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Addendum

Intertidal Habitats: Biodiversity Metric 2.0

Beta Edition

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1. *Intertidal habitats in the Biodiversity Metric*

This addendum to the beta Biodiversity Metric 2.0 covers all intertidal habitats down to the mean low water mark. When the Biodiversity Metric 2.0 user guide is updated this addendum will be incorporated.

The key principles and rules for using the Biodiversity Metric 2.0 (see User Guidance Section 2: *Principles and rules for using the metric*) still apply to these habitats. In addition, it is important to note that, as for terrestrial habitats, the metric informs decisions and should be used as a proxy or framework - ecological and local advice must also be used to inform advice on implementing the metric.

As indicated in the main guidance (section 6: Calculating Area Habitat Biodiversity Units), the formulae below can be used to calculate biodiversity unit values for area habitats. There is also a free calculation tool available to download which simplifies the metric calculations.

Calculating Area Habitat biodiversity units (AHBUs)

Equation 1: Pre-impact (t_0) biodiversity value

$$t_0 \ \textit{Baseline AHBU} = \left(A^{t0} \times Q_D^{t0} \times Q_C^{t0}\right) \times \left(Q_{SC}^{t0} \times Q_{SS}^{t0}\right)$$

Equation 2: Post-impact (t_1) biodiversity value for habitat creation

$$t_1 \ \textit{Creation AHBU} = \left\{\left[A^{t1} \times Q_D^{t1} \times Q_C^{t1}\right] \times \left[R_D \times R_T\right] \times \left[Q_{SC}^{t1} \times Q_{SS}^{t1}\right]\right\} \times R_{OS}$$

Equation 3: Post-impact (t_1) biodiversity value for habitat restoration and enhancement

$$t_1 \ \textit{Enhancement AHBU} = \left[\left[\left(\left[\left\{A^{t1} \times Q_D^{t1} \times Q_C^{t1}\right\} - \left\{A^{t0} \times Q_D^{t0} \times Q_C^{t0}\right\}\right] \times \left\{R_D \times R_T\right\}\right) + \left\{A^{t0} \times Q_D^{t0} \times Q_C^{t0}\right\}\right] \times \left\{Q_{sc}^{t1} \times Q_{ss}^{t1}\right\}\right] \times R_{OS}$$

A	Area of habitat (hectares)	R_T	Time to target condition (a risk factor)
Q_C	Condition (a quality measure)	R_{OS}	Off-site Risk
Q_D	Distinctiveness (a quality measure)	t0	Before intervention
Q_{SC}	Connectivity (a quality measure)	t1	Post intervention
Q_{SS}	Strategic Significance (a quality measure)		
R_D	Difficulty (a risk factor)		

The Biodiversity Metric 2.0 calculates changes in biodiversity value resulting directly from habitat loss, creation or enhancement. However, ecosystems are connected, and effects from

developments can propagate through complex pathways resulting in impacts (larger or smaller) at a distance in time or space from the footprint of the development. Indirect impacts, those that occur at a distance from the footprint of the development, can be quite important particularly in highly connected and dynamic environments like intertidal/marine habitats. For example, beach nourishment operations result in sediment plumes from the release of material to the water column that are transported laterally and vertically by currents until settling to the bottom. This can lead to noticeable siltation a few hundred meters to kilometres from the extraction site (depending on the tidal currents)[1]. The Biodiversity metric 2.0 only accounts for direct impacts of the direct footprint of a development. Indirect impacts have not been included in this version of the metric. Although Natural England acknowledges the importance of considering indirect impacts, the metric has been developed at this point to be a simple assessment tool and only considers direct impacts on biodiversity through impacts on habitats.

2. *Irreplaceable intertidal habitats:*

As set out in the main User Guidance document (Section 2.23: *Principle 4*) the Biodiversity Metric 2.0 is not designed for measuring or determining net gain for impacts on protected and/or irreplaceable habitats. These will require separate consideration in line with the relevant legislation and policy.

3. *Intertidal habitat definition:*

The European Nature Information System, (EUNIS[2]) habitat classification system is the habitat classification used for intertidal habitats within the metric. EUNIS, to at least Level 4, should be used to record intertidal habitats for net gain assessment so that high value and irreplaceable habitats are identified at an early stage of the process. However, it is understood that the process needs to be simple, functional but accurate, hence, other parameters within the metric are defined at EUNIS level 2/3.

A set of artificial habitats to reflect artificial structures has been included in the metric for each of the broad habitats (level 3) so that they can be distinguished from naturally occurring habitats. The possible ecological function of these habitats is acknowledged in the metric through the habitat condition. However, the metric allows for some flexibility in the assessment of a habitat as artificial or natural (see more in distinctiveness) as there might be local or special circumstances that merit treating a habitat parcel differently from the metric's 'default' score.

The habitats included in the metric are set out in Table 1 below:

D. H. Wilber, D. G. Clarke, and M. H. Burlas (*2006*) Suspended Sediment Concentrations Associated with a Beach Nourishment Project on the Northern Coast of New Jersey. Journal of Coastal Research, (22): 1035 – 1042

Newell, R.C. and Woodcock, T.A. (Eds.). 2013. *Aggregate Dredging and the Marine Environment: an overview of recent research and current industry practice*. The Crown Estate, 165pp https://bmapa.org/documents/Aggregate_Dredging_and_the_Marine_Environment.pdf

[2] http://eunis.eea.europa.eu/habitats-code-browser.jsp?expand=A#level_A

Table 1: Habitats included in intertidal addendum

EUNIS code	EUNIS name
X02/03	Coastal lagoons
A1.1	High energy littoral rock
A1.1	High energy littoral rock - on bedrock*
A1.2	Moderate energy littoral rock
A1.2	Moderate energy littoral rock - on bedrock*
A1.3	Low energy littoral rock
A1.3	Low energy littoral rock - on bedrock*
A1.4	Features of littoral rock
A1.4	Features of littoral rock - on bedrock*
ART_A1.1	Artificial high energy littoral rock
ART_A1.2	Artificial moderate energy littoral rock
ART_A1.3	Artificial low energy littoral rock
ART_A1.4	Artificial features of littoral rock
A2.1	Littoral coarse sediment
A2.2	Littoral sand and muddy sand
A2.3	Littoral mud
A2.4	Littoral mixed sediments
A2.5	Coastal saltmarshes and saline reed beds
A2.6	Littoral sediments dominated by aquatic angiosperms
A2.6	Littoral sediments dominated by aquatic angiosperms - on bedrock*
A2.7	Littoral biogenic reefs
A2.7	Littoral biogenic reefs - on bedrock*
A2.8	Features of littoral sediment
ART_A2.1	Artificial littoral coarse sediment
ART_A2.2	Artificial littoral sand and muddy sand
ART_A2.3	Artificial littoral mud
ART_A2.4	Artificial littoral mixed sediments
ART_A2.5	Artificial coastal saltmarshes and saline reed beds
ART_A2.6	Artificial littoral sediments dominated by aquatic angiosperms
ART_A2.7	Artificial littoral biogenic reefs
ART_A2.8	Artificial features of littoral sediment
* Bedrock includes habitats on peat, clay or chalk	

4. *Area:*

The extent of intertidal habitats assessed for the metric will be measured on an area basis. For the purpose of the metric hectares will be the unit of area measurement. There will need to be consideration of the optimal time of year to conduct surveys to assess an area, such that the most likely extent of the habitat can be realistically presented.

5. *Distinctiveness:*

Distinctiveness bands are assigned at broad scale habitat[3] level and reflect a habitat's nature conservation importance and ability to support biodiversity value. All naturally occurring intertidal habitats have been assigned a distinctiveness level of '**high'** to reflect their nature conservation importance. All intertidal habitats to EUNIS level 3 are afforded legal protection in England, and only A1.4 - *Features of littoral rock* and A2.8 - *Features of littoral sediments* are not named features of any marine protected area. These are considered to be covered by the protection afforded to the other broad-scale EUNIS Level 3 habitats rather than any lack of distinctiveness. All naturally occurring intertidal habitats are of high nature conservation value, whether or not they occur within the boundary of a protected site.

The loss of irreplaceable habitats cannot be accounted for in the metric and will require separate consideration in line with legislation. However, the metric can be used as an auditing tool or to calculate biodiversity units attained in restoration proposals for on these habitats.

In the intertidal zone, artificial structures need to be considered within the metric and distinguished from the naturally occurring versions of those habitats. Hence, artificial counterparts of the natural habitats have been included within the metric calculator tool with a distinctiveness score of '*low'* to reflect their origin. We acknowledge that in some circumstances these artificial habitats are only of slightly lower value than the natural habitats and in those cases the condition parameter should be utilised, by giving them a moderate or good condition score, to increase their overall biodiversity value in the metric.

It is important to note that when habitats have been restored by re-establishing natural processes, the resulting habitat will be considered 'natural' (i.e., coastal lagoons, saltmarshes and saline reed beds). A range of intertidal and transitional habitats can be created/restored through breaching of artificial sea defences to restore tidal inundation and other processes (sometimes referred to a 'managed realignment'). These habitats are primarily created by the restoration of natural processes to the former coastal flood plain.

The metric allows for some flexibility in the assessment of habitats as *artificial* or *natural*. There might be local or special circumstances that merit treating a habitat parcel differently from the metric's 'default' score, this should be done in consultation with stakeholders and clearly recorded.

[3] Habitats descriptions based on the assertion that benthic communities are strongly influenced by the physical characteristics of the seafloor (e.g. type of sediment, or slope) and the water column (e.g. temperature or water movement). M. Vasquez, D. Mata Chacón, F. Tempera, E. O'Keeffe, I. Galparsoro, J.L. Sanz Alonso, Gonçalves J.M.S., L. Bentes, P. Amorim, V. Henriques, F. McGrath, P. Monteiro, B. Mendes, R. Freitas, R. Martins, J. 2015. PopulusBroad-scale mapping of seafloor habitats in the north-east Atlantic using existing environmental data. J. Sea Res., 100

Table 2 below shows the habitat distinctiveness scores for the intertidal sections of the metric:

Category	Score	Habitat type
Very High*	8	For the restoration of habitats on bedrock (this includes peat, clay or chalk)
High	6	All natural coastal intertidal habitats
Low	2	All artificial habitats
* **NOTE: the losses to these *Very High* distinctiveness habitats cannot be accounted for through the metric and are considered unacceptable and bespoke compensation might be required)**		

6. *Condition:*

Condition is an indication of the quality of the habitats described. The condition of intertidal habitats is assigned at EUNIS level 2/3. Condition is assessed against a generic set of criteria linked to the habitat's attributes with a description of each of the different condition levels for the given habitat (see Technical Guidance for Intertidal Habitats). It is important to note that the condition assessment will follow a precautionary approach and surveys must use standardised approaches and be of sufficient quality to assess the habitat condition accurately. If this is not deemed adequate and surveys lack the detail needed for assessing the habitat's condition then the condition cannot be assumed to be good by default.

It is important to consider other sources of information on the condition of the area where the metric is going to be used. Water Framework Directive monitoring[4] will indicate the condition of the water mass in which the habitat is located. In many cases the condition category definitions will consider, wherever possible, the status of the water body the habitat is in. Water bodies failing to meet water quality standards might not allow for successful restoration or creation of habitats, as the environmental conditions may not be suitable for the habitat to flourish.

In some circumstances artificial habitats can reach a sufficiently good condition that they contribute to the environment in a similar way to their natural counterparts. In those cases the condition parameter should be utilised to reflect this, by giving them a 'moderate' or 'good' condition score, to increase their overall biodiversity value.

[4] Environment Agency Catchment Data Explorer. https://environment.data.gov.uk/catchment-planning/

The condition categories available for intertidal habitats are as set out in table 3:

Table 3: Condition categories

Condition categories	
Category	Multiplier
Good	3
Fairly Good	2.5
Moderate	2
Fairly Poor	1.5
Poor	1

7. *Strategic Significance:*

The strategic significance parameter of the metric gives additional value to habitats that are located in optimum locations for biodiversity and other environmental objectives. It recognises that there is a risk to biodiversity from a change in location of a habitat. Spatial significance considers the spatial location of a habitat as a component of the quality of a habitat parcel in the same way as distinctiveness or condition. Strategic significance will be highest if the habitat location is identified in a Local Planning Authority 'Local Ecological Network'[5] or within Shoreline Management Plans[6] estuary strategies. Other projects can be used to highlight the relevance for certain habitat types for the local area. Two such projects with publicly available outcomes are:

- ***Identifying sites suitable for marine habitat restoration or creation*** (MMO1135)[7]: a project managed by the Marine Management Organisation (MMO) to create a national dataset of sites that are suitable for habitat restoration or creation.
- ***REstore MEadows, MArshes & REefs (REMEMARE)***: Environment Agency project that has created a national database that identifies areas of possible restoration for saltmarsh, seagrass, reefs.

[5] The National Planning Policy Framework (2018), requires Local Planning Authorities to plan strategically for nature, identifying and mapping ecological networks in order to deliver the protection, enhancement and maintenance of biodiversity. These local ecological networks can make a significant contribution to developing the Nature Recovery Network. https://www.gov.uk/guidance/natural-environment

[6] A Shoreline Management Plan is a non-statutory document developed by Coastal Groups, local authorities and the Environment Agency based on Policy Units. These units are defined on natural sediment movements and coastal processes, rather than administrative boundaries. SMPs offers guidance to recommend strategic and sustainable coastal defence policy options for reducing long term risks to people and natural environments. https://www.gov.uk/government/publications/shoreline-management-plans-smps

[7] Project outcomes available at: https://www.gov.uk/government/publications/identifying-sites-suitable-for-marine-habitat-restoration-or-creation-mmo1135

Strategic significance multipliers will be in line with those used for the terrestrial metric and indicated in table 4 below:

Table 4: Strategic Significance

Strategic Significance		
Options	Explanation	Multiplier
Within area formally identified in local strategy	Within area identified in Local Strategy/Plans Local Ecological Network areas or SMP or estuary strategy	1.15
Location ecologically desirable but not in local strategy	Location ecologically desirable identified in related studies (for example: MMO01135 or REMEMARE)	1.1
Area/compensation not in local strategy/no local strategy	Area of compensation/development not identified in local plans or related projects	1

8. *Connectivity:*

The approach for terrestrial habitats is based upon the 'structural connectivity' model within the National Biodiversity Climate Change Vulnerability Model. However, that model does not appropriately consider intertidal environments that have greater natural connectivity.

The focus of connectivity in the metric is to identify the relationship of a particular habitat patch to surrounding similar or related semi-natural habitats, which will facilitate flows of species and ecosystem services. It provides a way of valuing a habitat in relation to its contribution to the ecological network. It also helps assess the value of proposed actions on providing a benefit to the ecological network. These help facilitate flows of species and ecosystem services increases habitat resilience.

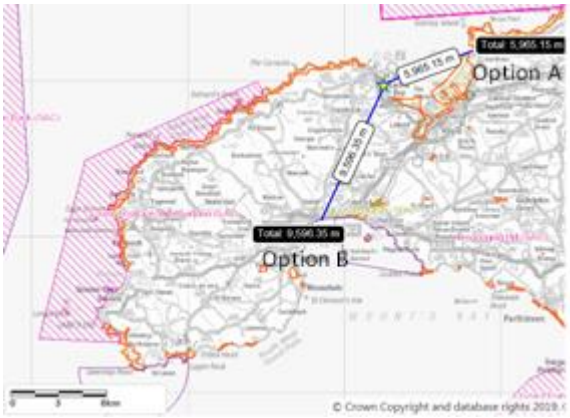
The Biodiversity Metric calculations will use a precautionary value of 20km in the intertidal zone. This value will be used to define the lower most level or the connectivity parameter as stated in the table below. It is important to note that these connectivity distances should be measured in a functional, ecological way along the coastline and not to reflect the shortest distance between habitats (i.e.; across the same water mass or along the coastline, see diagram)

Scores for connectivity and the distances are set out in table 5 below:

Table 5: Connectivity Scores

Score	Definition	Multiplier
Low connectivity	>20Km distance from site	1
Medium connectivity	10-20Km distance from site	1.1
High connectivity	<10Km distance from site	1.15

DIAGRAM: Measuring connectivity distances between proposed net gain action location and area of habitat loss. This fictional example assumes a development results in a loss of part of the existing intertidal habitat. There are two options (A and B) suitable for net gain action on the same habitat. The maps below shows the incorrect and correct way of measuring distance for connectivity assessment.

1) INCORRECT: Distance of both compensation options (A and B) from area of habitat loss measured as the shortest straight line distance which to B is across land <10Km – <u>High connectivity</u>	2) CORRECT: Distance from area of habitat loss of compensation option B >20Km – <u>Low connectivity</u>
	

9. *Risks:*

There are uncertainties and a risk of failure in any net gain action that are accounted for in the metric. Where it is not possible to attain compensation for future losses in advance of the habitat losses occurring, risks need to be mitigated. This is done in the metric by adopting a multiplier to reduce the number of units generated by an area of compensation. The following three risks are recognised in the metric.

a. Off-site risk multiplier

The off-site risk multiplier is applied to net gain proposals occurring outside the development impact area to avoid depleting biodiversity in local areas. For this reason, the metric penalises proposals for compensation located in distant local authority areas as set out in table 6 below:

Table 6: Off-site risk multipliers

Category	Multiplier
Compensation inside LPA or deemed to be sufficiently local, to site of biodiversity loss (e.g. within neighbouring LPAs and linked ecological networks)	1
Compensation outside LPA but within neighbouring LPA (no identifiable links through ecological networks)	0.75
Compensation outside LPA and beyond areas in neighbouring LPA	0.5

b. Temporal Risk:

When there is a mismatch between a negative impact on biodiversity and compensation reaching the required quality or level of maturity, there will be an overall loss of biodiversity for a period of time. This issue can be managed by creation of compensation habitat ahead of the impact taking place, either through the setting up of habitat banks or, for projects with a long lead in, by starting the offset work well ahead of the development.

However, this is not always possible and even where the management to compensate the impacted habitat starts in advance, the time taken for habitats to mature means that there will almost inevitably be a time lag before the required quality is reached. A temporal risk multiplier is applied to account for this time lag. Discounting over time is an economic technique used to compare costs and benefits that occur in different time periods based around the principle that, generally, people prefer to receive goods and services now rather than later (more details on discounting can be found in the Treasury Green Book Guidance, HM Treasury, 2011[8]). Where time discounting is used in net gain schemes, a standard discount rate is typically used. The biodiversity metric 2.0 uses 3.5% discounting rate to assess the 'Time to target condition' multiplier as per terrestrial metric (see below and Section 5: *Temporal Risk of the general guidance*.

[8] Discounting in the public sector allows costs and benefits with different time spans to be compared on a common "present value" basis. The public sector discount rate adjusts for social time preference, defined as the value society attaches to present, as opposed to future, consumption. It is based on comparisons of utility across different points in time or different generations.

The Green Book discount rate, known as the Social Time Preference Rate (STPR), for use in UK government appraisal is set at 3.5% in real terms. This rate has been used in the UK since 2003.

Chapter A6 - Discounting:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

Table 7: Time to target condition discounting rates

Time to target condition discounting rate			
Time (years)	Multiplier	Time (years)	Multiplier
0	1.000	17	0.546
1	0.965	18	0.527
2	0.931	19	0.508
3	0.899	20	0.490
4	0.867	21	0.473
5	0.837	22	0.457
6	0.808	23	0.441
7	0.779	24	0.425
8	0.752	25	0.410
9	0.726	26	0.396
10	0.700	27	0.382
11	0.676	28	0.369
12	0.652	29	0.356
13	0.629	30	0.343
14	0.607	31	0.331
15	0.586	>32	0.320
16	0.566		

The time period to use in applying the Time to Target Condition multiplier to a metric calculation is the length of time (in years) between the intervention and the point in time the habitat reaches the pre-agreed target quality (i.e. distinctiveness, condition, area). The time this will take varies between habitat types, between change scenarios (e.g. creation versus enhancement). The difficulties of creation or restoration are further explained in the Technical Supplement Part 2 (Habitat creation and restoration risks). However, to be practical, the metric:

1. Assumes that there is a quality 'jump' from the baseline condition to the target condition once the relevant number of years has elapsed. Metric calculations do not take into account incremental increases in quality of the habitat and do not need to be re-done annually, and
2. Sets a limit on the discount rate used for temporal risk. The metric sets a multiplier limit to take account of temporal risk of 0.320 which equates to approximately 32 years. At this point the Treasury Green Book reduces the discount rates for policies or projects which involve long term effects to account for uncertainty about future values of its components.

Many things influence how quickly habitat restoration and creation occurs, these are often site dependent and related to the difficulty factor, for example site preparation. The speed of creation/restoration can also be resource dependent, where with enough time and money habitats can be recreated in a quicker timescale.

For the purposes of creating a metric an average figure needs to be used, accepting that there will be variation from this central estimation. Some sites will take longer, where conditions are more difficult and other sites will be more favourable and easier to restore in a shorter time period. The figures for the time to target can be found in the Intertidal Technical Guidance figures for the average time to target for a notional typical site, acknowledging that variation will be occurring from this principal estimation above and below it depending on the site characteristics.

For most intertidal habitats there is limited or no experience of restoration and creation in England, especially across these time periods. This means the times given to reach the target condition are indicative and based, in some instances, purely on expert judgement. It is important to note that the values given assume that the location chosen for a habitat is suitable for its restoration/creation. For this reason and as evidence and monitoring data becomes available, these values might need to be revised and, if necessary, adjusted.

i. Difficulty of creation and restoration

This is the risk associated with delivery of biodiversity creation or enhancement due to uncertainty in the effectiveness of management techniques used to restore or create habitat. Technical as well as natural difficulties (e.g. ecological factors needed to create the required habitat) are considered here.

- Habitat creation or recreation. Where one habitat type is replaced by another or the habitat is destroyed (e.g. by development works) and the same habitat is created.

- Habitat restoration or enhancement of an existing habitat to improve its distinctiveness and / or condition.

It is important to recognise that it is impossible to exactly replicate habitat losses because of the unique physical and ecological features of every place. This point emphasises why it is so important that the mitigation hierarchy is adhered to, so that impacts on existing biodiversity are minimised and occur only when there is no alternative.

Experience in intertidal habitat creation is, for many habitats, absent or very limited. We have therefore taken a precautionary approach in the assessment of the difficulty associated with habitat creation to encourage restoration options.

The difficulty and uncertainty of successfully creating, restoring or enhancing a habitat is recognised in this multiplier as set out in table 8 below:

Table 8: Difficulty of habitat creation/restoration multipliers

Difficulty categories	
Category	Multiplier
Very High	0.1
High	0.33
Medium	0.67
Low	1

The process for the assessments of the difficulty of intertidal habitat creation or restoration is set out in the Intertidal Technical Guidance. The overall difficulty categories for each habitat is presented in the technical notes

10. Development example - net gain in intertidal zone

Works to improve a coastal promenade that has been damaged in recent storms. The development area to be built will impact upon intertidal habitats. The development area covers 10.65 hectares with four different habitats within the development perimeter (see table 1). Similar habitats are common in the area and hence connectivity of the impacted habitats is high. The area has not been identified in any local plans or related projects as of strategic significance for nature recovery.

Using the calculation tool it is assessed that the development area contains a total of 126.91 biodiversity units as indicated in table 9

Table 9. Habitats present in development footprint including their quality parameters (distinctiveness, condition, connectivity and strategic significance).

Habitat class.	Description	Distinct.	Condition	Connect.	Strat. Signif.	Area	Baseline biodiveristy units
Artificial Moderate energy littoral rock	Rocky groyne head and rocky protection created to dissipate wave energy and trap sediment	**Low**	**Moderate** Clearly polluted from beachgoers	High	Area/compensation not in local strategy/ no local strategy	2.18	10.03
Moderate energy littoral rock	Low intertidal natural rocky habitat	**High**	**Moderate** Some pollution/litter, no invasive non-native species (INNS), typical communities present, water body assessed as moderate in Water Framework Directive (WFD)	High	Area/compensation not in local strategy/ no local strategy	1.63	22.49
Littoral mixed sediments	Beach sediments	**High**	**Moderate** Visible pollution/litter, groynes in the area, water body as of WFD is moderate	High	Area/compensation not in local strategy/ no local strategy	2.19	30.22
Littoral coarse sediment	Beach sediments	**High**	**Moderate** Visible pollution/litter, groynes in the area, water body as of WFD is moderate	High	Area/compensation not in local strategy/ no local strategy	4.65	64.17

Post-development it is expected that a large part of the artificial rock (groynes) will be retained. Some of the rock protection will be removed and will be placed in front of the new promenade. The developer will be funding litter collection campaigns to improve the expected final condition of all habitats. Hence the condition of the habitat on top of the beach will be improved. It is expected that the Moderate energy littoral rock will not be affected by the development and hence retained. It is expected that a third of the Littoral mixed and coarse sediments will be lost. Table 10 shows a summary of the proposed actions.

Table 10. Actions proposed on site. Biodiversity units lost are in red and gains by actions are in green

Habitat class.	Total baseline area	Area of action	Action	Biodiversity units	Biodiversity units gains by actions
Artificial Moderate energy littoral rock	2.18	0.18	Lost	-0.83	
		2.00	Relocated and improved condition	-9.20	2.66
Moderate energy littoral rock	1.63	1.63	Retained improved condition	22.49	26.00
Littoral mixed sediments	2.19	0.73	Lost	-10.07	
		1.46	Retained improved condition	20.15	23.4
Littoral coarse sediment	4.65	1.55	Lost	-21.39	
		3.1	Retained improved condition	42.78	49.69

In this location the Local Planning Authority requires that developments deliver a 10% biodiversity net gain using this version of the metric. To understand what the developer needs to do to meet this, the developer must first deduct the onsite losses in biodiversity units from the baseline unit score. Using the calculation tool a total of **41.49** biodiversity units are shown to be lost (table 10 in red).

This gives a figure of **126.91** pre-development biodiversity units (table 9) minus **41.49** biodiversity units (table 10) = **85.42** units will be retained on the development site. The enhancement action plans to the littoral rock and sediments as well as the relocation of the artificial littoral rock and improved condition (table 10 in green) gives a value of **101.75** biodiversity units.

The overall change in biodiversity units on the site would be: **126.91** baseline biodiversity units – **101.75** biodiversity units = **25.16** biodiversity units. In this scenario the developer would need to secure an additional **25.16** biodiversity units from elsewhere

This could be done as a combination of additional offsite/onsite actions. If offsite actions are chosen the delivery site baseline biodiversity units will need to be accounted for.