those areas in the Solent Region. The Environment Agency's Estuarine Coastal Monitoring and Assessment Service (ECMAS) has collated and created a map which identifies locations around the English coastline that could be suitable for restoring saltmarsh habitats. The saltmarsh map shows where intertidal habitat might be created over low-lying coastal land through the managed realignment of existing sea defences. The map provides a valuable indication of the potential that exists for future habitat restoration in England. This map is accessible online via the Defra Data Services Platform.[6]

Using this map, focusing solely on the Solent region, Corine Land Cover (CLC) data from 2018 (CLC, 2018) was obtained to identify land cover classes which overlap with the identified restoration potential areas.

[5] The details, lessons and statistics from these UK projects (and those implemented across Northern Europe) are collated within ABPmer's coastal habitat creation web site at https://www.omreg.net.

[6] Defra Data Services Platform: https://environment.data.gov.uk/

Where suitable restoration areas overlap with any habitat not considered low distinctiveness within Metric 3.0 (i.e. not arable land, improved grassland, urban and suburban areas), then realignment would trigger additional habitat creation requirements - either additional compensation requirements for high distinctiveness habitats or increased net gain for medium distinctiveness habitats. An assessment has therefore been undertaken to indicate the number of realignment sites which would become more difficult (and expensive) to implement under the Biodiversity Metric.

The rules relating to habitat distinctiveness will add further complexity and challenge in implementing the metric

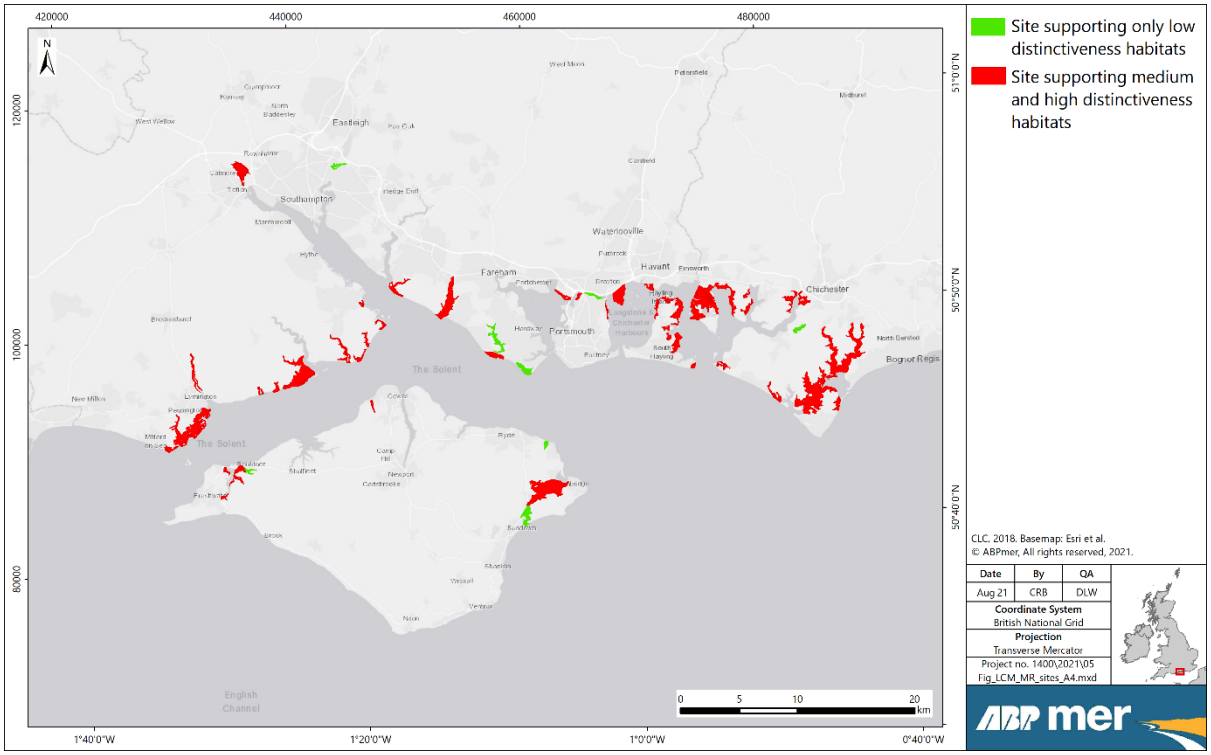

Figure 1. Potential managed realignment sites in the Solent

Sites which overlap with medium to high distinctiveness habitat under the metric trading rule are shown in red in Figure 1 with areas comprising only low distinctiveness habitats shown in green. The analysis shows that 45 of the 53 potential realignment areas within the Solent would become more difficult and expensive to implement under Metric 3.0, equating to around 85% of all potential sites.

5 Conclusions

Net gain is proposed as a mechanism for contributing to the restoration of natural habitats by aiming to leave the environment in a better state following development. However, the currently proposed accounting scheme has been criticised by industry as being overly detailed, and the method complicated for assessing damage and calculating net gain. This has led to concern from industry and is at risk of stifling development and preventing coastal adaptation.

As discussed within this White Paper the Metric in its current form will result in disproportionate requirements to achieve a 10% net gain, especially in comparison to compensatory measures required under the Conservation of Habitats and Species Regulations 2017 (as amended).

Trading rules under Metric 3.0 state that intertidal net gain which occurs on terrestrial habitat, in the form of managed realignment, cannot occur on terrestrial habitats which are classified as 'high' distinctiveness or higher (unless additional compensation is provided). Realigning over sites containing 'medium' distinctiveness habitats would trigger additional net gain requirements (though the tool which is currently available does not facilitate testing of the managed realignment trading changes which were apparently made for Metric 3.0). Both of these changes are likely to increase the complexity and cost of managed realignment projects. An analysis for the Solent Region indicates that approximately 85% of potential realignment sites would be affected in this way.

Where developers are delivering compensatory measures for damage to intertidal habitats in European sites pursuant to regulation 64(5) of the Conservation of Habitats and Species Regulations 2017 (as amended), net gain policy currently also requires delivery of net gain for any terrestrial losses associated with those compensatory measures. This will potentially create a snowball effect and lead to very substantial habitat intervention projects (and costs) to meet the requirements of both the Habitats Regulations and net gain policy.

Given the scale of measures required to achieve net gain and the potentially limited opportunities to deliver them under Metric 3.0, there is a serious risk that development in the intertidal zone will become highly constrained. Significant revision of Intertidal Metric 3.0 is likely to be required to create a workable process that can support sustainable development in intertidal areas.

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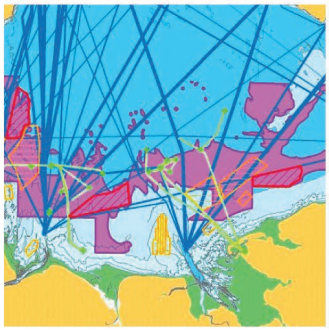
7 Abbreviations/Acronyms

BNG	Biodiversity Net Gain
BU	Biodiversity Units
CCC	Committee on Climate Change
CHaMP	Coastal Habitat Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CLC	Corine Land Cover
CS	Coastal Squeeze
ECMAS	Estuarine Coastal Monitoring and Assessment Service
EU	European Union
IEMA	Institute of Environmental Management & Assessment
LPA	Local Planning Authority
MPA	Marine Protected Area
NCA	National Character Area
NGOs	non-governmental organization
RSPB	Royal Society for the Protection of Birds
SMP	Shoreline Management Plan
SSSI	Site of Special Scientific Interest
UK	United Kingdom

Cardinal points/directions are used unless otherwise stated.
SI units are used unless otherwise stated.

Appendix




Innovative Thinking - Sustainable Solutions

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A Metric 2.0 Case Example

A comparison is provided below of the potential compensation requirement for a hypothetical project in a non-designated intertidal zone with the application of the Biodiversity Metric 2.0.

The hypothetical project scenario assumes a 2 ha loss of both intertidal mudflat and saltmarsh (4 ha in total) lost. The loss of 2 ha of each habitat type constitutes a loss 27.6 Biodiversity Units (BU) in each case. Applying a target 10% net gain, this relates to a 30.4 BU replacement requirement for each habitat type.

Habitat Type	Area Lost or Degraded (Metres^2)	Ecological Condition of Habitat Prior to Development
Saltmarsh	2 ha	Moderate
Intertidal mud	2 ha	Moderate

Both the saltmarsh and mudflat have high ecological connectivity and low significance

Initial (Onsite Baseline) Units	**Habitat Units**
On-site baseline (pre-impact assessment)	55.2
On-site post-intervention (*in this example habitat is permanently removed, but in some cases could be replaced*)	0

Overall net gain/loss	-100%

We are creating moderate condition mudflat and saltmarsh on low distinctiveness poor quality amenity grassland. The saltmarsh and mudflat created are of high ecological connectivity, the area of compensation is not in a local strategy, i.e. low significance, but compensation is within the local planning area.

On-site post-intervention (Including habitat retention, creation, enhancement & succession)	0
Off-site baseline	60.60
Off-site post-intervention (Including habitat retention, creation, enhancement & succession)	121.2
Total net unit change (including all on-site & off-site habitat retention/creation)	5.39

Overall net % gain/loss	9.79%

Results

The replacement requirements based on the Biodiversity Metric 2.0 calculator assumptions applied in this project the area of compensation required would be 4.8 ha of intertidal mudflat and 25.5 ha of saltmarsh. These values factor in the requirement to address the losses of respective low distinctiveness, poor condition terrestrial habitat to ensure overall BNG.

Ratios

- Mudflat – 2 ha lost requires 4.8 ha replacement (2.4:1 ratio).
- Saltmarsh 2 ha lost required 25.5 ha replacement (12.75: 1 ratio).

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