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Consultation Document

Marine Conservation Zones (MCZs)

Potential Site Options for Welsh Waters

Date of issue: 19 April 2012

Responses by: 31 July 2012

Overview

This consultation seeks views and information on the 10 potential site options that have been identified by the MCZ Project for Welsh Waters. The consultation document describes how the potential site options have been identified and the process that the MCZ Project has followed. The Welsh Government intends to designate no more than 4 sites around Wales.

How to respond

This consultation is the first of 3 consultation phases you will have the opportunity to comment on.

Please respond either by post or by e-mail.

Further information and related documents

Large print, Braille and alternate language versions of this document are available on request.

Consultation: www.wales.gov.uk/marine

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Data protection

How the views and information you give us will be used.

Any response you send us will be seen in full by Welsh Government staff dealing with the issues which this consultation is about. It may also be seen by other Welsh Government staff to help them plan future consultations.

The Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full.

Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. This helps to show that the consultation was carried out properly. If you do not want your name or address published, please tell us this in writing when you send your response. We will then blank them out.

Names or addresses we blank out might still get published later, though we do not think this would happen very often. The Freedom of Information Act 2000 and the Environmental Information Regulations 2004 allow the public to ask to see information held by many public bodies, including the Welsh Government. This includes information which has not been published. However, the law also allows us to withhold information in some circumstances. If anyone asks to see information we have withheld, we will have to decide whether to release it or not. If someone has asked for their name and address not to be published, that is an important fact we would take into account. However, there might sometimes be important reasons why we would have to reveal someone's name and address, even though they have asked for them not to be published. We would get in touch with the person and ask their views before we finally decided to reveal the information.

CONTENTS

PART 1: Introduction	2
PART 2: Impact Assessment	9
PART 3: The 10 Potential Site Options	11
PART 4: Conservation Objectives and Management Measures	88
PART 5: Determining the Boundaries	100
PART 6: Summary of the Work to Date	104
PART 7: The Data Used	122

PURPOSE OF THE CONSULTATION

This consultation seeks views and information on the potential site options for Welsh waters that have been identified by the Marine Conservation Zone Project Wales. The consultation document describes how the potential sites options have been identified and the process that the project has followed to date.

The consultation presents 10 potential sites as options for further consideration as highly protected marine conservation zones, on the basis that the Welsh Government intends to designate no more than 3-4 sites.

The purpose of this consultation is to gather your views and more information about the 10 potential site options to inform the project's future evaluation of the costs and benefits on a site by site basis, and so help decide which site options are considered further.

It is important that you take the opportunity to tell us what you know about the options presented to ensure that your views inform future decisions.

This consultation is the first in an iterative process consisting of 3 consultation phases. You will have the opportunity to comment and get engaged at each consultation phase, however we encourage you to engage now and not wait for the final consultation phase to have your say and make your views known.

We intend gathering as much information as possible about the 10 options to enable the Welsh Government to make fully informed decisions about the sites that are eventually designated as highly protected marine conservation zones.

PART 1 – INTRODUCTION

The Welsh Government is committed to the UK vision for ‘clean, healthy, safe, productive and biologically diverse seas’ and the UK high level marine objectives for achieving this vision. To deliver this vision the Welsh Government is establishing a marine programme of four key, inter-related strands of policy and operational work consisting of:

- Marine planning,
- Marine licensing,
- Marine nature conservation,
- Marine Strategy Framework Directive implementation, in order to achieve good environmental status for Europe’s seas by 2020. Marine planning, licensing and conservation are all important tools to achieve good environmental status, which encompasses marine biodiversity.

We intend framing all aspects of our marine programme within an ecosystem based approach, reflecting the requirements of the Marine Strategy Framework Directive¹, and as set out in the UK Marine Policy Statement². This will complement the holistic approach envisaged by the Welsh Government’s *A Living Wales*³ work.

This consultation paper focuses on marine conservation and the identification of a new type of marine protected area – Marine Conservation Zones (MCZs). Marine protected areas are just one of the tools available to the Welsh Government to help protect and improve marine ecosystems and they need to be considered in the context of the wider marine programme alongside the Marine Strategy Framework Directive and marine plans, and *A Living Wales*. In support of the holistic approach envisaged by *A Living Wales*, we intend designating MCZs in Wales to improve natural ecosystem functioning, rather than the status of a specific habitat or species which are already protected in other ways (or can be) – for example under the Birds and Habitats Directives.

¹ <http://wales.gov.uk/consultations/environmentandcountryside/marinegoodstatus/?lang=en>

² <http://wales.gov.uk/topics/environmentcountryside/consmanagement/marinefisheries/planning/?jsessionid=H2SLPLLffhwBrZDqvqLDvpjgcJD2V3S0FN1964Znq1FXMQvP2yjQ!1935070368?lang=en>

³ <http://wales.gov.uk/consultations/environmentandcountryside/sustainingwales/?lang=en>

1.1 Marine Protected Areas

The UK administrations are committed to completing an ecologically coherent network of marine protected areas (MPAs) as part of a broad based approach to nature conservation⁴. The network will be a key tool in contributing towards achieving good environmental status under the Marine Strategy Framework Directive.

Wales' contribution towards the wider network will be made up of European Marine Sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)), intertidal Sites of Special Scientific Interest, intertidal Ramsar sites, the Marine Nature Reserve at Skomer⁵ plus the new Marine Conservation Zones (MCZs) which are the subject of this consultation. In Wales we already have a number of such sites covering approximately 75% of the coastline and 36% of territorial seas. The intention is for MCZs in Welsh waters to supplement our existing sites.

1.2 Ongoing work on SPAs

To develop further Wales' contribution to the wider network, the Welsh Government is working with the Countryside Council for Wales to complete the seaward extension of 3 seabird colonies at Grassholm SPA, Skokholm and Skomer SPA and the Aberdaron Coast & Bardsey Island SPA. The seaward extensions will give protection to the marine waters adjacent to the colonies used for preening, bathing, displaying and other maintenance behaviour.

The need for wholly marine SPAs, in addition to colony extensions, is also being considered at a UK level.

In finalising its contribution to the wider MPA network, the Welsh Government will look at the relationship between the SPA work and the MCZ work as they develop to ensure the outcomes take account of one another.

⁴ UK Marine Policy Statement (September 2011)

⁵ Upon commencement of the legislation in Wales Skomer Marine Nature Reserve will become known as Skomer Marine Conservation Zone. Skomer's inclusion in this project does not necessarily mean that it will become a highly protected site. This Project does however provide an appropriate mechanism to consider Skomer's role as a MCZ, its contribution within the wider MPA network and whether it merits a higher level of protection, allowing appropriate conservation objectives and orders to be developed and consulted on with stakeholders.

1.3 Marine Conservation Zones

The Marine and Coastal Access Act 2009 gave Welsh Ministers new powers and tools to better protect and manage the marine environment of Wales. This includes a new mechanism for the conservation of marine biodiversity through the designation of MCZs.

The Welsh Government's approach to using the new MCZ power is to supplement the existing marine protected areas in Wales with a limited number of highly protected sites to contribute to ecosystem recovery, resilience and develop our understanding of natural ecosystem functioning including the role of biodiversity. The intention is to allow sites to function as naturally as possible in order to maximize the contribution they make to ecosystem recovery and resilience. The best way of achieving this is to afford the sites a high level of protection where they are protected from the extraction and deposition of living and non-living resources plus all other damaging or disturbing activities to support as natural an ecological state as possible.

Extractive, depositional, damaging and disturbing activities have been defined in the site selection guidance⁶ as follows:

- An extractive activity is defined as an act that involves the temporary or permanent removal or attempted removal, of any living organism or non-living material or natural feature from the marine environment. An exemption to this is the removal of man-made litter.
- A depositional activity is defined as an act that involves the laying down, movement or discharge of living or non-living materials or substance into the marine environment. This includes deposit of materials such as rocks, gravel or sand, building of structures, and the release of any polluting or toxic or chemical substances, as well as the discharge of ballast, untreated human waste, biodegradable and industrial waste and the discard of fish offal and by catch.
- A damaging activity is defined as an act that potentially results in permanent or temporary physical harm or injury to species, or cause permanent or temporary alteration to natural features within the marine environment. Physical damage would count as something which reduces an organism's ability to operate in a natural

⁶<http://wales.gov.uk/topics/environmentcountryside/consmanagement/marinefisheries/conservation/protected/conservationzones/project/siteselection/?lang=en>

manner or caused impact to the wider marine environment through the alteration or loss of populations or natural features.

- A disturbing activity is defined as an act that interferes with the normal functioning of populations beyond the natural variability of the ecosystem. Disturbing activities may result in short-term distress to a population or longer-term deterioration in the population's fitness (for example its ability to feed or reproduce successfully).

This approach to MCZs was set out in the Welsh Government's draft strategy⁷ for all marine protected areas in Wales, 'Protecting Welsh Seas', which was consulted on during September to December 2009 and supports the more holistic approach envisaged by *A Living Wales* to conservation and biodiversity rather than focus on the status of a specific habitat or species.

A summary of the consultation responses received relating to the highly protected approach for MCZs is provided at Annex 1.

We plan to finalise and publish the strategy later this year when we have developed, with the Countryside Council for Wales, an appropriate and proportionate management regime for all marine protected areas in Wales, the need for which featured strongly in the consultation feedback.

1.4 The MCZ Project Wales

The Welsh Government has established the MCZ Project Wales to deliver this work through 3 key groups:

- The Steering Group to steer the whole process, making decisions at critical stages of the project and ultimately making the final recommendations to Welsh Ministers.
- The Technical Advisory Group (TAG) a group of technical experts covering ecological, social and economic issues, and providing the technical advice to the Steering Group.
- The Stakeholder and Citizens Engagement Group (SCEG), established under the auspices of the Wales Coastal and Maritime Partnership, to oversee an appropriate

⁷ <http://wales.gov.uk/consultations/environmentandcountryside/marineprotectedareas/?lang=en>

stakeholder and citizen engagement process for the project and act as a conduit for wider stakeholder input.

In March 2011 the Welsh Government published site selection guidance for highly protected MCZs. These guidelines set out a nine stage process for selecting sites which is summaries in the flowchart at Figure 1.

The approach to identifying highly protected MCZs is different from how marine protected areas have been identified in the past. Here the focus is on the whole site contribution to the marine environment and its contribution to ecosystem recovery and greater resilience and not on the protection of specific examples of quality environments. The sites have been selected on the basis of their habitat heterogeneity (i.e. a large number of habitats on a relatively small area). Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site. Habitat heterogeneity is one indicator of biological diversity, which is an important contributor to ecosystem resilience and ecosystem function.

1.5 Key principles in the selection of Highly Protected MCZs

As set out in the site selection guidance the selection of sites has and will continue to be guided by the following key principles:

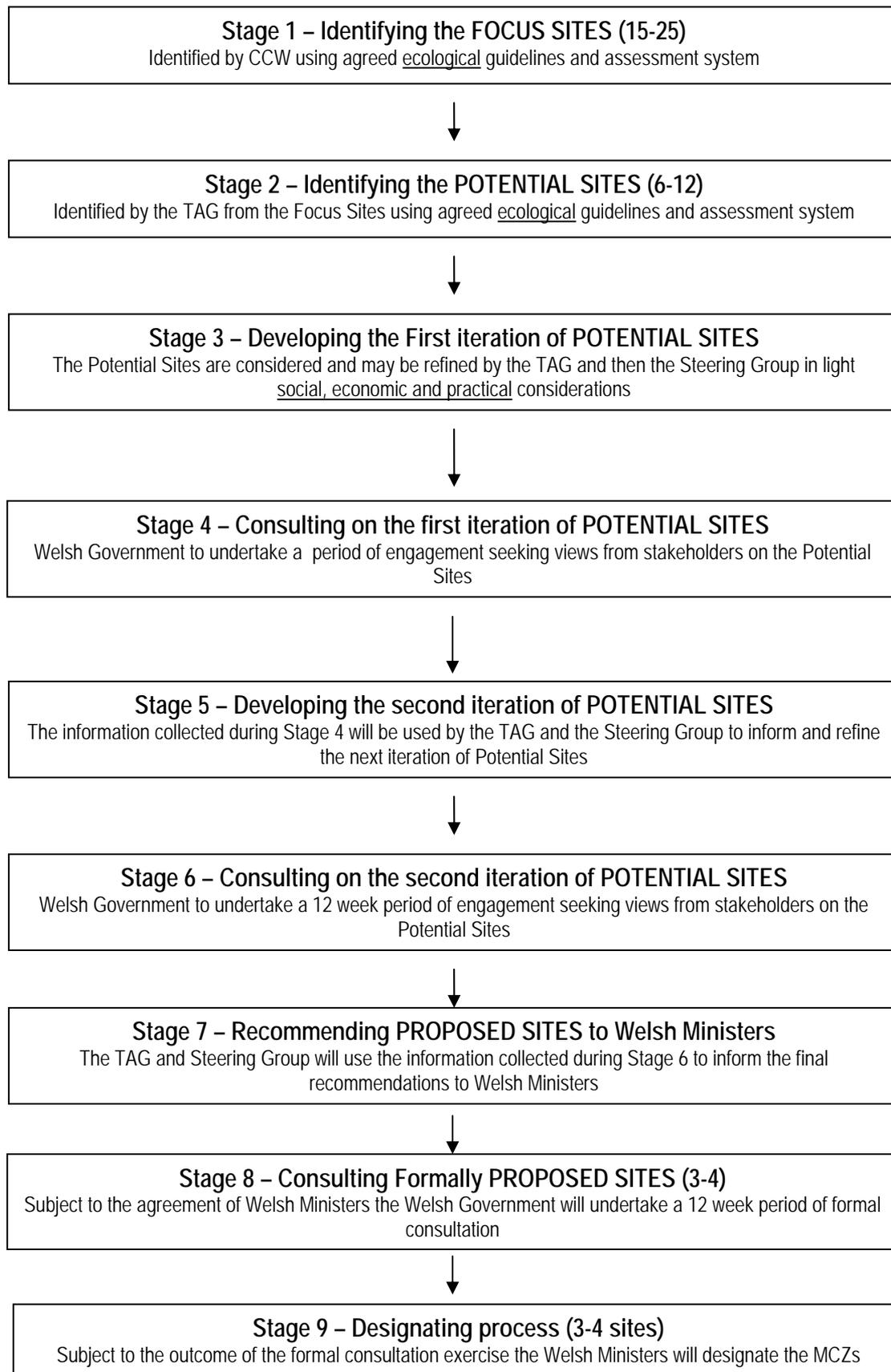
- a) Ecosystem management and the ability of the proposed sites to contribute to ecosystem resilience and recovery and delivering a range of ecosystem services.

- b) Until we understand more about how these sites contribute to the network in practice, coupled with the pressures on public funding including the practicalities of ensuring sites are managed, monitored, evaluated and enforced properly, the Welsh Government considers it appropriate to designate no more than 3 to 4 highly protected MCZs initially, and based on our knowledge of the marine environment and the availability of ecological data the focus will be on identifying sites within existing marine protected areas in Welsh waters. The findings of each statutory 6-yearly review and report period will identify any further action needed. The

Welsh Government will also take into account information that comes to light outside of the 6 yearly review and reporting period to consider whether action is needed.

- c) The size and scale of the sites needs to be no more than is necessary for ecological viability and needs to be supported by the best available evidence on the existence of the features used for site identification.
- d) The need to minimise social and economic constraints whilst recognising that sites can offer social and economic benefits. Each case will be looked at on its own merits. However in general, where an area is considered to offer a unique contribution to ecosystem functioning, a greater weight is likely to be attached to ecological considerations. Where there is a choice of alternative areas which are equally suitable on ecological grounds, social and economic factors could be more significant in deciding which areas may be designated as a highly protected MCZ.
- e) Proposed sites in Welsh waters will be looked at in the context of their expected contribution to a network of conservation sites in accordance with the duty under the Marine and Coastal Access Act 2009.

Figure 1. Flow diagram summarising the phased process to selecting sites and the terminology for the sites selected at each stage – we are currently at Stage 4 in the process



PART 2 - IMPACT ASSESSMENT

The impact assessment for this first stage consultation of potential site options provides a broad, initial overview of the potential impacts on an individual site basis. The assessment will develop as further information is gathered, reflecting the iterative nature of the consultation process and the importance of stakeholder input, leading to a comprehensive and integrated final impact assessment to accompany the sites recommended for designation for the final stage of the process.

Once designated, the sites will be managed in such a way that all extractive and depositional activity will be prohibited as will all other damaging or disturbing activities. Therefore, impacts will arise as a result of the increased protection afforded to designated sites. Management will be achieved through a series of duties on public authorities and management measures. Further information relating to conservation objectives and management measures for these sites is provided in Part 4.

The Welsh Government will give full consideration to social and economic consequences throughout the site selection process. The aim is to ensure that highly protected MCZs are chosen to maximise benefits (ecological, economic and social) while, as far as possible, minimising any conflict with the different uses of the sea.

The information provided as a result of this iterative consultation exercise should enable us to adapt the site options so as to minimise costs and maximise benefits.

2.1 Benefits

The expected direct on-site benefits will be the recovery and restoration of habitats and their associated species contributing towards wider ecosystem recovery and resilience. These areas are also expected to improve our understanding of natural ecosystem functioning and its relationship with biodiversity by providing areas for study and research.

In-direct benefits are anticipated for the recreation and tourism sectors; fishing could also benefit if sites prove to increase fish stocks outside of them. See Part 3 for further background.

2.2 Costs

The scale of any additional costs generated by designation will depend upon the activities operating within and/or near the potential sites. The sectors most likely to be affected by the increased level of protection afforded to these areas are commercial fishing, recreational fishing, marine aggregate dredging, renewable energy, oil and gas, cable and pipeline networks and new or extended port facilities. The designation of a site as an highly protected MCZ may also impact on other recreational and leisure activities in addition to recreational fishing.

However the site selection process in Wales avoids areas of sea that have been permanently modified. The reason for this is that permanently modified areas have a very low potential to return to a natural or semi-natural state and are therefore limited in ecological recovery potential – a key aim of the MCZ Project Wales. Areas that overlap with existing legal and physical constraints have also been excluded from the process – this is explained in more detail in Part 6. Avoiding such areas has minimised the impact upon existing aggregate extraction sites, existing and planned renewable energy installations, oil and gas installations, major cable networks, major port facilities and areas where a several Order exists for the cultivation of fish.

2.3 Site Specific Assessment

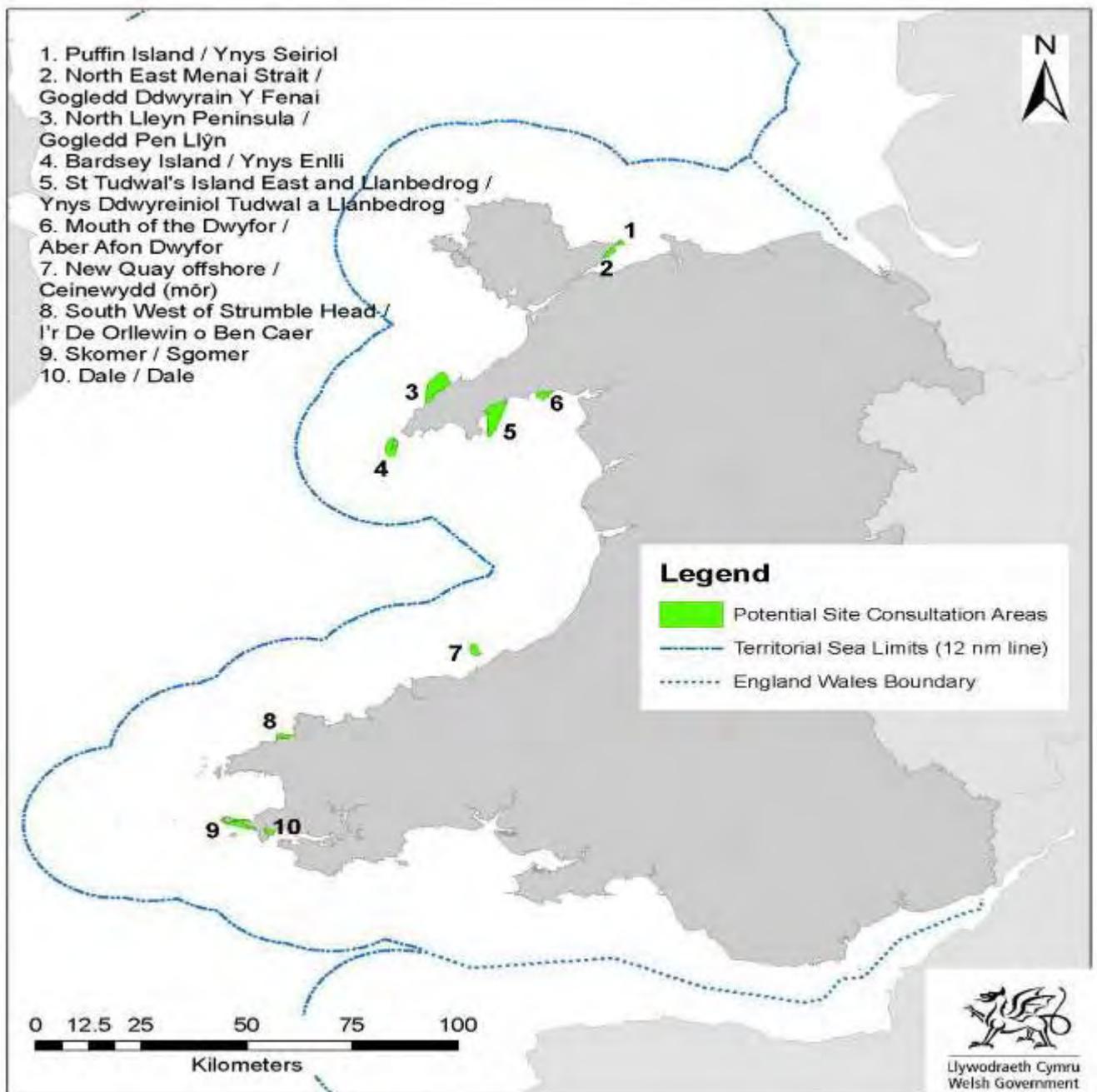
For first stage consultation, qualitative information has been provided to describe the on-site and off-site costs and benefits associated with each site option – see the individual site reports provided in Part 3.

A more detailed, quantitative, impact assessment will be provided for the second iteration with the final consultation providing a full impact assessment for each site proposed for designation, providing stakeholders with a clear assessment of the costs and benefits of a particular highly protected MCZ. This will encompass both on-site and off-site impacts, administrative impacts plus the additional cost of monitoring, managing and enforcing the preferred options.

PART 3 - THE POTENTIAL SITE OPTIONS

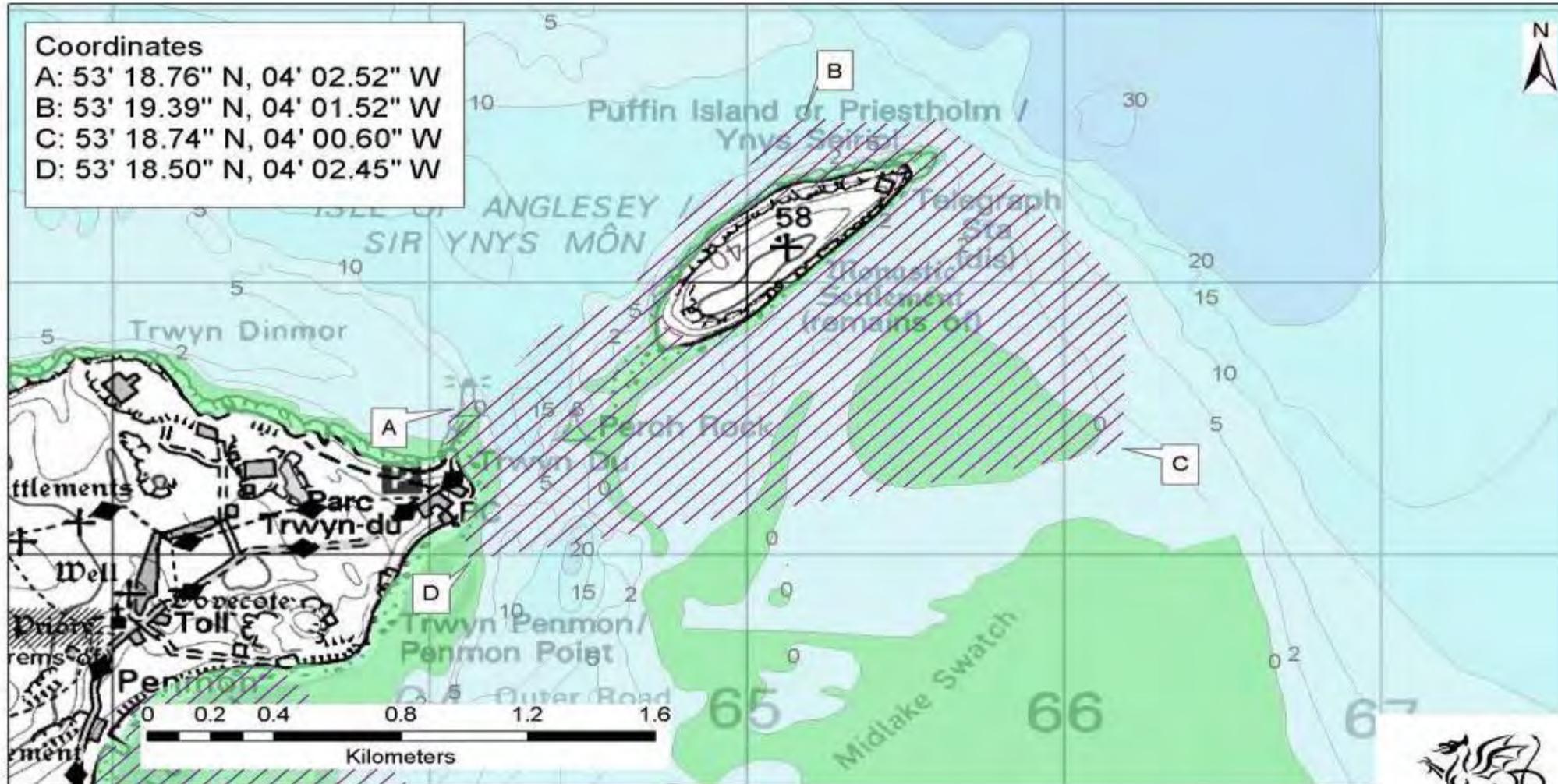
The map at Figure 2 presents the 10 potential site options that have been identified by the MCZ Project Wales. This section contains site specific information for each of the options presented. Part 6 summaries the how these sites have been identified.

Figure 2. The 10 Potential Site Options



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1. Puffin Island / Ynys Seiriol Potential Site



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3.1 Puffin Island/ Ynys Seiriol Potential Site Option



Aerial view of Puffin Island and Trwyn Du. © Rohan Holt, CCW.

This site is situated off the southeast corner of Anglesey, North Wales and is within the Liverpool Bay SPA and Menai Strait and Conwy Bay SAC. The consultation area includes the mainland shores around Trwyn Du. This site was chosen because of its variety of different habitats on the shores and underwater and also includes areas of high productivity. Protecting a wide variety of

different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines⁸)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines including viability targets see the site selection guidance):

Broadscale habitats

- High energy intertidal rock
- Moderate energy intertidal rock
- Low energy intertidal rock
- Moderate energy shallow water rock
- Subtidal sand

Important habitats

- Tide swept channels
- Intertidal boulder communities

High Productivity areas

- High benthic primary productivity (areas dominated by algae)

⁸<http://wales.gov.uk/topics/environmentcountryside/consmanagement/marinefisheries/conservation/protected/conservationzones/project/siteselection/?lang=en>

- High chlorophyll concentrations (high concentrations of plant plankton)

Further information is available on the interactive Web application on the following link: <http://data.wales.gov.uk/apps/marine#site=3>

Site Description

The rocky shores around the island and at Trwyn Du opposite the island extend from the shore into deeper water. They vary in the extent to which they are influenced by waves and tides and as a result they support different species of animals and plants. Along the side of the island that faces northwest the shore is more exposed to waves and is dominated by brown and red seaweeds, barnacles and mussels. Below the low tide mark dense forests of kelp dominate the rock in shallow water, but these give way to animal-dominated communities in deeper water, with soft corals, sponges, plumose anemones, and other species attached to the rock. The southeast side of the island is more sheltered and here the shore supports a greater variety of brown seaweeds that form a canopy covering the shore. There are also sloping platforms of rock where grey seals haul out. A boulder spit extends out from the south-western end of the island. Underneath the boulders there are animal communities, including sea squirts, sponges and small crabs called porcelain crabs that are specially adapted to living under boulders.

The rocky areas extend underwater for some distance around the island and Trwyn Du. Beyond this the seabed consists of sediment habitats, with sandy sediments to the south and patches of mixed sediments to the north and east. The mixed sediments have not been extensively surveyed but in one area dense beds of brittlestars are found, amongst which were burrowing anemones. These brittlestars form a carpet on the seafloor, their stripy



Plumose anemones and sponges on Bottle Rock off Puffin Island. Source: CCW monitoring survey. © Rohan Holt, CCW.

arms waving in the current catching small particles of food. The waters around the island are used by the birds that breed on the island for essential resting and maintenance activities. Puffin Island has Wales' largest shag and cormorant colonies in addition to breeding black guillemot and common eider.

In the channel between Trwyn Ddu and Puffin Island there are prolific tideswept communities dominated by animals that feed by extracting particles from the water column, such as anemones, sponges and soft corals.



View to Trwyn Du lighthouse with rock pools and brown seaweeds on a rock platform. Source: CCW Intertidal Phase 1 Survey. © Natasha Lough, CCW.

The rock present at this site is mostly limestone. Due to the relatively soft nature of limestone, rock-boring animals like piddocks, rock-boring sponges and delicate horseshoe worms can exploit these areas. The holes and cracks in the limestone provide additional shelter for a range of animals, including several species of crabs.

Site Size

This site covers an area of 2.0 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know what goes on outside/ adjacent to the indicative boundary. We have set out in Table 1 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 1. This is what we know about the activities⁹ in/ near the Puffin Island/ Ynys Seirol Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the	There may be in-direct benefits for heritage features within sites protected by the increased management regime.

⁹ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

	area, however none of them are currently designated or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	
Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	There is a disused site outside the eastern limit of the boundary	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area. Records tell us that the disused site has been closed for at least 10 years and we are not aware of any plans for it to be reopened.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We are aware that some pot fishing takes place in this area but we need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.

Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	<p>There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ.</p> <p>The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.</p>
Military Activity	This area is not used for training/testing purposes however we need to know more about other defence activities within the area	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.
Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ.</p> <p>The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed.</p> <p>There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring.</p> <p>The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself.	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>

Waste disposal	There are outfalls outside the western limit of boundary.	There is no overlap with an existing outfall therefore there is no direct impact. However we need to know more about the pattern and volume of discharge at the outfalls to the west of the site in order to determine whether there will be any off-site impact. There may be off-site impacts associated with mitigation, management and monitoring.
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Consultation Questions – Puffin Island/ Ynys Seiriol Potential Site Option

Your knowledge of the area

Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

Q. In addition to the ecological benefits, what other benefits would you expect from this site?

Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

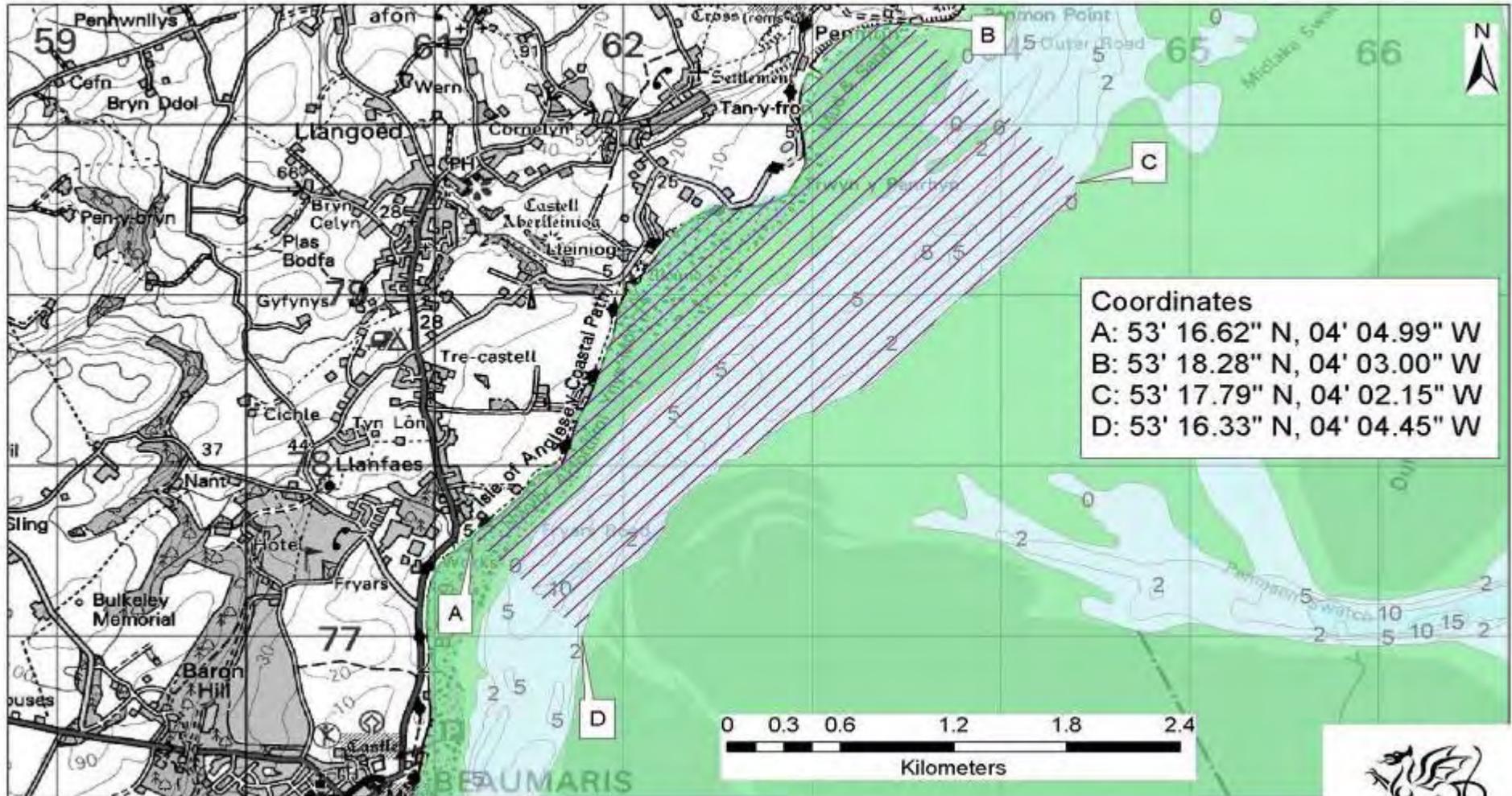
Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

2. North East Menai Strait / Gogledd Ddwyrain Y Fenai Potential Site



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3.2 North East Menai Strait/ Gogledd Ddwyrain Y Fenai Potential Site Option



Mixed muddy sediment shore in the Menai Strait. Source: CALM/CCW tide influenced communities survey. © Jon Moore.

The Menai Strait divides mainland Wales and the Island of Anglesey in North Wales. The consultation area is at the north-east end of the Menai Strait, starting just north of the slipway at Fryars Road (north of Beaumaris) and extending to the northern end of Porth Penmon / Trwyn Penmon and is within the Menai Strait and Conwy Bay SAC.

It includes the shores along the Anglesey side of the Strait and the channel but does not include any of the shores on the mainland side of the channel. This site was chosen because of its variety of different habitats on the shores and underwater and also includes areas of high productivity. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from the selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats:

- High energy intertidal rock
- Moderate energy intertidal rock
- Low energy intertidal rock
- Intertidal coarse sediment
- Intertidal sand

Important habitats:

- Intertidal mudflats
- Sheltered muddy gravels
- Tide swept channels

High Productivity areas:

- High benthic primary productivity (areas dominated by algae)
- High chlorophyll concentrations (high concentrations of plant plankton)

Further information is available on the interactive Web application on the following link: <http://data.wales.gov.uk/appsmarine#site=7>.

Site Description

The shores here are a mixture of rock and sediment. The majority of the shore is quite complex and is made up of alternating areas of cobbles in muddy gravel, areas of muddy gravel and muddy sand. The upper shores are often muddy gravel colonised by bladder wrack or areas of barnacles and snails such as periwinkles. Lower down the shore, large areas of muddy gravel contain a diverse mixture of animals that burrow into the sediment, including worms and anemones.

In the more rocky areas, the lower shore tends to be covered by the seaweed, serrated wrack. Some areas are influenced by the strong tidal flows of the Menai Strait and here there are a variety of sea squirts and bryozoans that thrive in tide-swept conditions. In this tide-swept part of the lower shore there are areas of limestone boulders that have more animal species than on adjacent boulders. This includes sea squirts such as the lightbulb sea squirt, sponges including the yellow boring sponge, breadcrumb sponge and purse sponge, piddocks (bivalve shells) that burrow into the rock and porcelain crabs that are adapted to living under boulders. Overhanging parts of the boulders provide a place for plumose anemones to live.



Sponges and anemones on a lower shore boulder in the Menai Strait. Source: CALM/CCW tide influenced communities survey. © Jon Moore.

There are also patches of sand, some of which are quite muddy. These have bivalve shells such as the Baltic tellin and peppery furrow shell and also worms such as the ragworm and lugworm. Sandier areas (which tend to be towards Penmon) are dominated by the sand mason worm. The foreshore at this site is utilised by numerous waders, wildfowl and gulls during the winter, including light-bellied Brent geese on the mouth of the LLeiniog as well as curlew, redshank and oystercatcher.



The habitats underwater are also varied. In the more central part of the channel, mixed sediments have been recorded, with cobbles, gravel, sand and a few boulders. Feathery hydroids, light bulb seasquirts, soft corals and sponges are found on the cobbles and there are burrowing anemones in the sediment, along with several other species.

Closer to the Anglesey shore there are patches of boulder clay that are pitted with holes from burrowing piddocks. Great-crested grebes and red-breasted mergansers can be seen fishing in these waters during winter, whilst they are utilised by numerous seabirds during summer months including cormorant, sandwich terns and common eider.

Site Size

This site covers an area of 4.1 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know what goes on outside/ adjacent to the indicative boundary. We have set out in Table 2 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 2. This is what we know about the activities¹⁰ in/ near the North East Menai Strait/ Gogledd Ddwyrain Y Fenai Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and	We know there	There may be in-direct benefits for heritage features within sites protected

¹⁰ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

Wrecks	are a number of wrecks in the area, however none of them are currently protected or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	by the increased management regime.
Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	There is a closed site outside the eastern limit of the Puffin Island boundary.	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area. Records tell us that the site has been closed for at least 10 years and we are not aware of any plans for it to be reopened.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We need to know how this area is used for <u>all</u> fishing activities.	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.

Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	<p>There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ.</p> <p>The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.</p>
Military Activity	This area is not used for training/testing purposes however we need to know more about other defence activities within the area.	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.
Ports, boats and shipping	We need to know about the facilities and associated activities in the area.	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring.</p> <p>The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself.	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>

Waste disposal	There are several outfalls within and adjacent to the boundary.	There is overlap with existing outfalls. We need to know more about the pattern and volume of discharge at the outfalls in order to determine whether there will be any direct and off-site impacts. There may be on-site and off-site impacts associated with mitigation, management and monitoring.
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Consultation Questions – North East Menai Strait/ Gogledd Ddwyrain Y Fenai Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

3. North Lleyn Peninsula / Gogledd Pen Llŷn Potential Site



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Llywodraeth Cymru
Welsh Government

3.3 North Llyn Peninsula/ Gogledd Pen Llŷn Potential Site Option



Sea thrift and lichens on rock looking along the North Pen Llŷn coast. Source: CCW intertidal survey. © Dan Bayley, CCW.

This site is situated on the north side of the Llyn peninsula, North Wales and is within the Pen Llŷn a'r Sarnau SAC. The consultation area stretches along the shore from Penrhyn Cwmistir (southwest of Porth Dinllaen) to Porth Colmon and extends out to sea by around 4 km. This site was chosen because of its variety of different habitats on the shores and underwater and also includes areas of high productivity.

Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats

- High energy intertidal rock
- Moderate energy intertidal rock
- Low energy intertidal rock
- High energy shallow water rock
- Moderate energy shallow water rock
- Low energy shallow water rock
- High energy deeper water rock
- Moderate energy deeper water rock
- Intertidal sand
- Intertidal coarse sediment
- Subtidal sand
- Subtidal coarse sediment

- Subtidal mixed sediments
- Subtidal biogenic reefs
- Subtidal macrophyte communities

Important habitats

- Fragile sponge & anthozoan communities on subtidal rocky habitats
- Horse mussel (*Modiolus modiolus*) beds
- Subtidal rock with Ross 'coral' *Pentapora fascialis/foliacea*
- Subtidal mixed muddy sediments

High Productivity areas

- High benthic primary productivity (areas dominated by algae)

Further information is available on the interactive Web application on the following link:
<http://data.wales.gov.uk/apps/marine#site=8>

Site Description

The shores in the consultation area are mostly rocky, with the exception of the sandy bays around Porth Towyn and Traeth Penllech (Porth Colmon). These two small beaches both have soft earth cliffs at the back of the shore and gently sloping areas of bedrock and/or boulders on the beach. The seaweed communities in the rocky areas here tend to reflect the slightly lower wave exposure and species like knotted wrack are found. Along the lower shore a tiny red seaweed, called sand binder, traps the sand and forms spongy mats of sand sometimes with other seaweeds like Irish moss and serrated wrack. Kelps grow along the low tide line of the rocks. The sandy areas are home to various burrowing creatures, such as worms (including lugworms), amphipods and isopods (both types of crustacean, related to crabs).

The rocky areas along the coast offer a wide variety of nooks and crannies for seaweeds and animals to live. Gullies run along the gently sloping bedrock providing pockets of shelter for dense canopies of brown seaweeds, such as channel wrack spiral wrack, knotted wrack and bladder wrack to grow. Rock pools, small caves and overhangs dot the shore. A variety of



Snakelocks anemones on a rock pool fringe on the North Pen Llŷn coast. Source: CCW intertidal survey. © Dan Bayley, CCW.

animals and seaweeds live in the rockpools from snakelocks anemones, stalked leaf bearer, breadcrumb sponge, prawns and velvet swimming crabs. Overhanging rocks are encrusted with seamats, anemones and gooseberry sea squirts. Deep gullies and indentations run from the back of the shore to the low tide mark. These are often filled with cobbles and pebbles. Outside of these sheltered pockets, the rocks are encrusted with barnacles and limpets are stuck fast to the rock. The lower shore is covered in a turf of red seaweeds like Irish moss and coral weed, often with serrated wrack. These rocky areas extend below the water and support dense forests of kelp and red seaweeds. The dominant species are influenced by the level of exposure to waves and tidal currents.



Horse mussel reef off the North Pen Llŷn coast, with brittlestars and soft corals. Source: CCW monitoring survey. © Bill Sanderson, CCW.

Underwater much of the seabed consists of a mixture of cobbles, pebbles and sand, occasionally with boulders. At one site more muddy mixed sediments have been recorded. To the northwest there is a large bed of horse mussels, one of only a few found in Welsh waters. Horse mussels are a large and long-lived type of mussel and when they join together to form beds they provide a habitat for many other species of animals (soft corals like dead men's fingers, brittlestars and small urchins are just a few of the species that live on or amongst the mussels). The bed forms a distinctive wave-like structure, with the majority of animals on the tops of the ridges and more dead shell in the troughs. There are also many small rocky reefs in this area. In deeper water

the rock is covered by animals, which can include a large variety of sea squirts, sponges, sea mats and anemones. There are animals called bryozoans, or seamats, on some of these reefs, with around 20 different species recorded, including the Ross 'coral', which forms a hard orange flower-like structure. Ross 'coral' are common in many deeper parts of the site (although not in the area of the horse mussel bed). Other bryozoans include the spiral bryozoans and white claw sea moss and the teapot sea squirt is also common here. On the sediments there are areas of small mussel (green crenella) reef where the densities can exceed 60,000 mussels per square metre. There are also beds of brittlestars that form a writhing carpet on the seafloor, their stripy arms waving in the current catching small particles of food.

Site Size

This site covers an area of 26.8 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 3 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 3. This is what we know about the activities¹¹ in/ near the North Llyn Peninsula/ Gogledd Pen Llyn Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently protected or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	There may be in-direct benefits for heritage features within sites protected by the increased management regime.
Cables	There are several inactive/out of service cables within the boundary.	There is no overlap with existing active or known planned cable routes therefore there will be no direct impact. Access/maintenance of the inactive cables may be restricted or require mitigations to be compatible with the conservation objectives of a HPMCZ. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route

¹¹ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

		at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We need to know how this area is used for <u>all</u> fishing activities.	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is not used for training/testing purposes however we need to know more about other defence activities within the area	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.

Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impact associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring.</p> <p>The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>
Waste disposal	There is an outfall within the site boundary.	There is overlap with an existing outfall however we need to know more about the pattern and volume of discharge at the outfall to the west of the site in order to determine whether there will be any direct on-site impact.

Consultation Questions – North Llyn Peninsula/ Gogledd Pen Llyn Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

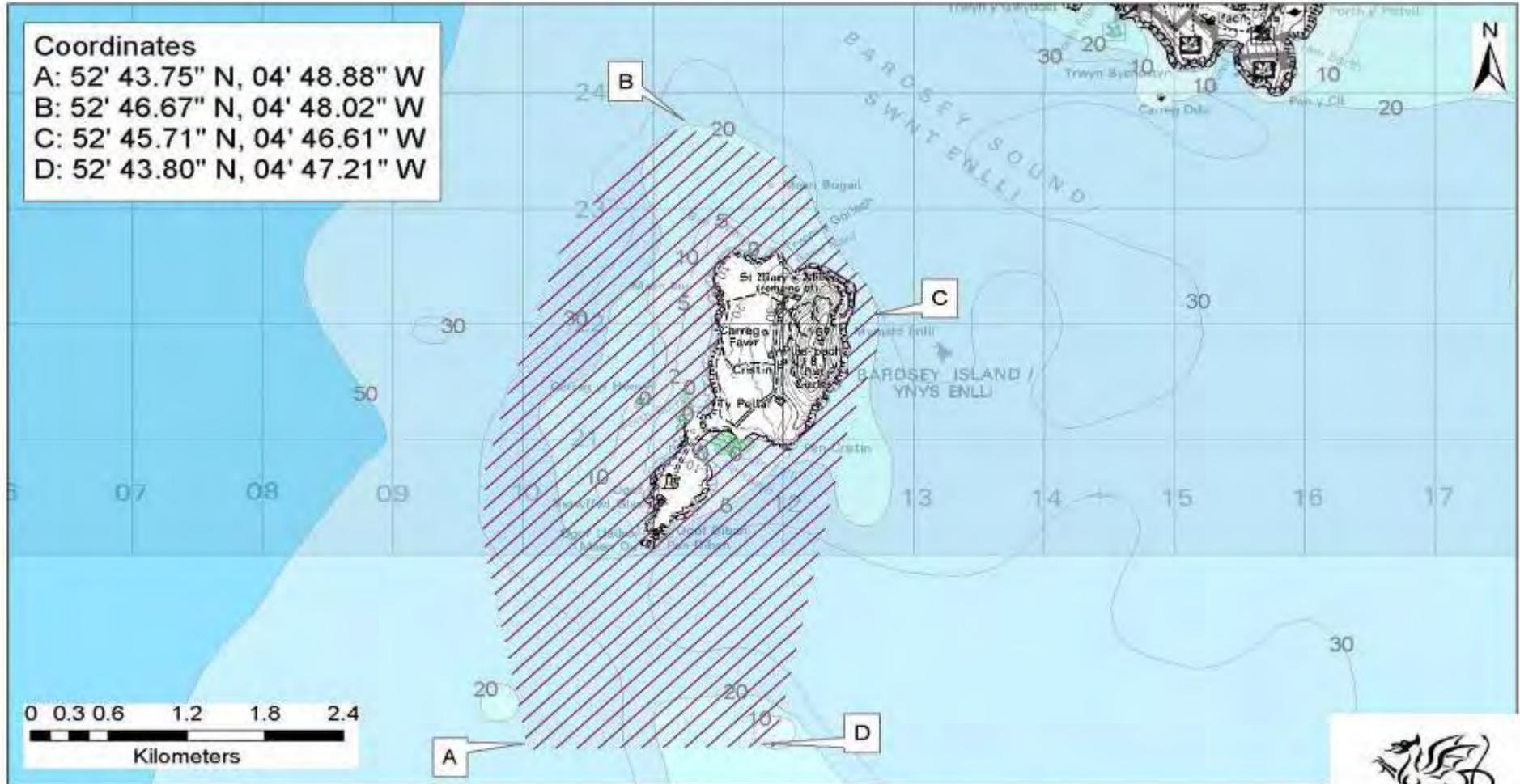
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

4. Bardsey Island / Ynys Enlli Potential Site



3.4 Bardsey Island/Ynys Enlli Potential Site Option



Aerial view of Bardsey Island from the North. © Rohan Holt, CCW.

This site is situated off the southwest tip of the Llyn peninsula and is within the Pen Llyn a'r Sarnau SAC. The consultation area includes the shores around the island and the surrounding waters out to a distance from the island of between 100 m and 1.7 km. This site was chosen because of its variety of

different habitats on the shores and underwater and also includes areas of high productivity. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats

- High energy intertidal rock
- Moderate energy intertidal rock
- Low energy intertidal rock
- High energy shallow water rock
- Moderate energy shallow water rock
- High energy deeper water rock
- Moderate energy deeper water rock
- Subtidal macrophyte communities
- Subtidal mixed sediments
- Subtidal sand

Important habitats

- Fragile sponge & anthozoan communities on subtidal rocky habitats
- Sediment habitats with long-lived bivalves

High Productivity areas

- High benthic primary productivity (areas dominated by algae)

Further information is available on the interactive Web application on the following link:
<http://data.wales.gov.uk/apps/marine#site=1>

Site Description

Bardsey is an island of contrasts, split in the middle by two sheltered bays of Porth Solfach on the west side of the island and Henllwyn and Cefn Enlli on the east side. Steep cliffs are found in the north of the island, whilst the southern end has shallow sloping platforms. In exposed areas barnacles form a crust on the upper shore with limpets stuck fast onto the rock. Stunted sprigs of the bladderless form of bladder wrack cling to the shore where it is wider. From a distance the lower shore in the northwest side of the island is a bright pink colour from pink coral-like seaweed and other encrusting pink seaweeds that look more like lichens than a seaweed. Where the island is slightly less exposed, a thick turf of red seaweeds such as Irish moss and pepper dulse thrive with the large brown seaweed, thongweed. Oarweed and dabberlocks are the common kelps along the low tide mark, with the ribbon-like dabberlocks flourishing in the most exposed areas. In contrast, the shores in the shelter of the bays look very different. The brown seaweeds channel wrack, spiral wrack, knotted wrack and serrated wrack form canopies from the top of the shore to the kelp zone. These brown seaweeds in other areas of the island can only grow in pockets of shelter behind outcrops and in gullies or in small patches. Grey seals haul out and give birth to and raise their pups on the shores of the island.



Yellow cluster anemones and yellow staghorn sponge amongst a faunal turf off Bardsey Island. © Rohan Holt, CCW.

Rock pools are found dotted around the whole of the island. These vary from shallow to deep, entirely within rock or within the bays with sandy bottoms. They are home for numerous fish, crabs, anemones, starfish and prawns. Coralline seaweed dominates shallow midshore pools with brown tuning fork weed that is only found in the south west of the British Isles. Kelp is able to grow in the deep pools with numerous red seaweeds from delicate fine veined crinkle weed and succulent red grape weed to leathery red rags. Within the sheltered bays either side of the island, large sandy floored pools are found.

Sand tolerant seaweeds like sugar kelp and clawed fork weed flourish along with brittlestars, snakelocks anemones and sponges.



Yellow cluster anemones and bryozoan turf on rock off Pen Cristin, Bardsey Island. © Rohan Holt, CCW.

The rocky habitats extend under water and are at first dominated by dense kelp forests, with various species of red seaweeds underneath the kelp plants. In places the red seaweeds seem to be particularly dense and luxuriant and over 70 different species of these seaweeds have been recorded around

Bardsey. Below this the rocks are dominated by animals. Around much of the island the

influence of the strong tidal currents is apparent in the animal species found; for example the oaten pipes hydroid, which thrives in strong currents, is abundant in many areas. There are particularly luxuriant turfs of hydroids (seafirs) and bryozoans (seamats) (both colonial animals) in several places and these areas also have large yellow staghorn sponges and various species of anemones, including the bright yellow cluster anemone. These habitats have mostly been recorded around the eastern side of the island.

A larger area to the south of the island has also been included. The seabed in this area is sediment, rather than rock, and includes sandy sediments and sediments that are a mixture of cobbles, pebbles, boulders and sand.

The waters around the island are important to the many birds that breed on the island for essential resting and maintenance activities. In particular, the island is internationally important for Manx shearwater.

Site Size

This site covers an area of 10.5 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 4 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 4. This is what we know about the activities¹² in/ near the Bardsey Island/ Ynys Enlli Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently protected or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	There may be in-direct benefits for heritage features within sites protected by the increased management regime.
Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.

¹² Information sources: Welsh Government (2011), CCW 2007-2011), Cefas 2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate

Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We are aware that some pot fishing takes place in this area but we need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is used for training/testing purposes however we need to know more about other defence activities within the area.	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.
Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required. There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring. The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed. There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities. There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/

		<p>restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and offsite benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	<p>We need to know how this area is used for educational and research purposes that would not be linked to the site itself</p>	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	<p>No</p>	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>
Waste disposal	<p>There is an outfall within the site boundary.</p>	<p>There is overlap with an existing outfall however we need to know more about the pattern and volume of discharge at this outfall to determine whether there will be any direct impact.</p>

Consultation Questions – Bardsey Island/ Ynys Enlli Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

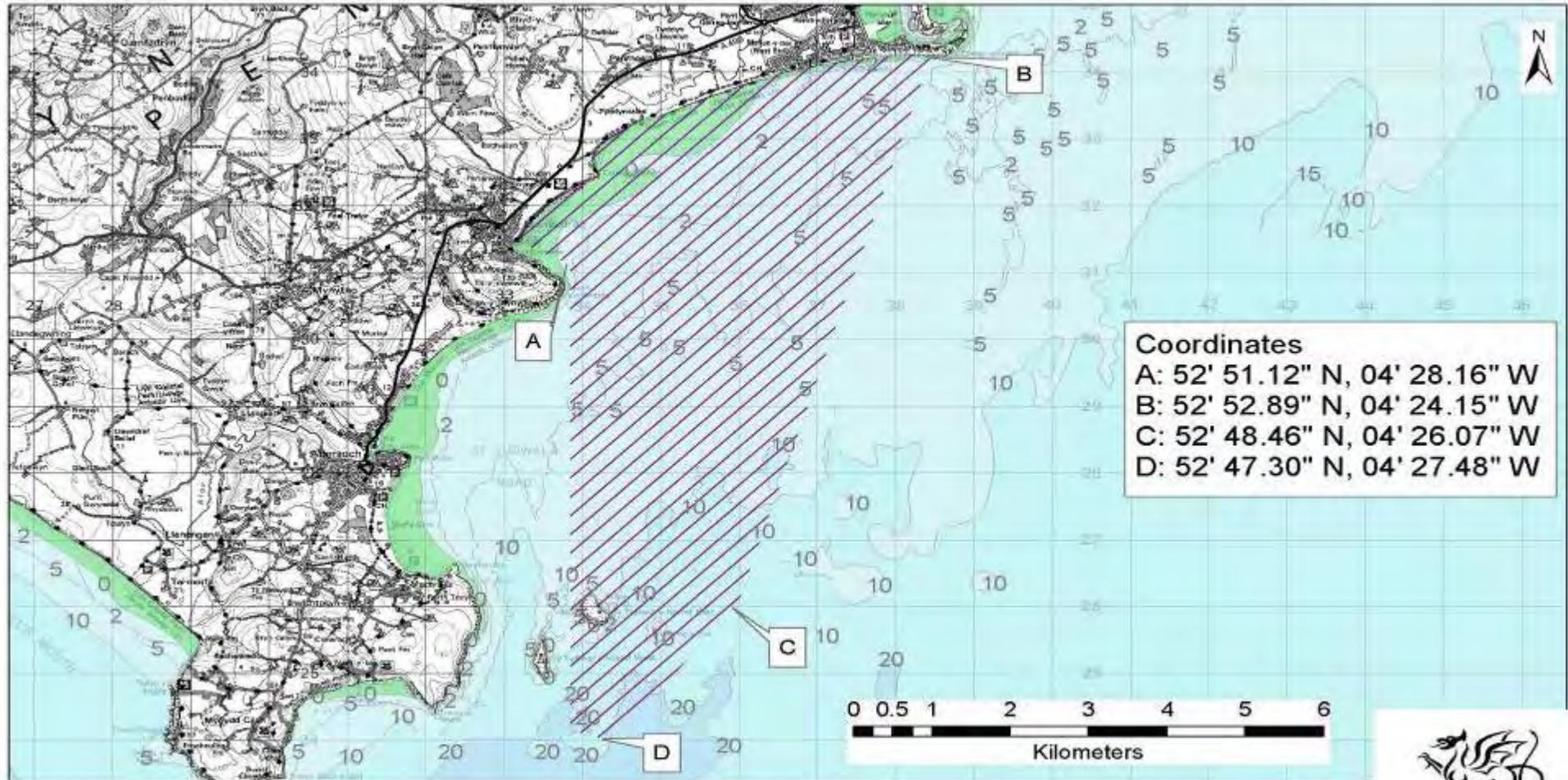
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

5. St Tudwal's Island East and Llanbedrog / Ynys Ddwyreiniol Tudwal a Llanbedrog Potential Site



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3.5 St Tudwal's Island East and Llanbedrog / Ynys Ddwyreiniol Tudwal a Llanbedrog Potential Site Option



View towards the back of Two-level Cave in St Tudwal's Island East. Source CCW sea caves survey. © Rohan Holt, CCW.

This site is situated in Tremadog Bay on the south side of the Llyn peninsula, North Wales and is within the Pen Llyn a'r Sarnau SAC . The consultation area includes the shores and waters surrounding St Tudwal's Island East northwards to Llanbedrog and Traeth Crugan. The boundary along the shore starts just north east of Trwyn Llanbedrog and extends to Marian-y-de at Pwllheli. This site was chosen because of its variety of different habitats on the shores and underwater and also includes areas of high productivity. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats:

- High energy intertidal rock
- Low energy intertidal rock
- High energy shallow water rock
- Moderate energy shallow water rock
- High energy deeper water rock
- Moderate energy deeper water rock
- Intertidal sand
- Intertidal coarse sediment
- Subtidal sand
- Subtidal mixed sediments
- Subtidal macrophyte communities

Important habitats:

- Blue mussel (*Mytilus edulis*) beds
- Subtidal rock with Ross 'coral' *Pentapora fascialis/foliacea*
- Sheltered muddy gravels
- Subtidal mixed muddy sediments

High Productivity areas:

- High benthic primary productivity (areas dominated by algae)
- High chlorophyll concentrations (high concentrations of plant plankton)

Further information is available on the interactive Web application on the following link:
<http://data.wales.gov.uk/apps/marine#site=6>

Site Description

The areas immediately around St Tudwal's Island East and the nearby outcrop of Carreg y Trai are rocky and are often used by grey seals for hauling out and pupping. The shores of St Tudwal's East are mainly gently sloping rock slabs, with growths of seaweeds, mussels and barnacles and in more tideswept areas sponges, sea squirts and bryozoans are increasingly common. The sheltered east side of St Tudwal's East has scattered small cobble beaches and rock slabs. On the other side of the island there are several small caves and gullies. These tend to have species which can tolerate strong wave surges, such as the orange gooseberry seasquirt and the white lace sponge. Below low water in the shallows there are kelp forests, which then give way to areas dominated by red seaweeds. In slightly deeper water the red seaweeds become more sparse and animals (such as sponges (e.g. shredded carrot sponge), bryozoans (or seamats) (e.g. hornwrack) and hydroids (or seafirs) (e.g. antenna hydroid)) become dominant. Around the outcrop of Carreg y Trai there are slopes of boulders and cobbles along with wreckage from a steamship that sank on these rocks. The orange Ross 'coral' is found in this area. This is an animal (a bryozoan rather than a coral) that forms a hard orange flower-like structure, which provides a habitat for several other species.



Gooseberry seasquirts and white lace sponge on a submerged wall in a cave off St Tudwal's Island East. Source CCW sea caves survey. © Rohan Holt, CCW.

The shores between Llanbedrog and Pwllheli include sand, coarse sediment, sandy gravels and mussel beds. There are muddy sand areas towards the western end of the consultation area and coarser sediments towards Pwllheli. The shingle areas near Pwllheli support the rare shrimp *Pectenogammarus planicrurus* but have few other species. There are mussel beds on the shore at Llanbedrog and Traeth Crugan. Surrounding these mussel beds at Llanbedrog are areas of low lying sandy gravels. Hidden within the gravel is a variety of bivalves, such as carpet shells. Tubes of the sand mason worm and peacock worm stick out of the sediment. The dull grey rubbery tube of the peacock worm is a stark contrast to its delicate fan of tentacles that open out when the tide comes in. Periwinkles, sponges and red and brown seaweeds are found on the cobbles and pebbles within the sandy gravel and sand. Overhanging areas on boulders on the low shore are encrusted with sponges, sea mats, seasquirts and anemones. The muddy sand areas are home to a variety of burrowing creatures, such as lugworms, Baltic tellins and striped venus shells. Along the low tide line, razor clams, sea potatoes and the scarcely found thumbnail crab with its fringe of hairs around the shell are all hidden under the surface. At the western end of Traeth Crugan there are patches of red clay exposed through the sand, colonised by the white piddock, an uncommon community on this coastline.



Lower shore mixed sediment with serrated wrack, mermaids tresses and a variety of red and green seaweeds. Source: CCW Marine Algal Sites Survey © Francis Bunker

In the area north of St Tudwal's Island East to the shore the majority of the seabed is a mixture of cobbles, pebbles, gravel, sand and mud. This means that a diverse assortment of species occurs here, from seaweeds, sponges, hydroids (seafirs) and bryozoans (seamats) that grow on the cobbles and pebbles, to sediment dwelling animals that live in the sediments in between. Sampling within the sediments has shown a high number of species, with over 500 animals from 85 different species being recorded in a single grab of sediment. The species found include many different small worms, shrimp-like amphipods and bivalve shells; also the mantis shrimp with its knife-like claws and spiny back end, a species which is more commonly found on the south coasts of England. The red seaweed *Anotrichium barbatum* is also found here, along with other species of seaweed.

Site Size

This site covers an area of 28.2 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 5 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 5. This is what we know about the activities¹³ in/ near the St Tudwal's Island East and Llanbedrog / Ynys Ddwyreiniol Tudwal a Llanbedrog Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently designated or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	There may be in-direct benefits for heritage features within sites protected by the increased management regime.

¹³ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We are aware that some pot fishing takes place in this area but we need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is not used for training/testing purposes however we need to know more about other defence activities within the area	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.

Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring.</p> <p>The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>
Waste disposal	There are a number of outfalls outside the site boundary	<p>There is no direct overlap with an existing outfall however we need to know more about the pattern and volume of discharge at the outfall in the area to determine whether there will be any off-site impact. There may be impacts associated with mitigation, management and monitoring.</p>

Consultation Questions – St Tudwal's Island East and Llanbedrog / Ynys Ddwyreiniol Tudwal a Llanbedrog Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

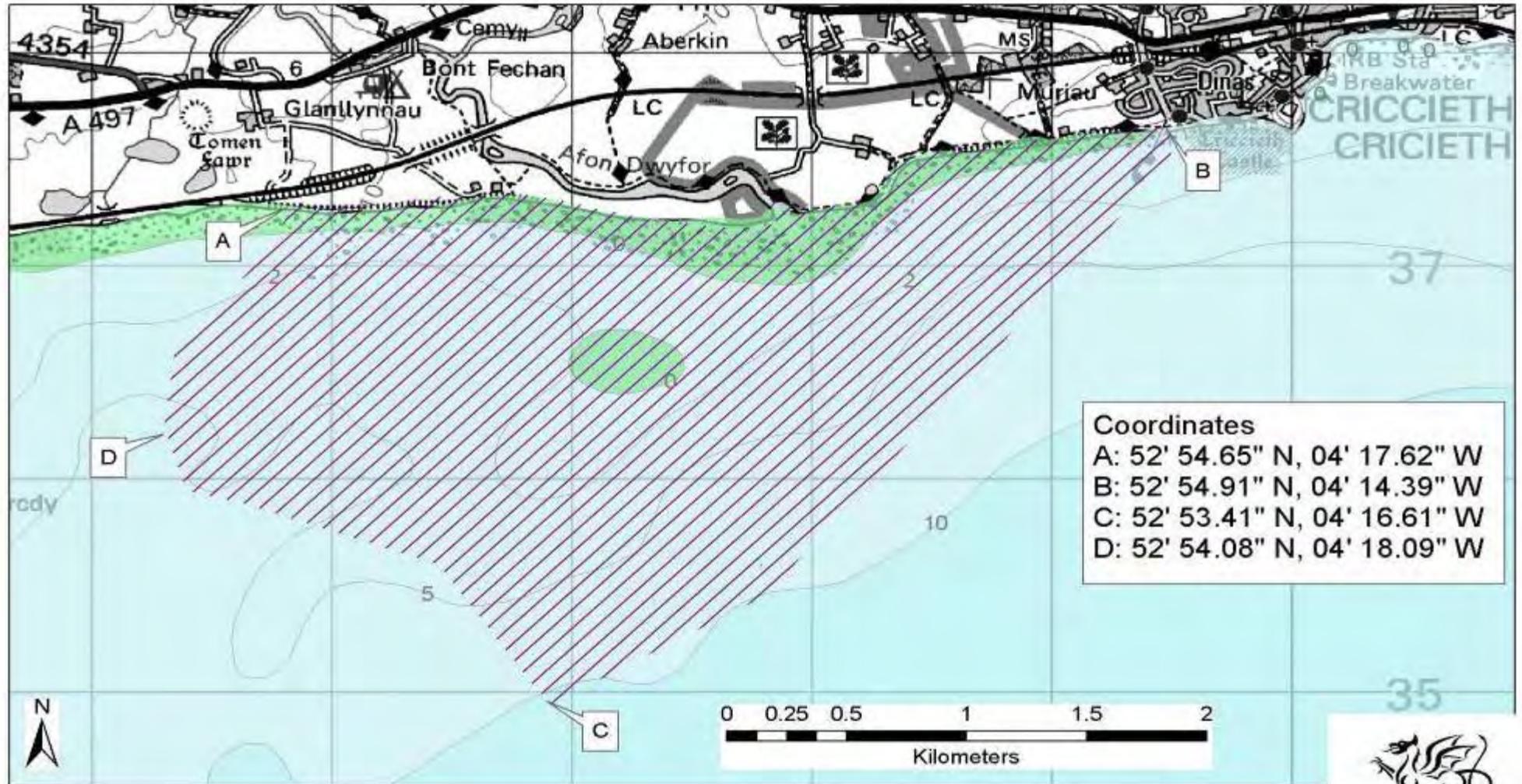
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

6. Mouth of the Dwyfor / Aber Afon Dwyfor Potential Site



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3.6 Mouth of the Dwyfor/ Aber Afon Dwyfor Potential Site Option



View across boulders and cobbles towards Criccieth castle, with limpets, brown seaweed and periwinkles. Source: CCW intertidal survey. © Peter Walker, CCW.

This site is in Tremadog Bay, on the south side of the Llyn Peninsula, North Wales and extends across either side of the mouth of the Afon Dwyfor. It sits within the Pen Llyn a'r Sarnau SAC. It extends from the west end of Criccieth westwards almost 4 km along the coast and extends out to sea by a maximum of 2.3 km. This site was chosen because of

the variety of habitats both on the shores and underwater and also includes areas of high productivity. Protecting a wide variety of

different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats:

- High energy intertidal rock
- Moderate energy intertidal rock
- Low energy intertidal rock
- Intertidal coarse sediment
- Intertidal biogenic reefs
- High energy shallow water rock
- Subtidal sand
- Subtidal mixed sediments

Important habitats:

- Intertidal boulder communities
- Blue mussel (*Mytilus edulis*) beds
- Honeycomb worm (*Sabellaria alveolata*) reefs

- Subtidal mixed muddy sediments

High Productivity areas:

- High benthic primary productivity (areas dominated by algae)
- High chlorophyll concentrations (high concentrations of plant plankton)

Further information is available on the interactive Web application on the following link:
<http://data.wales.gov.uk/apps/marine#site=9>

Site Description

The coast is backed by low boulder clay and a storm ridge of shingle that tends to shift position over time. Along the shores, throughout much of this area, honeycomb worm reefs form mounds and crusts on the boulders. These are constructed by dense aggregations of worms that cement sand together to form a honeycomb-like structure. These reefs alter the shore, for example by creating small pools of water and create habitat for other species. The denser reefs are found to the east of the mouth of the Afon Dwyfor. The shore has a variety of rocky areas, small patches of sand and coarse sediment. The rocky areas are dominated by brown seaweeds, mainly bladder wrack, and under-boulder habitats increase the diversity of animal species including star sea squirts, beadlet anemones and small crabs called porcelain crabs that are especially adapted to living under boulders. Near the mouth of the Afon Dwyfor and towards the west of the consultation area there are mussel beds on the mid and low shore.



Honeycomb worm reef and bladder wrack seaweed amongst cobbles and boulders west of the mouth of the Dwyfor. Source: CCW intertidal survey. © Dan Bayley, CCW.



Periwinkles on pebbles in a shallow pool west of the mouth of the Dwyfor. Source: CCW intertidal survey. © Dan Bayley, CCW.

Underwater, the seabed is a mixture of sand, muddier sediments, mixed sediment and rocky habitats. In the centre of the site small boulder reefs in shallow water extend down to around 10 m water depth. These boulders are dominated by seaweeds such as bootlace weed, sea oak and red seaweeds. In addition, there are occasional sponges, hydroids

(seafirs), anemones and bryozoans (seamats). Patches of muddy gravelly sand lie close to and to the west of these boulder reefs. Sampling within this area found very high numbers (over 500) of small bivalves called *Mysella bidentata* and around 60 different species recorded in a single grab of sediment. To the south, there is evidence that the sediment becomes more sandy and muddy, with fine sands that have burrows and worm casts.

Site Size

This site covers an area of 6.0 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 6 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 6. This is what we know about the activities¹⁴ in/ near Mouth of the Dwyfor/ Aber Afon Dwyfor Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently designated or heritage sites. Therefore the key activity we are interested in is	There may be in-direct benefits for heritage features within sites protected by the increased management regime.

¹⁴ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

	where they are linked to any recreational pursuits – see recreation below.	
Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We are aware that some pot fishing takes place in this area but we need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is not used for training/testing purposes however we need to know more	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.

	about other defence activities within the area	
Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impact associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring.</p> <p>The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>
Waste disposal	There are a number of outfalls in the area.	We need to know more about the pattern and volume of discharge at the outfalls in order to determine whether there will be any direct or off-site impact. There may be impacts associated with mitigation, management and monitoring.

Consultation Questions – Mouth of the Dwyfor/ Aber Afon Dwyfor Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

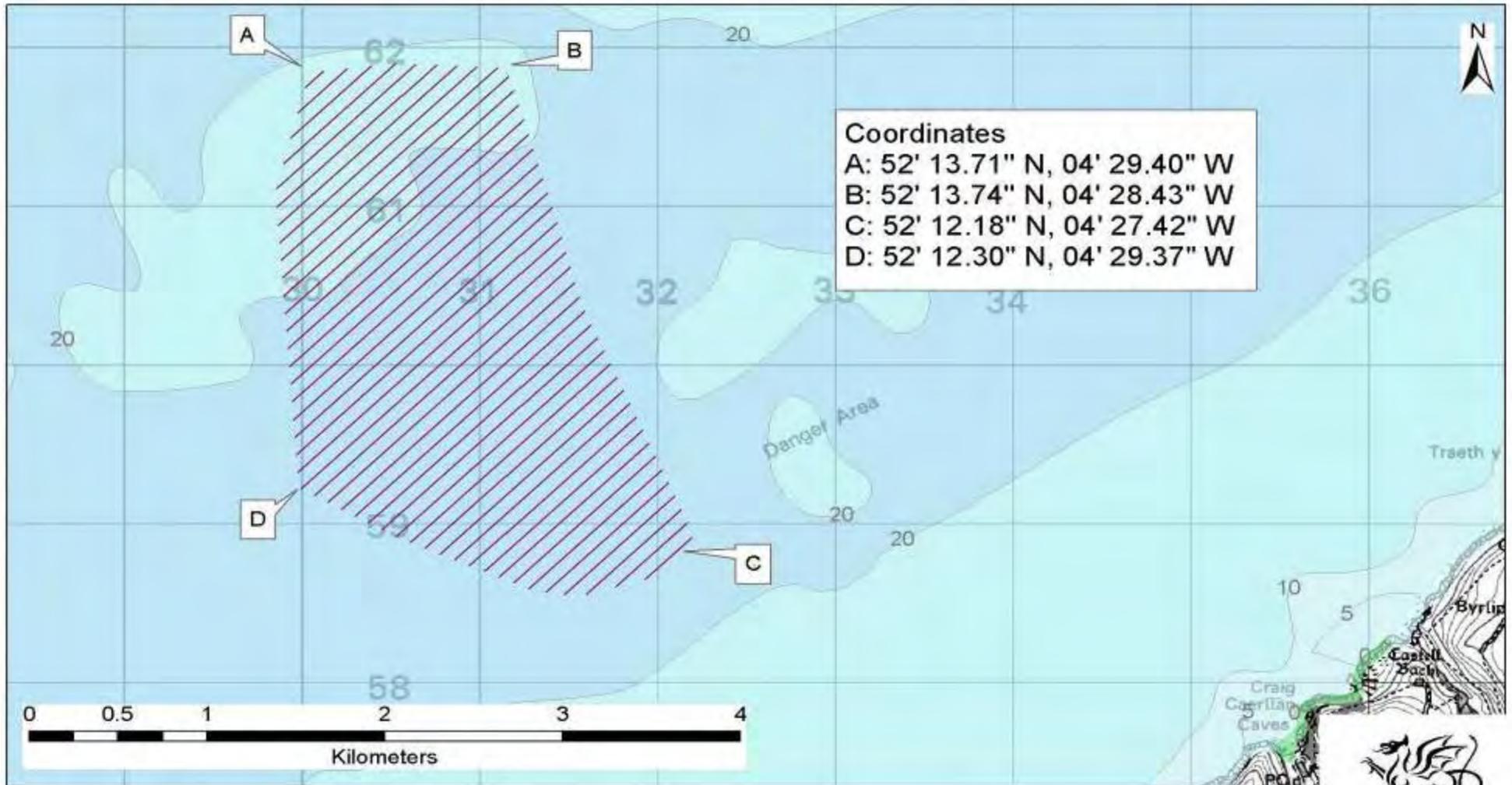
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

7. New Quay offshore / Ceinewydd (môr) Potential Site



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3.7 New Quay offshore/ Ceinewydd (môr) Potential Site Option



This site is out to sea in Cardigan Bay approximately 7 km west of New Quay and 3 km north of Ynys Lochtyn and is within the Cardigan Bay SAC. The site is roughly 3.5 km long by 1.5 km wide. The site was chosen because it has a range of different sediment habitats that are entirely subtidal.

Sand star half buried in sand (image from Tremadog Bay but represents species found within the New Quay site). © Rohan Holt.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats:

- Subtidal coarse sediment
- Subtidal mud
- Subtidal mixed sediments
- Subtidal sand

Important habitats:

- Sediment habitats with long-lived bivalves
- Mud habitats in deep water

Further information is available on the interactive Web application on the following link: <http://data.wales.gov.uk/apps/marine#site=10>.

Site Description

In the south of the site muddy sediments have been recorded, on the surface of which tower shells can be seen. North of this there are coarser sediments which consist of fine and medium sand with some coarser sand and gravel, in which the Icelandic cyprine (sometimes called the ocean quahog), a bivalve that can live for over 400 years, has been found. These sediments are home to a range of worms, bivalve shells and small shrimp-

like amphipods. To the east the sandy sediments seem to be a little more stable. In this area divers have observed sediment dwelling hydroids (*Corymorpha nutans*), sandstars and burrowing sea cucumbers. To the north of the site the sediments are more mixed and in places have boulders, cobbles and pebbles, with gravel, or sometimes muddy gravel between them. The boulders and cobbles support various species including the goosebump sponge, feathery hydroids, soft corals, ross worms, hermit crabs, squat lobsters and porcelain crabs. These mixed sediments support more species than in other areas of this site, including over 80 different species of worms.



Goosebump sponge (image from an unknown location but representative of species found within the New Quay site). © CCW.

Site Size

This site covers an area of 5.3 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 7 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 7. This is what we know about the activities¹⁵ in/ near the New Quay offshore/ Ceinwydd (môr) Potential Site and the potential impacts should the site be designated as a highly protected MCZ

¹⁵ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	No	There may be in-direct benefits for heritage features within sites protected by the increased management regime.
Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	We need to know more about defence activities within the area	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.

Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and offsite benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>
Waste disposal	No	There is no overlap with an existing outfalls therefore there is no direct impact.

Consultation Questions – the New Quay offshore/ Ceinewydd (môr) Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

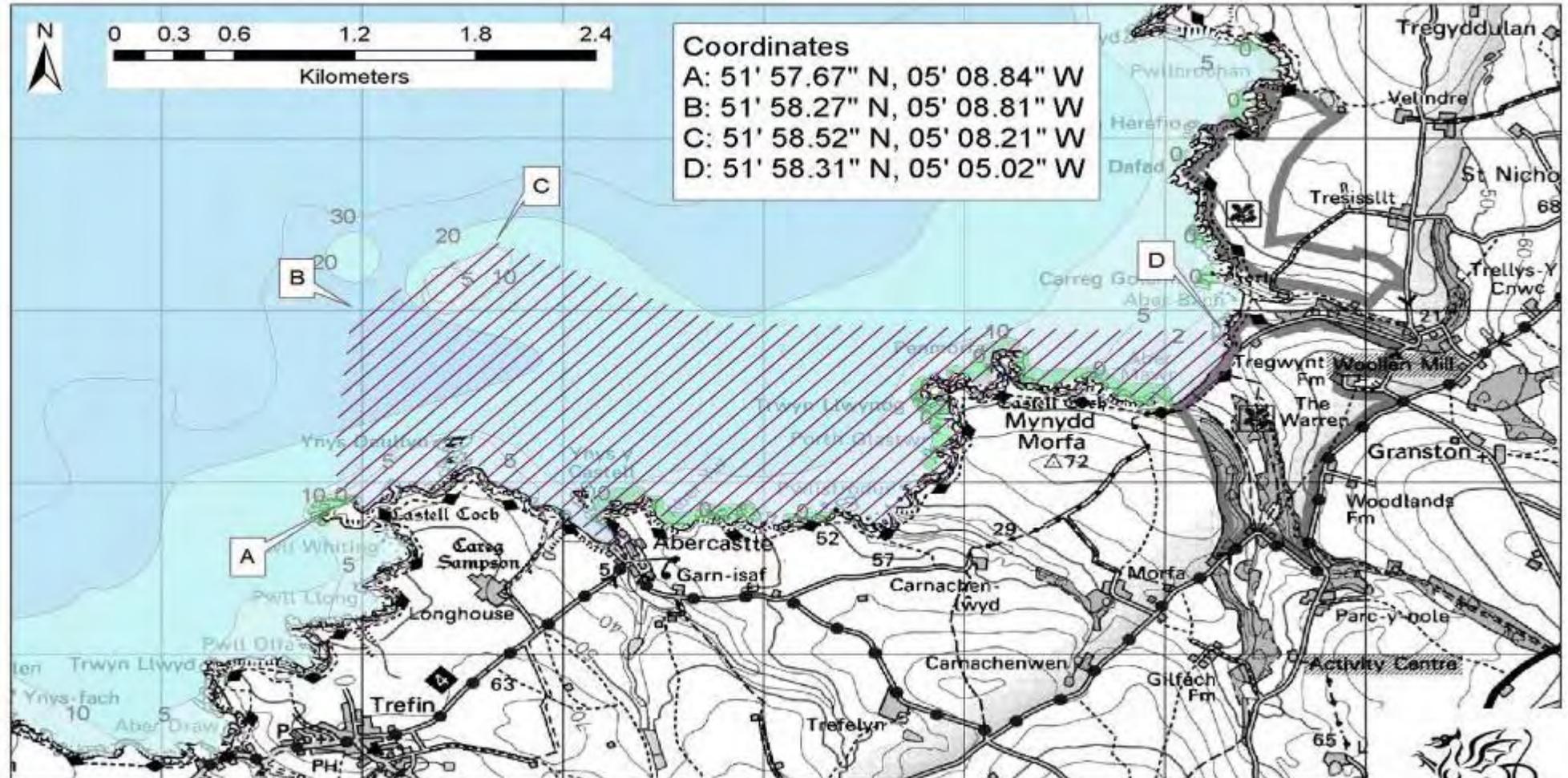
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastimes.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

8. South West of Strumble Head/ I'r De Orllewin o Ben Caer Potential Site



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3.8 South West of Strumble Head/ I'r De Orllewin o Ben Caer Potential Site Option



This site is south west of Strumble Head, north Pembrokeshire. The site stretches along the coast from Castell Coch (west of Abercastle) in the west to the northeastern end of Aber Mawr. It extends out to sea by a distance of up to 1.5 km. The site was chosen as it has a large number of different habitats and also includes areas of high productivity. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Exposed rock platform encrusted with barnacles and limpets south-west of Strumble Head. Source: CCW Intertidal Phase 1 Survey. © Monica Jones, CCW.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats:

- High energy intertidal rock
- Moderate energy intertidal rock
- Intertidal coarse sediment
- High energy shallow water rock
- Moderate energy shallow water rock
- High energy deeper water rock
- Moderate energy deeper water rock

Important habitats:

- Fragile sponge & anthozoan communities on subtidal rocky habitats
- Subtidal rock with Ross 'coral' *Pentapora fascialis/foliacea*

High productivity areas:

- High benthic primary productivity (areas dominated by algae)

Further information is available on the interactive Web application on the following link:

<http://data.wales.gov.uk/apps/marine#site=5>.

Site Description

The shores of this site are mainly rocky, with the exception of the beach at Aber Mawr and sandy patches at Abercastle and Pwllstrodur. Much of the rocky shore is quite exposed to wave action and as a result tends to be encrusted with barnacles and limpets which are stuck fast to the rocks. Where the shore is a bit wider stumpy growths of the bladderless form of bladder wrack cling onto the rock. In more sheltered areas and gullies the large brown seaweed thongweed grows in amongst a dense turf of the red seaweeds including dulse, pepper dulse and Irish moss. At the very bottom of the shore kelp plants are found. Small rocky bays and inlets provide even more shelter from the waves and here a dense canopy of brown seaweeds can flourish. There are numerous caves and gullies along this stretch of coast, some of which are dominated by coralline algae and sponges such as elephant's ear sponge and breadcrumb sponge. There are many more caves along this stretch of coast that have not been surveyed. Some of these rocky shores are also used by grey seals for hauling out and pupping. Rock pools are dotted throughout the site. These are home for numerous

fish, crabs, anemones, starfish and prawns. Coralline seaweed dominates shallow midshore pools with daisy anemones, top shells, brown fan weed and various banded pincer weeds. In deeper pools with sediment floors, sand tolerant seaweeds like black scour weed, purple claw weed and discoid fork weed flourish along with prawns, crabs and snakelocks anemones. The sandy shores in this area support amphipods, lugworms and sand mason worms. There are also areas of shingle at the back of some shores.



A mixture of different sponge species and yellow cluster anemones on the seabed south-west of Strumble Head. © Chris Wood, Seasearch.



Dabberlocks in shallow water west of Pwllstrodur. Source: CCW Intertidal Phase 1 Survey. © Monica Jones, CCW.

Below the shore, there are underwater cliffs, gullies, caves and blowholes. In shallow water there are kelp forests dominated either by forest kelp, or in more exposed places by dabberlocks. Growing in between and underneath the kelp plants are red seaweeds, such as siphoned feather weed, sea beech and fine veined crinkle weed.

Below the kelp the rocky seabed is dominated by animals. In places, the rocky reefs are carpeted with an especially diverse and lush turf of animals which includes pink seafans, yellow cluster anemones, Indian feather's hydroids, crispy thread bryozoans and yellow staghorn sponges. Many of these species are only found in a few places in Welsh waters. In slightly shallower water red seaweeds are mixed in with the animal species. The rocky reefs here support a high diversity of sponge species, with over 100 different species of sponge having been recorded between Strumble Head and Porthgain. Another species that is commonly found on rocky habitats in this area is the Ross 'coral'. This is an animal (a bryozoan rather than a coral) that forms a hard orange flower-like structure, which provides a habitat for several other species.

Site Size

This site covers an area of 4.1 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 8 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and

enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 8. This is what we know about the activities¹⁶ in/ near the South West of Strumble Head/ I'r De Orllewin o Ben Caer Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently designated or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	There may be in-direct benefits for heritage features within sites protected by the increased management regime.
Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.

¹⁶ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is not used for training/testing purposes however we need to know about other defence activities within the area	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.
Ports, boats and shipping	We need to know more about the facilities and associated activities in the area	The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required. There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring. The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed. There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities. There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ. On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.
Research and	We need to know	There will be direct costs on any activity incompatible or in conflict with the

data collection activities	how this area is used for educational and research purposes that would not be linked to the site itself	conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives. There may be benefits to education and research from increased interest in the area and the marine ecosystem.
Sea defence structures	No	The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures. The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.
Waste disposal	No	There is no overlap with an existing outfall therefore there is no impact.

Consultation Questions – South West of Strumble Head/ I'r De Orllewin o Ben Caer Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

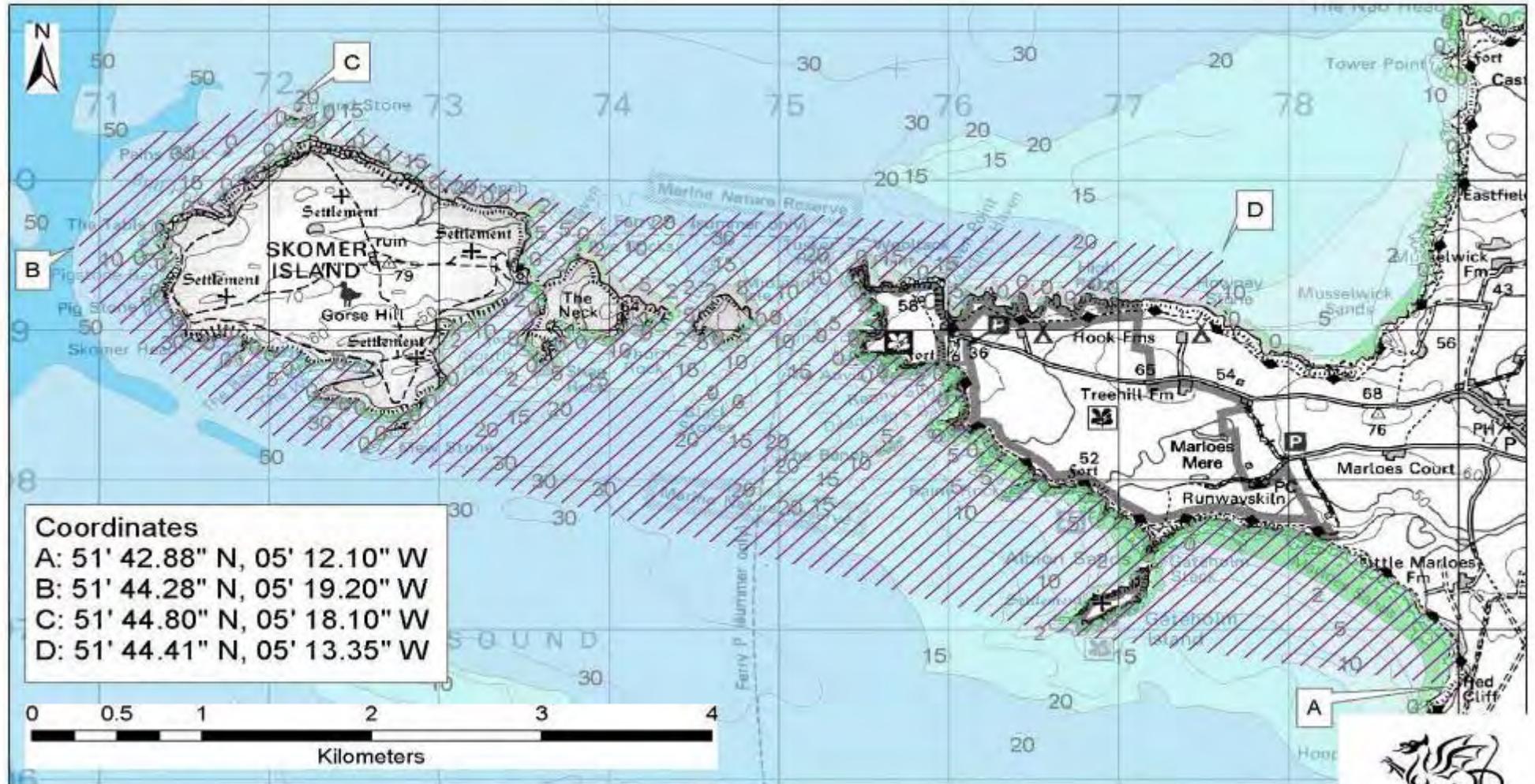
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

9. Skomer / Sgomer Potential Site



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3.9 Skomer/ Sgomer Potential Site Option



This site includes the waters around Skomer Island and parts of the Marloes peninsula in South Pembrokeshire. It is within the Pembrokeshire Marine SAC. The consultation area stretches from Marloes Sands in the south almost to Howney Stone on the north side of the peninsula. The site also includes the tidal waters of Jack Sound and the waters around Skomer Island out to

a distance of up to 500 m. The site was chosen because of the wide variety of different habitats both on the shores and underwater and also includes areas of high productivity. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats

- High energy intertidal rock
- Moderate energy intertidal rock
- Intertidal sand
- Intertidal coarse sediment
- High energy shallow water rock
- Moderate energy shallow water rock
- High energy deeper water rock
- Subtidal sand
- Subtidal coarse sediment
- Subtidal mixed sediments

Important habitats

- Fragile sponge & anthozoan communities on subtidal rocky habitats
- Mud habitats in deep water
- Subtidal rock with Ross 'coral' *Pentapora fascialis/foliacea*
- Subtidal mixed muddy sediments
- Tide swept channels
- Seagrass beds

High Productivity areas

- High benthic primary productivity (areas dominated by algae)

Further information is available on the interactive Web application on the following link:
<http://data.wales.gov.uk/apps/marine#site=2>.

Site Description

The coastline of the islands and peninsula is extremely rugged, it is indented with deep narrow inlets and bays, and around much of the coast high steep cliffs continue into the sublittoral so that deep water occurs very close to the shores.

The shores of this site are mostly rocky, with the exception of Marloes Sands and Albion Sands in the south. The majority of the rocky shores are exposed to wave action with the western part of Skomer Island being particularly exposed, so that the rocks are dominated by barnacles and limpets, rather than seaweeds. The shores around the rest of the island and the Marloes peninsula have a diverse mixture of different habitats, including steep rocky cliffs, rocky overhangs, more gently sloping bedrock, boulder communities, rockpools, caves and tunnels. The presence of many different types of habitat will increase the number of species that are found. The shores are also used by seals for hauling out and pupping.

There is a sandy shore at Marloes Sands and here there are worms, amphipods and isopods (small shrimp-like creatures) living within the sand. These are more abundant at the northern end of the beach, due to the shelter from waves provided by Gateholm Island. There are also areas of coarse sediment in the form of shingle at the back of some of the inlets and gullies on the rocky shores.

Underwater, much of the seabed is rocky, with the exception of the northern area of the site, where there are the sediment habitats of St Brides Bay. The topography of the seabed consists of cliffs, gullies, bedrock slopes, boulders and caves. In shallower waters, kelp forests are found and the area as a whole is rich in other types of seaweed



Ross 'coral' with antenna hydroids and cup corals amongst a faunal turf off Skomer Island. © Phil Newman, CCW.

with over 240 species recorded. Skomer also has over 100 species of sponge and 72 species of sea slugs (which comprises two thirds of all UK sea slug species). Around the northern side of Skomer Island there are numerous pink seafans, which occur with a wide range of other species including Devonshire cup corals, soft corals (dead man's fingers) and hydroids, with occasional patches of yellow cluster anemones and red fingers. Ross 'coral' is also common in some areas. There are also areas of overhanging rock, underneath which unusual species are found like the pink sea fingers, the scarlet and gold cup coral and the (Weymouth) carpet coral. The more tideswept areas are dominated by animals that are adapted to strong currents and feed by filtering their food from the water, such as the oaten pipes hydroid, the gooseberry sea squirt and the orange sea squirt.



Boring sponge, yellow staghorn sponge, antenna hydroids, spider crab and cup corals off Skomer Island. © Rohan Holt, CCW.

The seabed to the north east of the site tends to be sandy, with various species of worms, amphipods and bivalves shells living within the sediment. There have also been muddier patches of sediment recorded, although these have not been extensively surveyed. There is also a seagrass bed at North Haven. This is fairly small in size but has been present for many decades and is regularly monitored. Around Skomer Island in deeper

water (beyond the rocky habitats) and also along the northern Marloes peninsula there are patches of both shelly and/or gravelly sediments and mixtures of pebbles, gravel, sand and in some cases, mud. These areas support very high numbers of species, with a mixture of species which live on the larger stones and those that live within the sediment. Over 200 species have been recorded in a single grab sample in this habitat.

The island is internationally important for storm petrel, lesser black-backed gull, puffin, razorbill and Manx shearwater and the waters around the island are used by these seabirds for essential resting and maintenance activities.

Site size

This site covers an area of 10.5 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 9 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 9. This is what we know about the activities¹⁷ in/ near the Skomer/ Sgomer Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently designated or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	There may be in-direct benefits for heritage features within sites protected by the increased management regime.

¹⁷ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

Cables	No	There is no overlap with existing or known planned cable routes therefore there will be no direct impact. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	No	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area.
Dredging	No	There is no overlap with an aggregate site and we are not aware of any maintenance dredging within this area, therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We are aware that some pot fishing takes place in this area but we need to know how this area is used for <u>all</u> fishing activities	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is not used for training/testing purposes however we need to know more about other defence activities within the area.	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.

Ports, boats and shipping	We need to know more about the facilities and associated activities in the area.	<p>The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required.</p> <p>There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring.</p> <p>The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed.</p> <p>There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.</p>
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities and its link to tourism.	<p>This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities.</p> <p>There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ.</p> <p>On site and off-site benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.</p>
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself	<p>There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives.</p> <p>There may be benefits to education and research from increased interest in the area and the marine ecosystem.</p>
Sea defence structures	No	<p>The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures.</p> <p>The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.</p>
Waste disposal	No	There is no overlap with an existing outfall therefore there is no direct impact.

Consultation Questions – the Skomer/ Sgomer Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

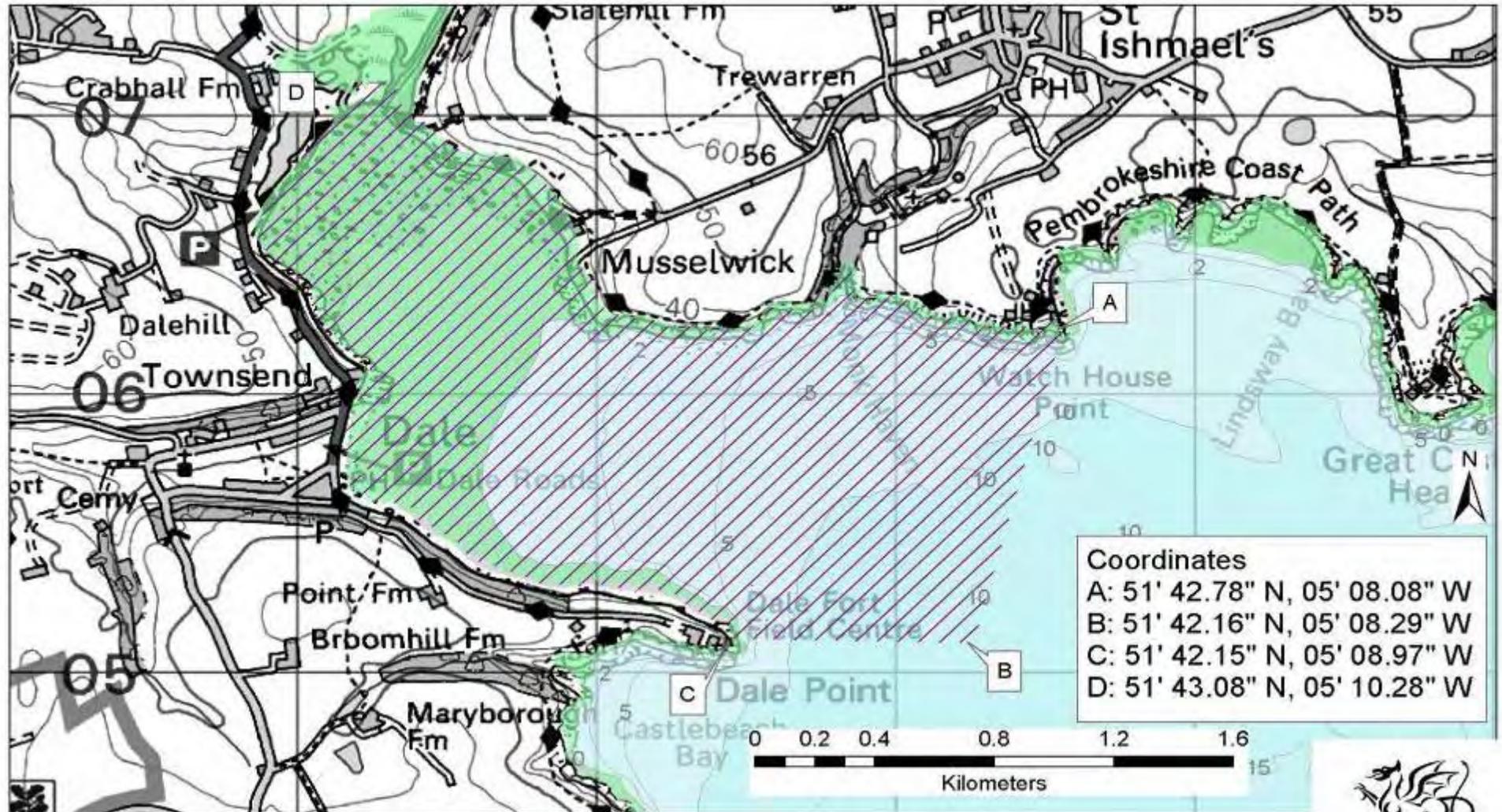
- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

10. Dale Potential Site



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3.10 Dale/ Dale Potential Site Option



Aerial view of the Gann Flats. © CCW.

This site is on the north side of the Milford Haven waterway in South Pembrokeshire, approximately 3 km from the entrance. It is within Pembrokeshire Marine SAC. The outer edge of the consultation area extends roughly south east from Watch House Point and westwards from Dale Point. The site includes Dale Roads and the shore beyond

Dale, known as Gann Flats. This site was chosen due to the presence of intertidal

mixed sediment and subtidal muddy habitats, along with a good variety of other habitats and areas of high productivity. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience.

Habitats present (from selection guidelines)

The following habitats are present in amounts large enough to be considered viable (for more details about these habitats and the selection guidelines, including the habitat viability targets see the site selection guidance):

Broadscale habitats:

- High energy intertidal rock
- Moderate energy intertidal rock
- Low energy intertidal rock
- Intertidal coarse sediment
- Intertidal mixed sediments
- Subtidal macrophyte communities
- Subtidal mud
- Subtidal mixed sediments

Important habitats:

- Sheltered muddy gravels
- Subtidal mixed muddy sediments

High Productivity areas:

- High benthic primary productivity (areas dominated by algae)

Further information is available on the interactive Web application on the following link:
<http://data.wales.gov.uk/apps/marine#site=4>.

Site Description

The shores at Gann Flats are mainly muddy gravels with a fringe of cobbles, pebbles and rock along the back of the shore. A wide range of species are found in the muddy gravel including sand mason worm, peacock worm, ragworm, lugworm, other worms and cockles. In sandy areas along the low tide mark the sand mason worm dominates with sand gapers, razor shells and sea potatoes buried in the sand, their presence only given away by holes on the surface. Also buried in the sand are daisy anemones that open up on the incoming tide. Small pebbles in this area are covered in a range of seaweeds like feathery tube weed, Dumont's tubular weed and papery fan weed. Gann Flats is part of the Milford Haven Waterway, which is used by wintering teal, wigeon, curlew, shelduck, little grebe and dunlin. These species as well as other waterfowl all use this area for roosting at high tide whilst a number of them utilise the intertidal for feeding at low tide.

Either side of Dale and Gann Flats, rocky shores extend to Dale Point and Watch House Point. On the southern side towards Dale Point the shore is sheltered from wave action allowing many seaweeds like channel wrack and spiral wrack to flourish with dense patches of creeping chain weed in shady areas and crevices. Bigger waves on the northern shore allow barnacle and limpets to dominate with black patches of pigmy lichen dotting the upper shore. Serrated wrack, common along the lower shore both sides of the bay, is home to different plants and animals. Within the shelter of the southern shore it forms a dense canopy over the



Star sea squirt with hydroids and bryozoans on rocky substrate close to Dale Potential Site (representative of species found within the site). © Blaise Bullimore, Seasearch.

rock and cobbles. On the northern side the canopy is patchier with red seaweeds forming a turf on the rocks. Faster currents along this side enable numerous filter feeding animals to form lush growths, competing to cover all available space on wracks, kelps and rocks areas. These range from velvety sea mats, star sea squirts, gooseberry sea squirts and elephants ear sponge. The undersides of the boulders are a patchwork of seasquirts, saddle oysters, breadcrumb sponge, the odd scaleworm and porcelain crabs.



Golf ball sponge with red algae and other sponges photographed close to Dale Potential Site (representative of species found within the site). © Blaise Bullimore, Seasearch.

In deeper water the seabed tends to be fairly muddy; in places there are cobbles, pebbles and gravel mixed in with the mud and in other places the seabed is muddy sand. Where there are cobbles and pebbles in shallow water, these tend to be colonised by brown seaweeds like sugar kelp and/or red seaweeds. In slightly deeper water animal species become more dominant, such as sponges and sea squirts. The mixed muddy sediments in between the stones also support smaller animals, including worms

and small bivalve shells. The areas that are a mixture of sand and mud tend to be dominated by worms, shrimp-like amphipods and bivalve shells.

Site Size

This site covers an area of 2.9 km².

Site Boundary

The boundary as presented is an indicative boundary. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative process. Further information on boundary setting is provided at Part 5 with a site specific step by step guide to boundary setting provided at Annex 3.

Tell us what you know about this potential site option

We need to know more about this area, especially the human activity that takes place within it. We also need to know about what goes on outside/ adjacent to the indicative boundary. We have set out in Table 10 below what we know about the activities in this area but we need you to tell us what you know to improve our understanding of the area

and enable further evaluation of the benefits and the costs of this area being designated as a highly protected MCZ.

Table 10. This is what we know about the activities¹⁸ in/ near the Dale Potential Site and the potential impacts should the site be designated as a highly protected MCZ

Activity	In or adjacent to site	Impacts (costs/benefits)
Archaeology and Wrecks	We know there are a number of wrecks in the area, however none of them are currently designated or heritage sites. Therefore the key activity we are interested in is where they are linked to any recreational pursuits – see recreation below.	There may be in-direct benefits for heritage features within sites protected by the increased management regime.
Cables	There is an inactive/ out of service telecoms cable within the boundary	There is no overlap with existing active or known planned cable routes therefore there will be no direct impact. Access/maintenance of the inactive cable may be restricted or require mitigations to be compatible with the conservation objectives of a HPMCZ. The installation of new cables in this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed if this area is designated as a HPMCZ. New cables would need to be routed outside of the final boundary area which could mean a longer cable route at a greater cost. There may be off-site costs associated with mitigation, management and monitoring requirements.
Disposal Site	There is a closed site outside the mouth of the Milford Haven estuary.	There is no overlap with a live disposal site and therefore no direct impact. The deposit of any material within this area is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed. There may be off-site impacts associated with mitigation, management and monitoring requirements for any new deposits and/or disposal sites in the area. We are not aware of any plans for the closed site to be reopened.
Dredging	Aggregates – No. We need to know about any maintenance dredging in this area.	There is no overlap with an aggregate site therefore no direct impact. The licence of any new site that overlaps with this area will not be allowed as this activity is incompatible with the conservation objectives of a HPMCZ. There may be off-site costs associated with the licence of any new dredge site in the vicinity including mitigation, management and monitoring.
Energy generation – oil, gas, nuclear	No	There is no overlap with existing or known planned energy installations and therefore no direct impact. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and

¹⁸ Information sources: Welsh Government (2011), CCW (2007-2011), Cefas (2007-2011), Environment Agency (2011), Anatec UK Ltd (2011), Kingfisher (2011), SEAZONE (2011), RCAHMW (2011), MCA (2011), SUSTRANS (2010), Landmark Interestmap (2011), The Crown Estate (2012)

		monitoring requirements.
Energy generation–renewable (inc proposed and leased areas)	No	There is no overlap with existing or known planned marine renewable developments and therefore no direct cost. Any new proposal that overlaps with this site would not be allowed as such installations are incompatible with the conservation objectives of a HPMCZ. There may be off-site impacts for proposals in the vicinity from such things as mitigation, management and monitoring requirements.
Fishing - all commercial activity	We need to know how this area is used for <u>all</u> fishing activities.	There will be a direct impact on all fishing activity in this area as all fishing activity is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The potential for impact on the fishing industry could include a fall in value of landings, loss of jobs, displacement into other areas, increased costs of fuel, increased cost of maintenance. There may be off-site impacts on fishing dependant communities and the local heritage of an area if it has a strong fishing history. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Fishing - Recreational	We need to know how this area is used for recreational angling, both shore and boat angling.	There will be a direct impact on all recreational angling activity within this area as all fishing activity is incompatible with the conservation objectives of a HPMCZ. The management measures proposed may result in off-site benefits where improvements in the quality of the marine ecosystem lead to increased stock levels and spill over effects into the surrounding area.
Military Activity	This area is not used for training/testing purposes however we need to know more about other defence activities within the area.	There may be on-site and off-site impacts here depending upon the nature and intensity of the activity. Certain activities will be incompatible with the conservation objectives of a HPMCZ and will therefore not be allowed; others may require additional management, mitigation and monitoring.
Ports, boats and shipping	We need to know more about the facilities and associated activities in the area.	The passage of ships will be permitted but we need to know more about the nature and intensity of this activity in order to determine whether management measures are required. There will be a direct impact on all anchoring in this area as it is an activity that is incompatible with the conservation objectives for HPMCZs and therefore would not be allowed within this area if designated as a HPMCZ. The construction/installation/extension of port/harbour facilities is incompatible with the conservation objectives of a HPMCZ and would therefore not be allowed. There may be off-site impacts associated with the construction, installation and maintenance of any such facilities in the vicinity for such things as mitigation, management and monitoring. The installation of navigational aides in this area will be incompatible with the conservation objectives of a HPMCZ and therefore would not be allowed. There may be off-site costs associated with the installation of new aides and/ or their maintenance in the vicinity for such things as mitigation, management and monitoring.
Recreational, leisure and tourism (all except fishing)	We need to know how this area is used for recreation and leisure activities	This encompasses a number of different activities and there may be on-site and off-site impacts depending upon the nature and intensity of such activities. There will be direct impacts for some activities in particular anchoring, charter boats for fishing trips and scuba diving. There might also be dive

	and its link to tourism.	activity associated with the wrecks in this area. There may be other impacts both on and off-site where activities may need to be managed/ restricted in line with the conservation objectives of a HPMCZ. On site and offsite benefits may occur from improved environmental conditions benefiting divers and wildlife watchers. A HPMCZ in the area may generate additional visitors, holiday makers and wildlife watchers to the area increasing demand for accommodation, charter boats, etc.
Research and data collection activities	We need to know how this area is used for educational and research purposes that would not be linked to the site itself.	There will be direct costs on any activity incompatible or in conflict with the conservation objectives of a HPMCZ. There may be off-site costs for activities in the vicinity for such things as mitigation, management and monitoring to comply with the conservation objectives. There may be benefits to education and research from increased interest in the area and the marine ecosystem.
Sea defence structures	No	The site selection process has where possible avoided existing defences as they are areas that have been permanently modified and therefore have very little potential of returning to a natural or semi-natural state. Therefore there is no direct impact on existing structures. The construction of new structures is incompatible with the conservation objectives for HPMCZs and will therefore not be permitted in this area if it is designated as a HPMCZ. There may be offsite impacts for new proposals in the vicinity associated with such things as mitigation, management and monitoring requirements.
Waste disposal	There are outfalls within the site boundary	There is overlap with existing outfalls however we need to know more about the pattern and volume of discharge at the outfalls to determine whether there will be any impact. There may be impacts associated with mitigation, management and monitoring.

Consultation Questions – the Dale Potential Site Option

Your knowledge of the area

- Q. Do you have any additional ecological information (including survey information) for this area or know of any?

If so, please provide us with details.

- Q. In addition to the ecological benefits, what other benefits would you expect from this site?

- Q. Do you expect any disadvantages for people using or enjoying this area?

If so, please provide us with details.

Use or Enjoyment of the area

- Q. Do you currently use or enjoy or plan to use or enjoy the sea or coast within or near this site? If so tell us:

Where exactly?

What activity or pastime are you involved in?

How often do you do the activity or enjoy the pastime?

How important is the activity or pastime to you?

- Q. Are you aware of other human activities or pastimes that overlap with or relate to this area?

If so, please provide a short description of the activity or pastime.

- Q. Are you aware of any manmade features that overlap with or relate to this area?

If so, please provide us with details.

PART 4 - CONSERVATION OBJECTIVES AND MANAGEMENT MEASURES FOR HIGHLY PROTECTED MCZs

4.1 Conservation objectives

Marine Conservation Zones require conservation objectives to be set as part of the site designating order. Conservation objectives are objectives that set out what the Welsh Government intends to achieve by designating a site. In Wales, we are trying to achieve a greater contribution to marine ecosystem recovery and resilience by allowing these sites to function as naturally as possible through a high level of protection.

For the purposes of this type of aim, highly protected sites are defined as sites that are protected from the extraction and deposition of living and non-living resources, and all other damaging or disturbing activities, and all other potentially damaging and disturbing activity. It is therefore appropriate to provide conservation objectives for highly protected MCZs that indicate the type of management compatible with the designation.

Box 1 contains proposed wording for conservation objectives for highly protected MCZs.

It is important to note these are standard conservation objectives designed to be appropriate for all highly protected MCZs but not all activities will occur at all sites. For example, some sites will be unsuitable for activities such as aggregate extraction and therefore management for aggregate extraction would not be necessary. Where potentially damaging or disturbing activities occur, management may range from very light touch to strict control / prohibition depending on the nature and intensity of the activity and the characteristics of the site.

BOX 1

Proposed text of conservation objectives for highly protected Marine Conservation Zones

A. Conservation Vision

The purpose of the highly protected site is to contribute to ecosystem recovery and resilience and improve our understanding of naturally functioning ecosystems by enabling the habitats and species within it to function in response to natural environmental and ecological processes recognising that community composition may change over time.

The overall aim is to achieve as natural a state as possible, recognising that broad scale human influences, such as climate change, may prevent this being fully achieved. By their nature extractive and depositional activities are considered incompatible with a natural ecological state and therefore will not be allowed. Other activities if found to be damaging or disturbing will need to be managed.

B. Standard Conservation objectives

Within the site [*Named];

- i) Habitats and the species they support are allowed to recover and/ or develop naturally.
- ii) The natural structure and functions supporting and maintaining the ecosystems, including biological productivity, develop in the absence of damage or disturbance from human activities.
- iii) The substrate, overlying waters (water column) and wildlife (whether present permanently or temporarily), are protected from the extraction of living and non-living resources, the deposition of living and non-living resources, and damage or disturbance.
- iv) The protected area provides for the study of minimally disturbed, or recovering, ecosystems in order to improve understanding of ecosystem functioning and inform management.

C. Management objectives

The following management objectives and guidance will enable the conservation objectives to be met:

- i) The site is protected from:
 - a) the temporary or permanent removal, or attempted removal, of any living organisms or non-living materials or natural features from the marine environment;
 - b) the deposition of living and non-living resources, including the movement or discharge of materials or substances into the marine environment. This includes deposit of materials such as rocks, gravel or sand, building of structures, and release of any polluting, harmful, toxic or chemical substances, as well as discharge of ballast, human waste, biodegradable and industrial waste and the discard of bait and fishing waste;
 - c) physical damage or disturbance from human activities including: injury, disturbance while feeding, breeding and resting, abrasion, crushing, smothering, exposure to toxic or harmful substances, exposure to fertilising nutrients, exposure to excessive or disturbing noise, visual disturbance, harassment, physical impact.
- ii) extractive, depositional, damaging or disturbing scientific study for the purpose of site monitoring, may be allowed under permit, and where there is no more acceptable alternative.

Activities considered to be depositional or extractive include:

Commercial and recreational fishing activities, including catch-and-release fishing; anchoring; bait collection; aquaculture; collection of flora or fauna; collection of curios; removal or deposit of living or non-living materials^a; mining; dredging; petroleum/gas operation; discharges (including untreated or treated waste, pollutants, warm water), building of structures; and any other activities that meet the

definition of extractive or depositional activities. N.B. This includes depositional or extractive activities that occur outside site boundaries but result in deposition or extraction within site boundaries.

Potentially damaging or disturbing activities that may be excluded, subject to restrictions, zoned, allowed under licence/permit, undertaken according to codes of conduct, or with other mitigating measures in place to limit impacts, include but are not restricted to:

Scientific research and monitoring; Navigation and transit of vessels (including non-motorised boating and recreation including the use of rowing boats, kayaks, surfboards, windsurfers, kite-surfing, sailing as well as use of motorised vessels); Wildlife observation; Low flying aircraft; Maintenance/operation of existing structures (including ports and harbours); Petroleum/gas exploration; military activities; Driving of vehicles across the shore; recreational activities such as horse-riding and dog walking; and any other activities that meet the definitions of being potentially damaging or disturbing^b. N.B. This includes potentially damaging or disturbing activities that occur outside site boundaries but result in damage or disturbance within site boundaries.

Notes

- a. An exception would be the removal of litter or other anthropogenic debris which is not natural and might otherwise harm the habitats (and species they support) in the area.
- b. In the case of an emergency, including for the purposes of saving life, securing the safety of a vessel or securing public health, national security, management objectives may be temporarily suspended. Every effort should be made to minimise damage and cease the activity as soon as is safely possible.

4.2 Management requirements

The proposed conservation objectives indicate activities that will (extractive or depositional activity) or may (potentially damaging or disturbing activities) require management. At this stage it is only possible to set out general management measures to help with understanding the implications of sites. Once the proposed set of sites is refined, following the first consultation, it will be possible to give more site-specific guidance on likely management measures.

4.3 Ecosystem components

Highly protected MCZs do not have a specific list of features attached to them for which they are designated because they are intended to protect everything within them. To assist in identifying management requirements to fulfil the conservation objectives of sites broader ecosystem components are identified. Ecosystem components follow the broadscale habitats and important habitats used in the site selection process.

Highly mobile species have not been addressed at this stage. The approach to management requirements for highly mobile species will be looked at following the first consultation.

Table A in Annex 4 lists the ecosystem components found at each of the potential sites.

4.4 Extractive and depositional activities

Our aim is to allow these sites to function as naturally as possible to maximise their contribution to ecosystem recovery and resilience therefore all extractive and depositional activities are incompatible with the definition and purpose of highly protected MCZs. Table B in Annex 4 lists extractive and depositional activities and the management measures that are considered appropriate to exclude these activities. For example, a change in marine licensing policy would be the appropriate management measures to prevent construction within a site.

4.5 Other damaging and disturbing activities

Table C in Annex 4 focuses on other damaging and/or disturbing activities. The tables set out ecosystem components most likely to suffer damage or disturbance from a particular activity, the circumstances in which the activity might result in damage or disturbance, and potential mitigation/management. For example, sea grass beds are very sensitive to damage from vehicular access so an appropriate management measure is likely to be a nature conservation order to manage access e.g. via closed areas (permanent or seasonal) or zoning and/or specified routes.

For this first consultation, only potentially damaging impacts to habitats have been considered. Potentially damaging or disturbing impacts on highly mobile species will be looked at following this first consultation once boundaries and locations of potential sites have been refined to give greater certainty over the habitat areas included and the species they support.

Not all management measures will need to be put in place at each site, and there will need to be tailoring to local circumstances. If a potentially damaging or disturbing activity is being carried out at an intensity below that which might have potential to damage or disturb then no management measures will be necessary. However, the activity will need

to be monitored and if the intensity increases to a point at which damage or disturbance is possible this would trigger the implementation of management measures.

4.6 Management measures

There are a number of key management measures available, both statutory and non-statutory, to deliver conservation objectives for sites.

For some activities/situations there may be several approaches that could be used to achieve conservation objectives at individual sites, whereas for other activities a specific management intervention will be necessary. For some activities, there may also be existing management measures already in place that can be used. As already outlined, the intensity of an activity is an important factor in determining whether damaging and disturbing activities will have an impact; management measures for damaging and disturbing activities will therefore often need to be adaptive and kept under review.

Key management measures available include:

Nature conservation orders: The Marine and Coastal Access Act (2009) gave Welsh Ministers powers to put in place orders for the purpose of furthering the conservation objectives for MCZs in Wales. Orders can apply within and outside sites. In the main these orders will be used to control otherwise unregulated activities. The scope of an order is broad, but could, for example, be used to:

- Exclude an activity,
- Control access times, seasons, points, routes or areas
- Control method of undertaking activity
- Limit numbers undertaking the activity by permit
- Create zones

Fisheries Orders: The Marine and Coastal Access Act (2009) gave Welsh Ministers powers to put in place orders to manage fisheries. These could be used to:

- Exclude all commercial fishing activity within an area
- Exclude all recreational fishing/angling activity within an area
- Exclude other fisheries activities, such as bait digging, within an area.

Wildlife and Countryside Act 1981 (as amended): Where an MCZ coincides with a Site of Special Scientific Interest. If an activity is considered an ‘operation likely to damage the special interest’ (OLDSI), as listed in the notification for that SSSI, then the land owner/occupier needs consent from CCW before that activity can take place. There are, however, limitations in terms of enforcement. Intertidal SSSIs are also commonly accessible by the general public. CCW has the ability to prosecute for ‘third party damage’ – i.e. where a damaging operation is carried out by someone other than the land-owner and without their knowledge or consent. In practice, however, this is complicated and time consuming, requiring proof of damage and proof of who caused the damage, and to pursue a higher-tier offence proof of knowledge that the area is a SSSI is also required. Given the limitations in SSSI legislation for management of the intertidal environment, it is likely that MCZ nature conservation orders would still be the most appropriate and effective tool to manage a variety of activities, even where an MCZ overlaps with a SSSI.

Policy regarding the issuing of licences and consents/Marine Plans: In order to undertake many activities in the marine environment, some sort of licence or consent is required. Since licensable activities within sites are highly unlikely to be compatible with the conservation objectives of highly protected MCZs, it will be necessary for the licensing authority to have a policy not to give a license/consent for activities within (and potentially adjacent to) these sites. This policy will need to be reflected in marine plans once developed and which will be a material consideration in licensing decisions.

Restrictions on exemptions from licences: A number of activities are currently exempted from the need for a marine licence (Welsh Statutory Instrument 2011 no. 559 (W.81)). A number of exempted activities may not be compatible with the conservation objectives for highly protected MCZs; it may therefore be necessary to amend the exemptions order to restrict exemptions so that they do not apply in highly protected MCZs in Wales.

Policy regarding the issuing of planning permission: Paragraph 5.8.1 of Planning Policy Wales identifies that planning authorities have an important role in the protection of designated marine and coastal areas where a land based development might have an effect on the reason for designation. The location and potential impact upon highly protected MCZs should therefore be a material consideration when determining all

planning applications whose impacts extend beyond terrestrial planning boundaries (i.e. mean low water).

Voluntary agreements and codes of conduct: Voluntary agreements and codes of conduct may be used alone, or in conjunction with other measures, to manage certain types of activities within a site. Although voluntary measures can be successful in some contexts, for highly protected sites where it is important that any disturbance or damage is excluded from the site, voluntary measures alone are unlikely to offer sufficient protection to achieve the conservation objectives of sites. However, some voluntary approaches can be used successfully in conjunction with statutory measures. For example, it might be necessary to obtain a permit in order to carry out an activity within a highly protected MCZ (delivered through a nature conservation order). In obtaining the permit users could be asked to read and abide by a code of conduct which promotes carrying out the activity in a way that minimises damage to the marine environment, thus raising awareness of the impacts of their activities not just within the site, but elsewhere.

4.7 Outside site effects

In order to deliver the conservation objectives for highly protected MCZs, it will sometimes be necessary to restrict activities beyond the boundary of a site. This will be the case where the activity outside the site results in a direct extractive, depositional, damaging or disturbing impact within a site.

Examples of activities outside site that could lead to impacts within sites include:

- The placement of a new discharge within the tidal envelope of a highly protected MCZ such that the discharge flowed into the MCZ and caused deterioration in water quality.
- Dredge spoil disposal, aggregate extraction or fisheries dredging activity that disturbed sediment habitats and that could result in the deposition of fine material within a highly protected MCZ.

Table D in Annex 4 summarises the impacts that may affect highly protected MCZs from activities outside the site. Although there are a number of activities listed in Table D, it is likely that some sites will be affected by very few activities outside the site due to a

combination of their location away from many of the activities listed, and the habitats present. The table also includes a broad assessment of the likelihood of an activity leading to an impact; this also in turn is dependent on the character of the site (substrate, biology, flow conditions etc) and surrounding area.

Whilst the conservation objectives of sites need to be met, it is recognised that it is not appropriate (or in some cases, possible) to eradicate some low-level impacts resulting from activities occurring well beyond the boundaries of a site, e.g. low-level noise impacts. It is not the intention that highly protected MCZs have far reaching implications on marine activities throughout Welsh waters. The management implications of sites beyond their boundary should reflect the small size of the sites.

It is therefore important to provide some clarity to regulators, managers and users on what activities outside sites should be managed to prevent impacts on the conservation objectives of highly protected MCZs. It is proposed to use two methods for managing impacts from existing activities outside sites. These are as follows:

1. **Risk management areas (RMA)** for activities adjacent to or near a site that have a possible to high likelihood of impacting on a site
2. **Existing wider management measures** for (a) activities adjacent to a site that are unlikely to result in significant impacts within the site, and (b) activities at a distance to the site that are unlikely to result in significant impacts within the site.

Risk Management Areas: Risk Management Areas (RMAs) are a defined area adjacent to the site within which an activity outside a site would be excluded or controlled due to the direct impact (extractive, depositional, damaging or disturbing) on the site. The area of the RMA would be tailored to individual sites, as small as necessary and, for some activities, may be quite close to the boundary of the site. Examples of activities for which RMAs would be appropriate include: different methods of fishing (commercial and recreational), aggregate extraction, anchoring, and point source discharges.

RMAs would not be needed for all activities at all sites as for some sites the chances of certain activities occurring close to the site are extremely low, for example aggregate extraction will only occur where there is an aggregate resource. Similarly, an RMA would

not necessarily need to be established for a licensable activity that is not currently undertaken near a highly protected MCZ, however, should an application be proposed, an RMA may need to be established.

Identifying RMAs and providing site management guidance ahead of designation should significantly reduce the amount of case-by-case assessments needed.

Wider measures: The application of RMAs, discussed above, should cover most of the potential significant impacts on a site that could be caused by activities outside the site. Beyond RMAs, there may be other existing activities that have very low level / insignificant impacts on the site; these could be considered to be managed appropriately through existing wider measures such as: Water Framework Directive, Nitrate Vulnerable Zones, Habitats Regulations etc, and, once in place, marine planning and the programme of measures for the Marine Strategy Framework Directive.

There will also be some cases where much wider/global impacts affect a highly protected MCZ. These could include impacts from climate change, removal of species, or diffuse pollution. Such impacts cannot be dealt with directly through MCZ management but should be addressed via wider measures. The conservation objectives of highly protected MCZs should also inform the development and delivery of these wider management measures.

MCZ assessment for new activities: New activities that have the potential to impact on a site, and that are not already covered by an existing RMA, will need a case-by-case assessment to ensure (a) compliance with the Marine and Coastal Access Act and specifically (b) that achievement of conservation objectives is not hindered. To assist the assessment, guidance could be developed on the potential impacts on sites from outside activities. Where the highly protected MCZ overlaps with other marine protected areas, such as a Special Area of Conservation, the aim will be to have an integrated assessment for all MPAs. Depending on the outcome of the assessment of potential impacts on the highly protected MCZ conservation objectives, there are three possible management results:

- a) Establish a new RMA
- b) No RMA necessary, but site-specific mitigation measures for the particular activity / location

- c) No site-specific action required, management via wider measures

4.8 Other considerations for effective site management

Effective management of sites that achieves the conservation objectives is dependent on a number of factors, which will need to be considered further as the MCZ Project Wales progresses, in particular:

- a) Awareness amongst relevant users that a management measure is in place
- b) Enforcement of these measures
- c) Monitoring and evaluation

Awareness of management measures: It is clear that management measures are not likely to be successful if users are not aware of them. Raising awareness of management measures is therefore fundamental to achieving conservation objectives of any protected area. In the context of highly protected MCZs this is particularly important, since no one organisation has been identified as having overall responsibility for delivering effective management. There are a number of ways that raising awareness of management can be achieved:

- involving stakeholders (including regulators) in the development of management measures
- appropriate site signage, literature, web material, talks, training and information in general and specialist media.

Enforcement: Enforcement is used here to cover the full scale of activities from deterrent work to enforcement of legislation. Ensuring awareness of restrictions, deterring violations and encouraging voluntary compliance will be critical in delivering effective management within highly protected MCZs and ensuring conservation objectives are achieved.

Deterrent work has some overlap with awareness raising work considered above. It is likely that the key legal enforcement role in Welsh waters will be undertaken through the Welsh Government Fisheries Enforcement Team. Other organisations may also have relevant enforcement roles including the Countryside Council for Wales and the Environment Agency.

There may be ways to improve efficiency and effectiveness of enforcement and these will need to be explored, for example: use of monitoring technology; awareness-raising

amongst sea users; engagement of local communities, and joint working between enforcement organisations.

Monitoring and evaluation: Monitoring and evaluation will be particularly important in highly protected MCZs given their role in providing information on recovery and natural functioning of the marine environment. Monitoring will need to include both monitoring of the ecological status of highly protected MCZs and compliance with the management of the sites. This information will also help to support better understanding of the marine environment in general and inform management of the full suite of marine protected areas across Wales. It will be important to recognise that whilst some changes to the site may be apparent quite soon, other changes may occur over much longer timescales and hence long-term monitoring will be needed to determine the effect of the high level of protection.

In order to establish a meaningful baseline with which to compare changes within the site, a monitoring programme should commence ahead of designation of the MCZ Project. The baseline will need to include human activity as well as ecological and physiochemical properties of the site. Before undertaking a baseline study the Technical Advisory Group (TAG) will look into what should be the key indicators for assessing ecosystem recovery and resilience, which will inform the monitoring and evaluation required for establishing a baseline.

Post designation, routine monitoring will need to be designed to inform assessments of compliance and ecological status at a frequency that is meaningful for effective site management. Additionally, monitoring will need to meet the requirements of the 6-yearly MCZ and marine protected area reporting duty in the Marine and Coastal Access Act 2009.

Highly protected MCZs are relatively small; opportunities for joint-working across agencies and/or dedicated teams across one or more site, to deliver all aspects of management (awareness raising, enforcement and monitoring), will therefore be investigated.

4.9 Developing advice on management requirements: next steps

Following this first consultation, and informed by input received during the consultation, work will begin on developing site-specific management prescriptions which will be

included in the next iteration. The intention is for the work to evolve through the phased consultation process towards providing site specific conservation objectives and accompanying full site management prescriptions for the final consultation on sites.

The immediate next steps following this first consultation include:

- Site-by-site assessment of activities within sites that need management in order to meet conservation objectives and proposal for associated appropriate management measures
- Site-by-site assessment of activities outside sites that require RMAs and research to establish methodology for setting RMAs
- developing advice on management of potentially damaging and disturbing impacts on highly mobile species
- scoping work to undertake baseline and ongoing monitoring of sites
- scoping awareness and enforcement activity needed to delivery management measures

Consultation Question:

Are there any comments you wish to make at this stage on site management?

PART 5 - DETERMINING BOUNDARIES FOR HIGHLY PROTECTED MCZs

The boundaries presented for the 10 potential site options are indicative and do not necessarily represent the size and shape of the final boundary should a site be recommended for designation. The intention is that site boundaries will be modified and refined as a result of information gathered through the iterative consultation process.

The overall aim is that site boundaries will be drawn in such a way as to maximise the ecological benefits of a site while minimising the impact on human activity and/or maximising benefits to society.

The MCZ Project Wales has developed boundary drawing principles that include ecological and practical considerations. How socio-economic impacts will affect boundary setting will be looked at as part of the next stage in the process, taking account of the feedback from first stage consultation.

5.1 Ecological principles

There are 4 ecological principles for drawing site boundaries, the aim of which reflects the designation of ecologically valid sites that contribute to the original ecological aims¹⁹ of designating highly protected MCZs.

The ecological principles are:

- Sites should include a viable area of each habitat type present.
- The shape of the site should be as compact as possible and there should be no big indentations in the site boundary shape.
- In most instances whole habitat patches should be included, or natural features should be used to define the edges of a site.
- Site size should be examined on a site-by-site basis.

5.2 Practical principles

The Project has developed 3 practical principles for drawing site boundaries in order to ease or assist enforcement, site management or monitoring. These principles would not be

¹⁹ Support ecosystem recovery; increase resilience of the marine environment and improve our understanding of marine ecosystems.

applied in such a way as to compromise the ecological value of a site, and would be in addition to how socio-economic impacts might affect boundary setting. The 3 practical principles are

- In general, simple site boundaries are preferred.
- Where a proposed boundary is close to another boundary (e.g. existing MPA, or top of the shore), then it may be practical to follow the existing boundary.
- Boundaries should be drawn to avoid possible displacement of activities into sensitive areas.

However these principles have not yet been applied to the boundaries as the Project considers that information gathered from the first consultation exercise is needed to inform how they should in practice influence individual site boundaries.

5.3 Socio-Economic Considerations

Site boundaries will be developed in such a way as to minimise the impact on human activity and/or maximise benefits to society. The information gathered at the first consultation exercise will inform how socio-economic considerations are taken into account.

A more detailed explanation of each boundary principle is provided at Annex 2.

5.4 Drawing the site boundaries for the first consultation

In drawing the boundaries for the first consultation, the Technical Advisory Group (TAG) applied the ecological principles as detailed above, with the exception of the fourth ecological principle concerning site size which will be considered later in the process on a site by site basis, taking into account how information gathered from first stage consultation might affect boundary setting.

The boundaries were then examined on a site by site basis to see whether additional site specific considerations should be applied to increase the ecological value of the site. The additional considerations for boundary drawing are outlined below. They have been used to draw indicative boundaries for the first consultation but remain work in progress. The

extent and nature to which they will be used to determine the final site boundaries will depend upon the outcome of further consideration by TAG, and feedback from the consultation exercise.

The additional site specific considerations have an ecological basis – 4 being purely ecologically based and 2 being from a scientific perspective but concerning ecological information. The additional considerations are listed below.

The ecological considerations are:

1. Ecological quality
2. Linked habitats
3. Increasing habitat heterogeneity
4. Potential for recovery of specific localised habitats

The other scientific considerations are:

5. Areas with long term ecological datasets
6. Improving the evidence base

The additional site specific considerations present a way in which is it possible to refine boundaries at site level to maximise its ecological value. The additional considerations are not necessarily relevant to each site as their application depends upon the site specific situation. More information on the additional site specific considerations is provided in Annex 2.

Annex 3 provides step by step detail of how the boundaries have been determined for the 10 sites presented in this consultation exercise – including detail of where and how the additional considerations have been applied on a site specific level. A summary is provided below in Table 11.

Table 11. Summary of the way in which additional considerations have been applied to each site

Site name	Additional considerations applied?	Which additional considerations ? (refer to numbers in para 5.4 above)	Distance between original principles and additional considerations boundaries	Increase in area due to additional considerations (km ²)	Final site size (km ²)
Puffin Island	Yes	1, 2, 5	220 m	0.2	2.0
NE Menai Strait	Yes	1, 2	900 m	1.1	4.1
North Lley Peninsula	No				26.8
Bardsey Island	Yes	2	1200m	2.7	10.5
St Tudwals Island East & Llanbedrog	No				28.2
Mouth of Dwyfor	Yes	1, 3	1300 m	2.5	6.0
New Quay offshore	No				5.3
SW of Strumble Head	No				4.2
Skomer Island	Yes	1, 2, 3,	2000 m	1.7	10.5
Dale	Yes	1, 2, 3	300 m	0.3	2.9

Please provide any comments/views you might have on the way the indicative boundaries have been drawn.

PART 6 - SUMMARY OF THE WORK OF THE PROJECT TO DATE

6.1 Identifying the Focus Sites (Stage 1)

The Countryside Council for Wales (CCW) was tasked by the project with identifying between 15-25 Focus Sites based on the ecological guidelines set out in the site selection guidance²⁰ published by the Welsh Government in March 2011.

The site selection guidance states that:

- 21 broadscale habitats should be represented within the Focus Sites;
- 15 other important habitats should be represented within the Focus Sites ;
- Areas of high productivity should be included in the Focus Sites;
- Permanently modified areas should be avoided.

The process was undertaken in four steps, with the computer software 'Marxan' used to assist in focusing in on possible areas for sites. This process is explained in more detail in Annex 5, with a summary provided below.

Identifying the high scoring areas

The site selection guidance outlines that sites are to be scored according to their habitat heterogeneity (i.e. a large number of habitats in a relatively small area) and therefore it was decided that selecting sites because of their high score for habitat heterogeneity was an appropriate first step. Protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site. Habitat heterogeneity is one indicator of biological diversity, which is an important contributor to ecosystem resilience and ecosystem function (one of the aims of the MCZ Project in Wales). The MCZ Project Wales aims to designate no more than 3-4 sites and including habitat heterogeneity in the selection process should also maximize the number of habitats protected.

²⁰<http://wales.gov.uk/topics/environmentcountryside/consmanagement/marinefisheries/conservation/protected/conservationzones/project/siteselection/?lang=en>

This was done by dividing up Welsh waters into hexagonal grids (each hexagon had an area of 5 km²) and counting the number of broadscale habitats and the number of important habitats (including areas of high productivity) in each hexagon. Hexagons were used because they tend to fit the coast better than squares. Each hexagon was scored according to the number of broadscale habitats, number of important habitats and the presence of high productivity areas – see example at Figure 3. The hexagons with the highest number of broadscale habitats, important habitats and areas of high productivity were identified and became the first 13 Focus Sites.

Figure 3. Example of a hexagonal grid over Welsh waters displaying high to low scoring areas



The site selection guidance outlines that all 21 broadscale habitats and 15 important habitats should be included in the list of Focus Sites. The 13 Focus Sites identified from the first step included areas supporting many different habitat types, but did not include all of the habitats. Therefore the second step in the process was to identify areas that contained the missing habitats but preferably also contained a number of other habitats as protecting a wide variety of different habitats (and the species they support) aims to maximise the ecological benefits of each site and the contribution it makes to ecosystem function, recovery and resilience. In order to do this efficiently a computer package called Marxan was used. Marxan is a computer package that is used to aid the selection of protected area networks. It does this by choosing sites that achieve specified targets (in this case specific habitats) whilst minimising the number (or area) of sites chosen.

The Marxan software was programmed to select the additional areas in such a way that at least two areas were suggested for each broadscale and important habitat. The reason for this was to allow for more site options. The sites chosen were fairly evenly distributed spatially and preference was given to sites with a higher diversity of different habitats in accordance with the site selection guidance which outlines that areas with high habitats heterogeneity should be targeted for selection. The 13 areas that had already been identified were 'locked in' (i.e. the programme was told these areas had to be part of the overall suite of sites) and further areas were then selected that would complete the series of Focus Sites. Once this was complete, there were 22 hexagons, or groups of hexagons, that had been chosen to fit the site selection guidance – which became 22 Focus Sites.

In addition 2 sites were chosen by CCW to provide alternative sites for each habitat type (and therefore increase choices between sites) which resulted in a total of 24 Focus Sites:

- The North Anglesey site was chosen as an alternative for horse mussel beds. The site identified by Marxan was adjacent to the North Llyn focus site and too close to provide a true choice for this habitat type.
- The South of Aberystwyth site was chosen as an alternative for honeycomb worm reef. The site chosen by Marxan (South of Fairbourne) was found to contain permanently modified areas that were not captured in the data layer.

Before the 24 Focus Sites were presented to the TAG the hexagonal-shaped areas were converted to less complex shapes by drawing boundaries with straighter lines.

The boundaries at sea were mostly drawn along straight North-South and East-West lines for simplicity the exception being where in order to incorporate relevant habitats boundaries were drawn in straight lines in other directions. Other sites were altered slightly to create a less complex boundary in areas where permanently modified areas had been excluded. One site (Traeth Afon Wen) was altered due to the presence of a permanently modified area that had not been sufficiently represented on the permanently modified areas mapping layer. The Skomer Focus Site boundary was altered to follow the Marine Nature Reserve boundary for a large part of the site. These initial boundaries were provisional and Part 5 explains how the initial boundaries have since been further refined.

Figure 4 shows a map of the 24 Focus Sites that were presented to the TAG which are listed below.

The 24 Focus Sites are:

1. North Anglesey
2. Great Orme
3. Puffin Island
4. Menai Strait
5. Porth Nobla
6. North Llŷn
7. Bardsey Island
8. Tudwals
9. Llanbedrog
10. Traeth Afon Wen
11. South of Aberystwyth
12. Cardigan offshore
13. New Quay offshore
14. SW of Strumble Head
15. Ramsey Island

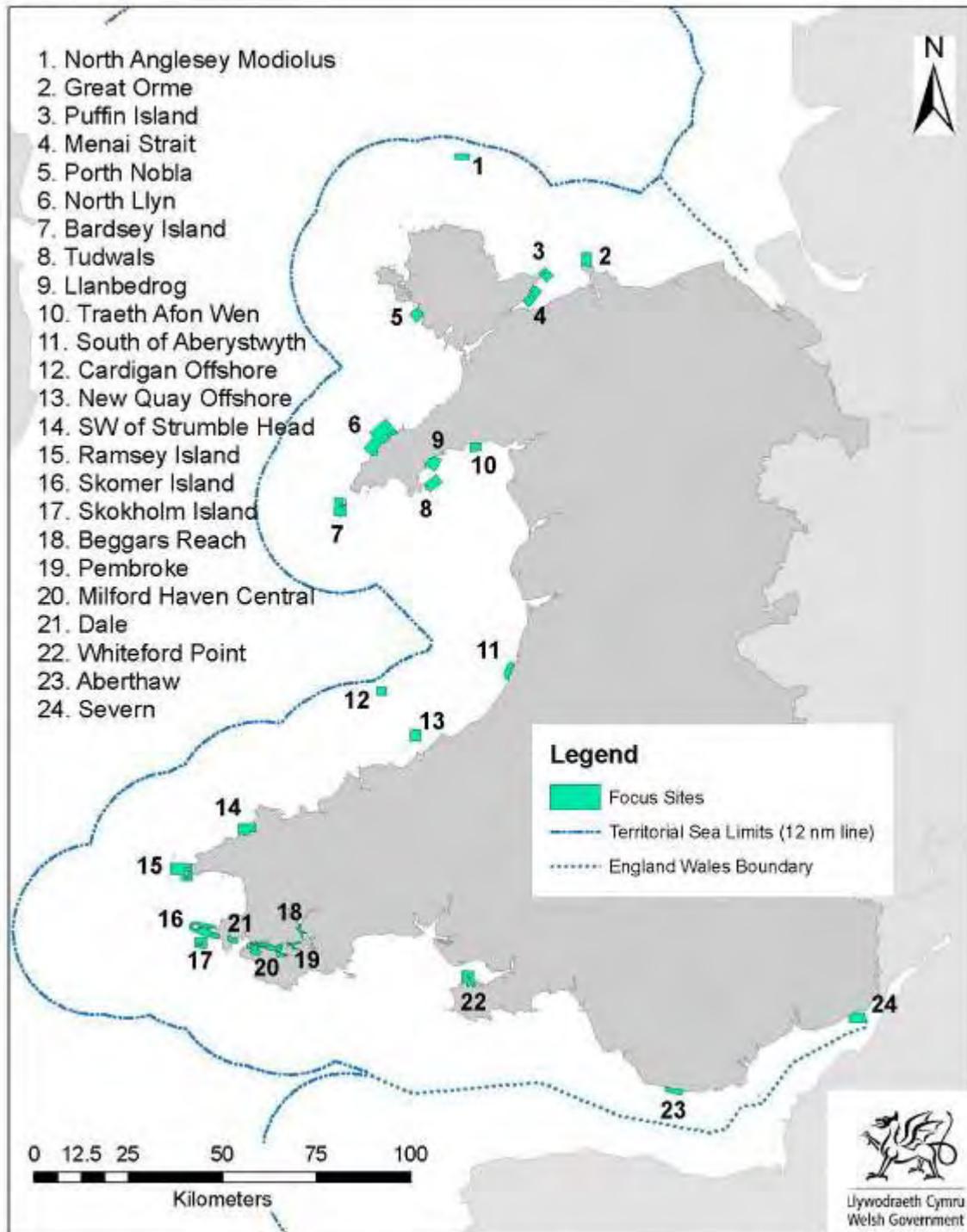
16. Skomer Island²¹
17. Skokholm Island
18. Beggars Reach
19. Pembroke
20. Milford Haven
21. Dale
22. Whitford Point
23. Aberthaw
24. Severn

More detailed information about the identification of the 24 Focus Sites is provided in Annex 5.

²¹ Upon commencement of the legislation in Wales Skomer Marine Nature Reserve will become known as Skomer Marine Conservation Zone. Skomer's inclusion in this project does not necessarily mean that it will become a highly protected site. This Project does however provide an appropriate mechanism to consider Skomer's role as a MCZ, its contribution within the wider MPA network and whether it merits a higher level of protection, allowing appropriate conservation objectives and orders to be developed and consulted on with stakeholders.

Figure 4. Map showing the 24 Focus Sites

Focus Sites



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6.2 Identifying the Potential Sites (Stage 2)

As outlined in the site selection guidelines the TAG considered and refined the 24 Focus Sites to a smaller number of Potential Sites.

In doing this the first task for the TAG was to consider each site in turn on the basis of the ecological guidelines, which involved the TAG considering each site in terms of the number of habitats present plus its similarity and value in ecological terms with other sites nearby. In parallel to this the TAG also considered the need to represent a range of different types of site and to ensure reasonable geographical coverage.

To ensure representation of a range of different sites, the TAG grouped the sites according to their perceived character and an attempt was made to ensure that the Potential Sites included sites of different character. It should be noted that this categorisation was merely an aid to decision making and TAG members were fully aware that some of the sites may not fit well into their assigned categories, or may fall between different categories. Of these categories it was agreed that the following characteristics should be represented in the list of Potential Sites:

- Islands
- Mainland exposed and moderately exposed rock
- Sheltered coastal and sediment dominated areas
- Subtidal
- Estuarine influence
- Sabellaria alveolata reef habitat

Table 12 details how the sites were divided depending upon their characteristics.

Table 12. Focus Sites divided into different types by ecological and physical characteristics

Character of site	Site
Islands – large areas of wave-exposed and often tideswept bedrock but many sites also contain sediment habitats	Puffin Bardsey Ramsey Skomer Skokholm
Mainland exposed and moderately exposed rock – habitats may be similar to the ‘Islands’ category, although often slightly less wave-exposed and/or tideswept	Great Orme Porth Nobla SW of Strumble Head North Llyn
Sheltered coastal and sediment dominated areas – although generally also contain rocky habitats	Menai Strait Tudwals Llanbedrog Traeth Afon Wen Dale Milford Haven Pembroke
Areas with estuarine influence	Whitford Point Severn Beggars Reach
Subtidal / Non coastal – areas with no intertidal component, generally sediment habitats	North Anglesey Cardigan New Quay

Honeycomb worm (<i>Sabellaria alveolata</i>) reef habitat	S of Aberystwyth Aberthaw
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The TAG decided to remove 10 sites from consideration in the process for reasons of low habitat heterogeneity or because the site was similar in character but thought to be of lower value (in ecological terms) to another similar site nearby.

The sites that were removed are:

1. North Anglesey
2. Great Orme
3. Porth Nobla
4. South of Aberystwyth
5. Cardigan offshore
6. Skokholm Island
7. Whitford Point
8. Aberthaw
9. Severn
10. SW of Strumble

In line with the site selection guidance the TAG recognised that it may be necessary to revisit some, or all, of these sites later in the process.

Of the 14 remaining sites the TAG recommended that some be combined into a single site - the 4 sites in Milford Haven were combined and that Tudwals site and the Llanbedrog site were combined.

The result was a list of 10 Potential Sites based on the ecological assessment :

1. Puffin Island
2. Menai Strait
3. North Llyn
4. Bardsey Island
5. Tudwals and Llanbedrog

6. Traeth Afon Wen
7. New Quay offshore
8. Ramsey Island
9. Skomer Island
10. Milford Haven combined

A summary of the TAG's decisions and recommendations for each site is provided in Table 13.

Table 13. Summary of the TAG's discussion for each of the Focus Sites.

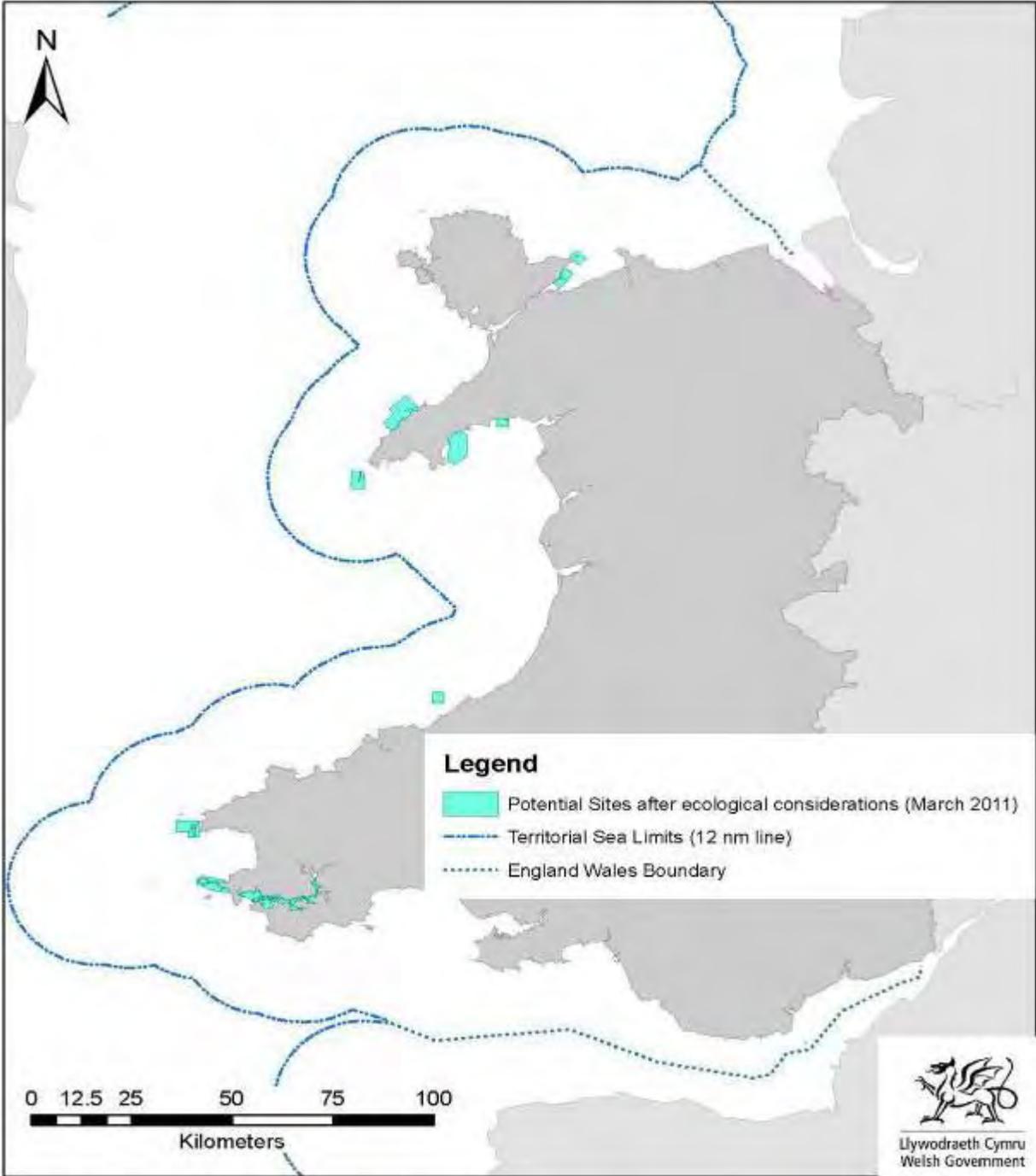
Site	Summary of discussion	Potential Site
1. North Anglesey	Removed due to low habitat heterogeneity and having been selected for a single habitat (<i>Modiolus</i> bed)	No
2. Great Orme	Removed due to low habitat heterogeneity. Also thought to be fairly similar to Puffin Island but the latter considered to be the better site (with higher habitat heterogeneity)	No
3. Puffin Island	Site was considered important for spatial coverage (it is a north coast site) and contains a variety of habitats.	Yes
4. Menai Strait	Site was included due to medium habitat heterogeneity. However, there were some concerns over integrity of the site due to exclusion of part of the intertidal (e.g. Traeth Lafan) resulting from permanent modification by sea defences.	Yes
5. Porth Nobla	Removed due to perceived similarity and proximity to North Llyn, with the latter thought to be a better site, as it has higher habitat heterogeneity.	No
6. North Llyn	Site included due to high habitat heterogeneity.	Yes
7. Bardsey island	Site included due to high habitat heterogeneity.	Yes
8. Tudwals	Site included due to high habitat heterogeneity. The TAG recommended combining the Tudwals and Llanbedrog sites to a single site, as the two sites are close in proximity but contain some different habitats.	Yes
9. Llanbedrog	Site included due to high habitat heterogeneity. The TAG recommended combining the Tudwals and Llanbedrog sites to a single site, as the two sites are close in proximity but contain some different habitats.	Yes
10. Traeth Afon Wen	Site included due to medium habitat heterogeneity. This site is considered an alternative to the Tudwals/Llanbedrog site, with the intention that only one of the two (or neither) would finally be selected.	Yes
11. South of Aberystwyth	Removed due to low habitat heterogeneity and having been selected primarily for a single habitat (<i>Sabellaria alveolata</i> reef)	No
12. Cardigan offshore	Removed due to low habitat heterogeneity and also similarity and proximity to New Quay site. However, it was noted that this site may be an alternative to the New Quay site, if the latter is rejected at any point.	No

Site	Summary of discussion	Potential Site
13. New Quay offshore	Site included as the best example of a purely subtidal site.	Yes
14. SW of Strumble Head	Removed due to similarity and proximity to Ramsey and Skomer, with these two sites thought to be the better options, with higher habitat heterogeneity.	No
15. Ramsey Island	Site included due to high habitat heterogeneity. This site is considered an alternative to the Skomer site, with the intention that only one of the two (or neither) would finally be selected.	Yes
16. Skomer Island	Site included due to high habitat heterogeneity. This site is considered an alternative to the Ramsey site, with the intention that only one of the two (or neither) would finally be selected.	Yes
17. Skokholm Island	Removed due to similarity and proximity to Skomer, with the latter thought to be a better site, as it has higher habitat heterogeneity.	No
18. Beggars Reach	Included due to high habitat heterogeneity. The TAG recommended that the four sites in Milford Haven should be combined into a single site.	Yes
19. Pembroke	Included due to high habitat heterogeneity. The TAG recommended that the four sites in Milford Haven should be combined into a single site.	Yes
20. Milford Haven central	Included due to high habitat heterogeneity. The TAG recommended that the four sites in Milford Haven should be combined into a single site.	Yes
21. Dale	Included due to high habitat heterogeneity. The TAG recommended that the four sites in Milford Haven should be combined into a single site.	Yes
22. Whitford Point	Removed due to low habitat heterogeneity and having been primarily selected for a single habitat (blue mussel beds). It was also noted that this site is strongly terrestrially influenced and includes saltmarsh habitat. Many of the TAG felt that highly protected MCZ protection was not entirely appropriate for saltmarsh habitat.	No
23. Aberthaw	Removed due to low habitat heterogeneity and having been selected primarily for a single habitat (<i>Sabellaria alveolata</i> reef)	No

Site	Summary of discussion	Potential Site
24. Severn	Removed due to low habitat heterogeneity and having been primarily selected for a single habitat (seagrass beds). Also concerns over integrity of the site due to exclusion of part of the intertidal resulting from permanent modification by sea defences.	No

Figure 5. The 10 Potential Sites following ecological considerations

Potential Sites after ecological considerations



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6.3 Developing the First Iteration of Potential Site Options (Stage 3)

The next task for the TAG was to consider the 10 Potential Sites alongside certain incompatible activities that would present legal and/or physical constraints to a site being considered further in the process. The TAG also considered each of the 10 Potential Sites and as to whether they presented any clear conflict with major Welsh Government policies. The role of the TAG here being to identify the key constraints and conflicts with a view to either refining or excluding a site from further consideration.

The incompatible activities considered by the TAG for each site were:

Legal Constraints

- Several orders
- Dredging areas – aggregates
- Dredging areas – maintenance
- Disposal Sites
- Military activity
- Energy leases
- Other marine licences

Physical Constraints

- Windfarms
- Oil and gas facilities
- Cables and pipelines (significant and in need of regular access/maintenance)
- Harbour facilities, ports and marinas
- Subsea installations
- Shoreline constructions, including flood defences

Although all the above areas were considered to be permanently modified areas and were therefore excluded from the initial site selection, the TAG here considered adjacent areas to these developments.

All other incompatible and conflicting activity will be considered on a site by site basis later in the process – after the first consultation.

The TAG agreed that the following 7 sites be recommended for inclusion in the first iteration (without modification) as they do not present any legal or physical constraints, or policy conflicts:

1. Puffin Island
2. North Llyn
3. Bardsey Island
4. Tudwals and Llanbedrog
5. Traeth Afon Wen
6. New Quay offshore
7. Skomer Island

In addition the TAG agreed that the following 2 sites be recommended for inclusion subject to modifications to avoid conflict with legal/ physical constraints:

- **Menai Strait** – to be included but excluding the area to the west of the site covering the mussel beds and currently under a Several Order.
- **Milford Haven** – to be included but excluding all areas except for the Dale area to the western edge of the site, as this area presented minimal conflict with ongoing activities. The Milford Haven port area and the areas further up the estuary presented many conflicts (legal and physical) to warrant further consideration. In addition a key consideration was ensuring that the operation of the port was maintained including the role it plays in energy security – and the potential role it might play in offshore renewable energy developments.

Due to a clear conflict with Welsh Government policy ambitions for marine energy and the planned deployment of a submerged renewable energy device the TAG agreed to recommend that the **Ramsey Island** site be **excluded** from further consideration.

The need to secure renewable energy generation and a diverse energy mix is stronger than ever. The Welsh Government is determined to play its part and is looking at all possible technology options to exploit our renewable energy resources.

In March 2010, the Welsh Government published its Energy Policy Statement which suggests that with sufficient innovation and investment, the right policy framework and public support, Wales could generate twice as much electricity from renewable sources as we consume as a nation by 2025 with wave and tidal energy playing an important role in helping the Welsh Government reach its targets.

Last year we published the results of the Marine Renewable Energy Strategic Framework (MRESF) which investigated the practical marine energy resource from our seas. The assessment confirmed that even when the various environmental, socio-economic and technological constraints are taken into account, there is still the potential for Welsh waters to produce enough energy to power up to two million homes per year. The project identified the waters in and around Ramsey as a preferred area for renewable energy development and we will be working with The Crown Estate to open the seas around Wales for commercial deployment of marine renewable energy devices based on the outcomes of the MRESF and our Marine Energy Infrastructure Study.

In 2012/13 Tidal Energy Ltd will be deploying a full-scale tidal energy demonstrator in Ramsey Sound. The fully consented £12m project received £6.4m from the Welsh Government via the EU Convergence Fund Programme towards early feasibility studies and the manufacture and installation of the device.

As a consequence of Ramsey Island being excluded from the process the TAG reconsidered the site SW of Strumble Head for inclusion in the first iteration. The site SW of Strumble Head had previously not been selected as it was considered to be similar to the site at Ramsey Island with the Ramsey Island site being a better example with higher habitat heterogeneity. The TAG

agreed that the site **SW of Strumble Head** should be reinstated as a Potential Site on grounds that it is a like for like substitute for Ramsey Island.

The 10 Potential Sites options recommended by the TAG for the first iteration are listed below. The site names have since been refined to more accurately reflect their location as a result of indicative boundary drawing.

The 10 Potential Site options recommended for the first iteration:

1. Puffin Island
2. North East Menai Strait (previously known as Menai Strait)
3. North Lleyn Peninsula (previously known as North Llyn)
4. Bardsey Island
5. Tudwals Island East and Llanbedrog (previously known as Tudwals and Llanbedrog)
6. Mouth of the Dwyfor (previously known as Traeth Afon Wen)
7. New Quay Offshore
8. South West of Strumble Head
9. Skomer
10. Dale

PART 7 - THE DATA USED FOR THIS PROJECT

The site selection guidance sets out a number of ecological guidelines for the selection of the initial Focus Sites. This required that data were collated and used in order to complete the site selection exercise, in particular that the Focus Sites should adhere to the following:

- 21 broadscale habitats should be represented within the Focus Sites
- 15 other important habitats should be represented within the Focus Sites
- Areas of high productivity should be included in the Focus Sites
- Permanently modified areas should be avoided

The data sources for each of these (and other features) are described in more detail in Annex 6. A summary is provided below.

7.1 BROADSCALE HABITATS

The site selection guidance provides for protecting a range of habitats in Welsh waters to provide the maximum ecological benefits and the contribution each site makes to ecosystem recovery and resilience. Relatively broadscale habitats were chosen to represent this as they represent meaningful biological groups (such as splitting rock into different energy levels) and do not go to a level of detail that would be difficult to work with. The broadscale habitats used in this process are listed in Table 14 and have been derived from the EUNIS²² and JNCC biotope²³ classifications.

Table 14. List of broadscale habitats

Broad scale habitats

High energy intertidal rock

Moderate energy intertidal rock

Low energy intertidal rock

²² Based on level 3 of the EUNIS classification.

²³ Biotopes are a classification of benthic marine habitats in terms of seashore and seabed habitats and their associated communities of species. More information is available from:

<http://jncc.defra.gov.uk/default.aspx?page=3073>

Intertidal coarse sediment
Intertidal sand
Intertidal mud
Intertidal mixed sediments
Intertidal seagrass beds
Intertidal biogenic reefs
High energy shallow water rock
Moderate energy shallow water rock
Low energy shallow water rock
High energy deeper water rock
Moderate energy deeper water rock
Low energy deeper water rock
Subtidal coarse sediment
Subtidal sand
Subtidal mud
Subtidal mixed sediments
Subtidal biogenic reefs
Subtidal seaweed dominated communities on sediment

The data used

For the intertidal (i.e. the sea shore above spring tide low water mark) a CCW dataset was used; the Phase 1 intertidal mapping survey (see Annex 6). This was a detailed survey involving a team of surveyors identifying and mapping the habitats and biological communities throughout the entire intertidal area of Wales. This dataset has been validated and is considered to be a high quality robust dataset.

In the subtidal area (below the spring tide low water mark) a dataset was created by combining the outputs of a range of different surveys and projects. The starting point was the Marine Recorder database (see Annex 6), a marine biological database that holds information, including about habitat records, from a range of different surveys (in this case predominantly data collected by the Countryside Council for Wales, the Joint Nature Conservation Committee,

Seasearch²⁴ and the Environment Agency). This data is 'point' data, that is, information is assigned to a single point on the seabed, rather than to a defined area of the seabed (with a boundary around it). This data has the disadvantage that it provides no information about the extent of each habitat. To overcome this problem, various maps of physical data (e.g. water depth, seabed sediment type, tidal flow, wave exposure, salinity, water turbidity) were combined to create a map that was divided up into areas according to their physical characteristics. Then the habitat survey data, from the Marine Recorder database was overlain onto the physical data map and cells for which there was habitat survey data were assumed to be the habitat indicated by the survey results. The map that was produced as a result did not provide complete coverage of Welsh waters (because many of the cells created from the physical data were not assigned a habitat due to there being no habitat survey data available), with a higher density of survey points in shallower waters close to the coast. However, it was felt that it was preferable to use higher confidence data that did not provide complete coverage, rather than the alternative of using lower confidence data that was in many places based on the outputs of modelling and interpolation of data, rather than actual survey data.

7.2 OTHER IMPORTANT HABITATS

These are included in addition to the broadscale habitats because of the important role they play in the ecosystem. The other habitats used in this process are listed in Table 15.

Table 15. List of important habitats

Other important habitats

Blue mussel (*Mytilus edulis*) beds
Horse mussel (*Modiolus modiolus*) beds
Honeycomb worm (*Sabellaria alveolata*) reefs
Maerl beds
Oyster (*Ostrea edulis*) beds

²⁴ Seasearch is a survey programme co-ordinated by the Marine Conservation Society on behalf of a National Steering Group and undertaken by trained volunteers

Fragile sponge & anthozoan communities on subtidal rocky habitats
Seagrass beds
Intertidal boulder communities
Intertidal mudflats
Sheltered muddy gravels
Tide swept channels
Mud habitats in deep water
Subtidal mixed muddy sediments
Subtidal rock with Ross 'coral' <i>Pentapora fascialis/foliacea</i>
Sediment habitats with long-lived bivalves

The data used

Data for the important habitats were compiled from a variety of sources. In the intertidal area the main dataset used was the CCW Intertidal Phase 1 mapping survey. In the subtidal area the data was generally from the Marine Recorder database (as described in the previous section). For some habitats other datasets were also used, for example, multibeam or sidescan bathymetry datasets (collected by CCW, universities and/ or industry) for horse mussel bed habitat and subtidal mapping surveys of seagrass beds (completed by CCW).

7.3 AREAS OF HIGH PRODUCTIVITY

These areas are included as they contribute more in terms of biomass of larvae and throughout the food chain to support ecosystem function and ecosystem services than those that are less productive.

The data used

Three datasets were used to indicate areas of high productivity as currently there is no one data set that provides a single map of benthic productivity (that is, the production of animal and plant matter on the seafloor). These were:

- Persistent thermal fronts – a map showing areas of persistent thermal fronts (areas where different temperature water masses meet; that typically have higher productivity and biodiversity) was produced by a

Defra-led project that used oceanic thermal fronts from earth observation data as proxy for pelagic activity.

- High benthic primary productivity (production of algae and/or seagrass on the seabed) - a map was created by CCW to show areas of the seabed which are dominated by plant communities (e.g. seaweed dominated shores, kelp forests, seagrass beds). These areas were defined using the CCW intertidal Phase 1 datasets and the subtidal broadscale and important habitats dataset, as described above.
- High Chlorophyll concentrations - to determine areas with high levels of Chlorophyll (which indicates high production of plant matter (phytoplankton) by photosynthesis in the water column), a series of maps published by SeaWiifs²⁵ were examined by CCW and areas that appeared to have consistently high levels were drawn on maps.

7.4 PERMANENTLY MODIFIED AREAS

The site selection guidelines outlines that “Areas that have been permanently modified in some way, with a very low potential to ever return to a natural or semi-natural state (e.g. areas with large amounts of artificial structures, or areas with major problems with invasive non-native species) should be avoided, or in many cases, excluded”. This was interpreted as areas that have been modified to an extent that they would not recover within a timescale of roughly 50 plus years. It also includes areas where there are fixed point impacts that will be continuing for the foreseeable future (e.g. discharges).

The data used

Data was collated from a wide range of sources, including the CCW Phase 1 intertidal survey (which recorded artificial structures on the shore, in addition to mapping habitats), aerial photography (COWI 2006) and Seazone data, to identify areas of artificial substrata. This includes information about structures such as windfarms, cables and pipelines, jetties, harbours, sea walls, groynes,

²⁵ See A6.3 in Annex 6

etc. In addition the Environment Agency supplied information relating to discharges.

7.5 OTHER DATASETS

The above datasets were all used in order to select the initial Focus Sites. In addition to this there were several factors that were identified in the site selection guidelines as secondary considerations, including the presence of invasive non-native species, areas important for mobile species (e.g. fish, seals, dolphins and porpoises, birds) and less mobile species that are considered to be of conservation concern (e.g. rare and/or threatened species such as pink sea fans, native oysters). These datasets were not used for site selection but do provide additional information for each site.

7.6 ASSESSING DATA CONFIDENCE

The TAG has undertaken an initial assessment of the data used to select the Focus Sites. The purpose of this was to inform the TAG discussions and to enable comparison of similar sites on the basis of confidence of the underlying data.

Assessing data confidence for the Focus Sites

Sites were selected as Focus Sites largely on the presence of broadscale and important habitats and areas of high productivity. For each Focus Site an assessment was made of the confidence in the presence of the broadscale habitats, important habitats and areas of high productivity that were listed for the site. This included a count of the number of data points for each habitat, plus an assessment of the quality of each of those data points (based on factors such as the accuracy of the positioning system used, the experience of the surveyors and the quality assessment procedures in place for the survey).

For the current list of Potential Sites this assessment indicated that confidence is good for the majority of the sites.

A further confidence assessment will be undertaken for the second iteration of potential sites. The assessment process to be used for evaluating the data

confidence for the sites will be further developed by the TAG, particularly in the light of developments in assessment of data confidence for the Defra led MCZ projects.